News

No. 93

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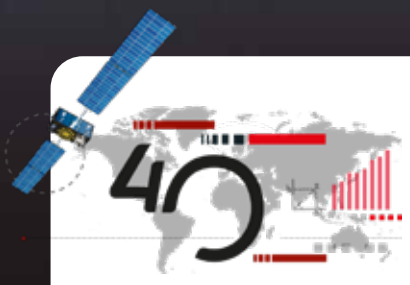
INNOVATING SOLUTIONS

King Felipe VI visits GMV

INTERVIEW
Pau Gasol
Basketball star, consultant, and investor



ARTICLE
From dreaming about space to building the future: 40 years challenging the impossible

FEINDEF 2025

GMV will take part in the International Defense and Security Exhibition of Spain, FEINDEF 2025, the leading defense event in the country. It will bring together over 500 companies and official delegations from 65 countries, making it a key space to address current security and defense challenges, promote dialogue among industry stakeholders and showcase technological innovations that will drive the sector's evolution in the coming years.

Join us from May 12 to 14 at IFEMA at booth 10E07.

Come and visit us!

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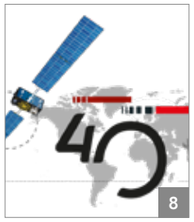
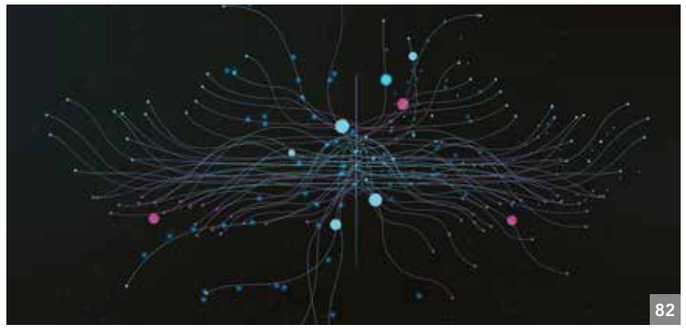
CONTENTS





Letter from the CEO

In 1984, the year GMV was founded, Prof. Juan J. Martínez García asked me to go to the ESA Operations Centre in Darmstadt, Germany as a visiting scientist, and I was delighted to accept. On my return to Spain, I joined GMV in its early days, when it was just a small university spin-off. We were a handful of highly motivated young engineers with a passion for a job well done, and we all embraced the great goal that our founder had set for us: the goal of becoming a leading technology company. Our founder dreamed of "GMV one day becoming a company with 100 engineers."

Forty years on, GMV is now a technology multinational company with over 3,500 professionals, a turnover of over $500 million last year, a presence in over 80 countries on five continents, and subsidiaries in 12 countries in Europe, America and Asia. We've seen double-digit growth in the last decade, doubling the size of the company every five years.

But while numbers are important, what's even more important to us is our track record and the level of relevance and responsibility we've achieved in our various fields. We're especially proud of our global reach in some of them and our role as prime contractor for large systems.

GMV has changed and evolved a great deal over these past forty years, but our core values are still the same as when we started out: technological excellence, innovation, quality, reliability, flexibility, competitiveness, long-term vision and, above all, commitment to our clients. We continue to have a global ambition and a clear mission: to create real value for our clients and society through the intelligent use of technology.

With 40 years under our belt, we can say without a doubt that our DNA and our mission have been the keys to our success, bringing us this far, driving us to go further, and giving us the confidence that we have a bright future ahead of us and that we will achieve our dreams.

Jesús B. Serrano

Letter from the president

They say that to know where you're going, you must never forget where you came from. Forty years ago, my father, along with a small group of young engineers, set out to prove that talent, paired with determination, could carve a path and compete at the highest level. Today, GMV is a global leader, designing technologies that reach into space, managing satellite constellations, safeguarding critical infrastructures with advanced cybersecurity, reinforcing European defense, integrating drones into European airspace, driving mobility, guiding autonomous vehicles with AI, promoting sustainability, and contributing to saving lives. We're celebrating 40 years of talent, bold innovation, and mutual trust. Four decades of navigating challenges, seizing opportunities, and growing with resolve, always guided by one clear vision: creating technology that addresses human challenges and improves lives.

We are not just a company that adapts to change: we anticipate it, drive it, and turn it into opportunity. From our beginnings in the space sector to becoming a global player in space, defense, cybersecurity, transportation, digital transformation, and satellite navigation, every step has been a declaration of intent: to innovate with purpose. At the heart of every breakthrough lies what truly defines us: the talent, passion, and commitment of the people who make up GMV.

The best part of turning 40 is that we no longer need to promise we'll rise to the occasion – we know we will. Our history speaks for itself. But we also know that the future isn't inherited – it's built. And we are more prepared than ever to lead the way.

Thank you to those who have made this journey possible. And to those who, with us, will continue to pave the way forward.

Mónica Martínez

From dreaming about space to building the future: 40 years defying the impossible

After celebrating four decades of innovation and growth in 2024, GMV is looking to the horizon with the same enthusiasm as when it signed its first contract and the certainty that there are no frontiers

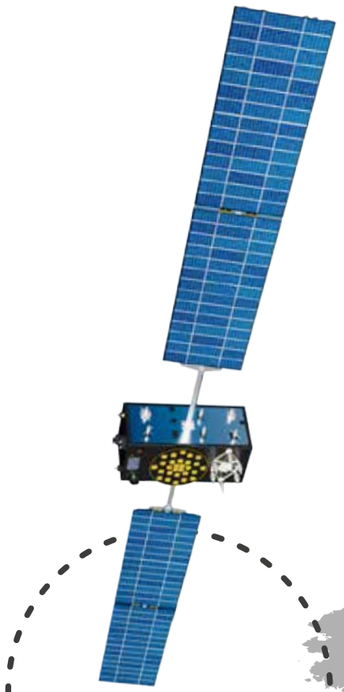
1984

History is marked by visionaries who transformed the improbable into reality, who were determined to defy limits to conquer dreams that seemed reserved for others. In 1984, in the classrooms of the Polytechnical University, Juan José Martínez García dreamed of taking his passion for space beyond theory. Starting out as a university spin-off in the Flight Mechanics Department at the Polytechnic University of Madrid, GMV grew with the ambition to explore the unknown. Today, it is a multinational company present in twelve countries, with more than 3,500 professionals who, with their talent and vision, are leaving an indelible mark on scientific and technological progress.

GMV's commitment to excellence and its desire to always go one step further have led it to take part in projects of considerable global impact, consolidating its position as a key player beyond space. Its ability to stay ahead of market changes and respond with innovative solutions has made the company a leader in areas like defense and security, where it now holds a leading position in Europe; in cybersecurity, with more than 30 years of experience in protecting the technological infrastructures and systems of large organizations; and in the field of intelligent transport systems, where, in addition to its global presence, it is participating in redefining the future of mobility.

GMV's legacy in the technology industry is undeniable and has reinforced the "Spain brand," crossing borders and making its mark on the global technology scene. This was acknowledged by His Majesty King Felipe VI during his visit to GMV's headquarters to mark the company's 40th anniversary, when he congratulated GMV's professionals “on this growing and inspiring success, which shows how much can be done from and in Spain for the world in cutting-edge technology sectors.” From Spain, and crossing borders, GMV has achieved major milestones in innovation and technology: it leads the technology behind Galileo, promotes intelligent transport systems, strengthens satellite communications, and plays a fundamental role in major European defense programs. Its brand has broken all boundaries, establishing itself as a global group with a vision to remain a global leader in technology.

Professor Juan José Martínez



FROM THE UNIVERSITY TO MARS

The company's first contract with ESA's ESA Operations Center (ESOC), in 1984, was the starting point for significant later milestones, such as GMV's participation in ESA's manned flight programs, the Hermes launcher and the Columbus orbital station, and its first contract with Hispasat to develop the Spanish operator's first satellite in 1991. GMV is a symbol of excellence backed up by a long list of milestones that make the group a leading player in the European space sector and a worldwide leader in areas such as space mission planning and control systems, use of earth observation data and guidance, navigation and control (GNC) systems, among others. The company's key participation in EGNOS since 1995 has given GMV a leading role in satellite navigation in Europe, making the group a European leader in the development of GNSS systems.

GMV's excellence is reflected both in its numbers and its achievements: it is one of the world's leading providers of satellite control centers, with over 900 satellites incorporating its technology. In addition, the company actively participates in cutting-edge programs that are shaping the future of space exploration and technology. GMV is a pioneer in the development of GNSS systems and a leader in key areas such as ground segment, avionics, and guidance, navigation, and control systems, as well as in the development of robotic technology in Europe. Its innovations are present in the Galileo program, where the company has been involved since the beginning, helping establish it as a global benchmark in satellite navigation. GMV is also a key player in SouthPAN, the ambitious initiative by Australia and New Zealand to advance in this field. Moreover, GMV plays a leading role in Copernicus, the European Union's Earth observation program, and heads an international consortium in ESA's Hera mission, taking charge of the GNC system design and development, mission analysis, and other activities.

But GMV's mark does not stop there: it extends to flagship missions such as Mars Sample Return, ExoMars, and Proba-3, as well as space traffic management, a crucial field in which the company develops essential technologies for infrastructure protection and the sustainability of the space environment, further consolidating its global leadership.

The words of the Minister of Science, Innovation and Universities, Diana Morant, also speaking to mark the company's 40th anniversary, attest to GMV's commitment to excellence and innovation: "GMV has come to symbolize our collective commitment to innovation, exploration, and discovery. Forty years ago, it began its journey with the disruptive talent typical of start-ups and now, it has reached maturity as a leader in the space industry [...] GMV has a wealth of technical knowledge and, of course, curiosity is also an important part of this desire to always go one step further."

DIVERSIFICATION AND EXCELLENCE: THE PILLARS OF UNSTOPPABLE GROWTH

Curiosity and the need to explore the unexplored led GMV to take steps beyond space. As the director of the Spanish Space Agency, Juan Carlos Cortés, noted, "GMV's track record is a story of innovation, growth, and commitment to technological excellence. from its earliest days as a startup created by a small group of engineers, until reaching its current status as a multinational tech firm with a leadership position in multiple fields. Clearly, GMV has already had a significant impact on the technology sector.

Diversification and technology transfer have been the main drivers of growth for the group, as demonstrated by its achievements in areas such as defense, where GMV began its efforts in 1989, just five years after its creation, and whose track record has made it a preferred partner with extensive participation in European projects.

GMV's firm commitment to developing cutting-edge technology to strengthen the capabilities of armed forces and security agencies in the current geopolitical context is clear. The company is, in fact, a leader in developing ISR (Intelligence, Surveillance, and Reconnaissance) solutions within the NATO framework, and stands out as a key player in command and control systems as well as in the deployment of border surveillance technologies. In the field of aeronautics, GMV's developments have played a leading role in improving navigation, flight control, mission management, and avionics systems, consolidating its position as a strategic technology provider. The company actively participates in major aeronautical programs such as FCAS/NGWS, Eurodrone, and SIRTAP, contributing to the advancement of innovative solutions that reinforce the strategic autonomy and competitiveness of the European aerospace and defense industries.

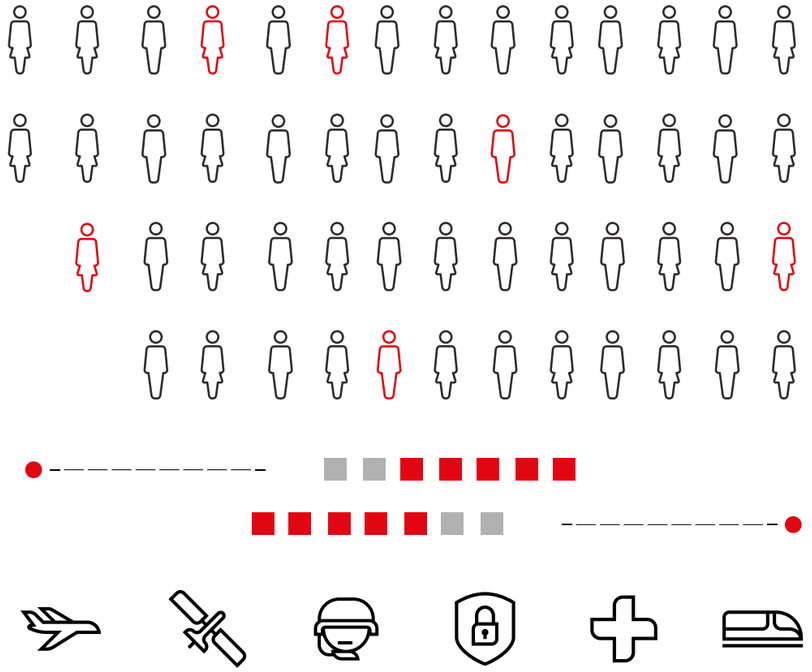
GMV's GPS experience laid the foundations for the intelligent transport systems area. Today, it is one of the leading companies in this field, and its contribution has resulted in a significant improvement in mobility. GMV's solutions have made a breakthrough in public transport in many countries, promoting efficient mobility alternatives.

In 2023, GMV reached a new milestone in this area by signing a major contract in Westchester, New York (USA) to implement a new system for managing and operating its bus fleet. Space technology has greatly improved public transportation and has also contributed to connected and autonomous cars, which would not have been possible without years of work on GNSS-based positioning solutions that today provide centimeter-accurate, safe and reliable positioning for the autonomous vehicle.

This diversification displayed by GMV is also present in the field of cybersecurity. Since 1994, when GMV installed the first firewall system in Spain, its activity in the field of critical infrastructure protection has continued unabated, extending also to satellite navigation systems, where it is actively participating in the protection and monitoring of the cybersecurity system of the Galileo satellite constellation, playing a key role in the development of critical technologies and systems to guarantee the integrity and resilience of the system.

In the field of large companies, the group has 30 years of experience in protecting technological systems of organizations and public administrations. GMV has also been at the technological cutting edge for years, providing cutting-edge solutions in areas such as artificial intelligence (AI) and quantum technologies. In the field of AI, the company develops and integrates machine learning algorithms and intelligent data processing applied to sectors as diverse as defense, healthcare, mobility and critical infrastructure management, optimizing processes, improving decision-making, and enhancing security. In the field of quantum technologies, GMV participates in strategic projects exploring the potential of post-quantum cryptography and quantum computing to address the cybersecurity challenges of the future. All this while continuously adapting its capabilities and services to a constantly changing global market, anticipating emerging technological needs, and reinforcing its position as a leading innovative partner.

For over 40 years, the science and technology developed at GMV have been instrumental in facilitating many of our daily activities, generating a direct impact on society and creating that “invisible technology” that enables us to reach a specific destination or quickly browse the Internet. Space is everywhere, playing an increasingly important role in improving quality of life, social progress, and business efficiency.



LEADERS THANKS TO THE BEST TALENT

Right from the word go, GMV has been a talent engine driven by its firm commitment to hiring the best professionals to maintain its tradition of excellence. The group not only seeks to attract brilliant profiles, but also acts as a talent incubator in line with its strong links to the university world. This commitment has led GMV to collaborate closely with universities and educational institutions, promoting the development of future generations of technology experts who will continue to contribute to economic and social progress.

This commitment to talent can also be seen in the work culture, where curiosity, hard work, and creativity are core values. With a multidisciplinary and highly qualified team, GMV has not only consolidated its leadership but also expanded its international reach. The company's trademark ambition for challenges calls for people who are determined to tackle every challenge and take the company to the next level.

The people who make up GMV are responsible for milestones such as leading flagship programs for the European Space Agency, supplying complete control centers, participating in ambitious defense programs, and innovating public transport systems in Europe and beyond. Each of GMV's achievements has been a step forward on its path to technological leadership thanks to the joint efforts of its professionals. These same professionals were responsible in 2018 for GMV signing the largest contract ever awarded to a Spanish company in the space sector, for the maintenance and development of the Galileo Ground Control Segment, and in 2022, for the largest contract ever signed by a Spanish company outside the EU, with SouthPAN.

Pedro Duque, current president of Hispasat, former Minister of Science and Technology, and astronaut, received the impetus at GMV that later made him fly higher. He also expressed this on the company's 40th anniversary: I witnessed the founding of GMV firsthand as an intern in 1984 in Juan José Martínez García’s laboratory. When I came onboard, there were five or six of us. From the start, the entrepreneurship we now associate with startups was front and center: the goal was to get top talent excited, dare to do it all, dream big, evolve fast. I only left GMV to fly higher, and I am proud to see what a great company it has become.

Pedro Duque's words perfectly sum up the spirit of GMV: aiming for the highest, developing quickly, and always

Excellence

doing so with an innovative vision, the talent of the best professionals and the determination to turn every challenge into a new opportunity to grow and build the future.

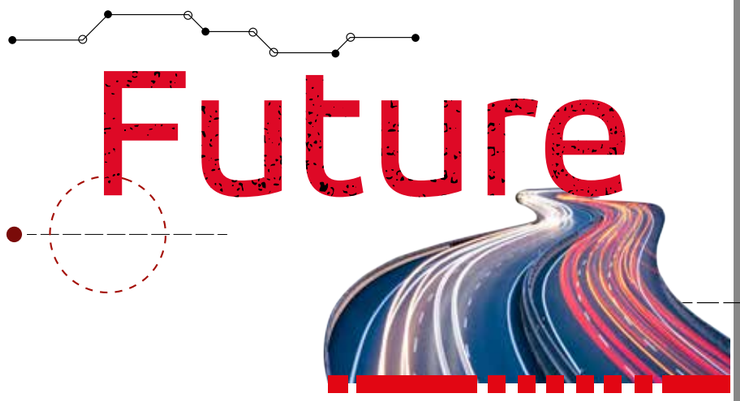
A LEGACY THAT INSPIRES THE FUTURE

GMV's achievements in its 40-year history are only the beginning of a promising future. Far from resting on its laurels, the company faces the future with the same pioneering spirit that has placed it at the forefront of technological development. GMV's participation in the development of LEO-PNT, essential for navigation in low Earth orbit, and in the GOVSATCOM Hub, a fundamental component of the European Union's government communications program, strengthens its presence in highly relevant strategic projects. In the space sector, GMV aims to consolidate its position as a global leader in PNT technology, strengthening its leadership in the development of the navigation ground segment and expanding into new strategic markets. The company also faces major challenges, such as orbital congestion, the transformation of the satellite communications market, and the rise of New Space. GMV is working to remain a leading player in areas such as Earth observation and the flight segment, where it seeks to continue creating innovative solutions, without losing sight of the development of space robotics technologies focused on autonomous decision-making systems to ensure safe and sustainable space missions.

The company is also making ambitious strides in the field of intelligent transport systems, seeking to set the global pace with disruptive technologies that redefine mobility and transport efficiency. But beyond space and mobility, GMV will continue to lead the digital transformation in strategic sectors such as the public, financial, insurance, healthcare, industrial, and services sectors, promoting innovative solutions that optimize their efficiency and security.

All this while remaining a leader in the other areas where it operates, such as defense and security, where GMV seeks to continue being a key player, implementing the security strategies of the main European countries, or cybersecurity and information technologies, areas in which the company aims to continue strengthening its capabilities, advancing in the digital transformation of all types of organizations and leading the development of cutting-edge technology.

GMV's success, based on talent, excellence, and a passion for innovation, points to a future in which it will not only strengthen its market position but go even further, redefining the limits of technology and innovation. This is how GMV's president, Mónica Martínez Walter, sums it up: "We will continue to work with determination and rigor, focused on our positive impact on society, remaining true to our legacy and our values. We aspire to be an active part of the major technological advances that will transform Spain and the world in the coming years, and, to this end, we will continue working to expand the limits of what is possible, determined to meet and exceed all expectations placed on us."



GMV's sector-specific managing directors share their vision for the future of the company below. Despite the diversity of sectors where it operates, they all agree on one thing: the importance and relevance GMV has acquired in the field of technology. The journey, they say, does not stop here. The challenges GMV faces in the coming years are ambitious, and the company is ready to tackle them with the same passion, excellence, and commitment that have brought it to where it is today.

Miguel Romay
Satellite Navigation Systems General Manager

GMV's 40 years in satellite navigation: a journey of innovation and challenges

Celebrating GMV's 40th anniversary is a moment of profound excitement and pride. These four decades have been full of unforgettable memories, momentous milestones, and, above all, the privilege of having worked with an exceptional team. If anything defines GMV, it is its people: professionals of unparalleled talent, whose passion and commitment have been central to our success. Even after so many years, it is still amazing to see the energy and enthusiasm we bring to each new challenge, no matter how complex. Our team's excellence makes even the most ambitious goals achievable.

Thirty years ago, in 1995, Europe identified the need to play a strategic role in satellite navigation. This led to the launch of the GNSS-1 and GNSS-2 programs, which later developed into what we know today as EGNOS and Galileo, respectively. From the outset, GMV played a crucial role in defining and developing these systems, focusing on critical aspects such as the design of the constellation and the precise calculation of orbits and clocks. Today, GMV is the European leader in the development of GNSS systems, actively participating in almost all aspects of the GNSS ecosystem.

GMV's first steps in satellite navigation were taken in the late 1980s, when GPS and GLONASS were still unknown systems to most people. From that moment on, GMV began to experiment with receivers and explore their possible applications. A fundamental milestone was the vision of GMV's founder, Juan José Martínez García, who identified the enormous potential of GNSS in the aeronautical sector at an early stage. At the same time, GMV also recognized the importance of GNSS in space and geodesic applications, where precision in the calculation of orbits and satellite clocks became a key factor.

In its 40-year history, GMV has gone from discovering satellite navigation to leading its development. If you ask me what the next steps are to consolidate this leadership, I would say that GMV is already moving in that direction. The company is currently leading the complete development of a satellite navigation system. GMV is at the forefront of the LEO-PNT demonstration project, overseeing the entire space mission and aiming to lead its development into an operational system. Furthermore, GMV aims to become a world leader in SBAS systems for aeronautical applications, a world-class manufacturer of PRS receivers, a leader in the provision of high-precision GNSS products and services, to consolidate European leadership in the development of the navigation ground segment and to expand into adjacent markets such as precise time generation and distribution and air traffic management (ATM).

The final objective is clear: GMV wants to establish itself as the worldwide brand of reference in PNT (Positioning, Navigation and Timing) technology. To achieve this, we combine our technical potential, leadership capacity and technological excellence that allows us to face any challenge. The key to our success lies in the excellence of the GMV team, backed by a solid strategy and solid investment in R&D&I.

The satellite navigation market is booming. The new generation systems will be multi-constellation and will integrate various signals to ensure greater resilience. If the last 40 years have been exciting building the present, the coming years will challenge us with an even more exciting task: building the future of satellite navigation.

Enrique Fraga

Space Systems EST General Manager

Four decades of innovation and leadership in Earth observation, exploration, science, space security and telecommunications

Talking about GMV's 40 years gives me enormous respect. It is amazing what has been achieved from that group of engineers who started with mission analysis to what we are today. When I joined GMV 23 years ago, I never imagined that one day I would have the responsibility of heading up the EST Space Systems area. Currently, as general manager of the area, I have witnessed the impact and transformation of the company in an increasingly demanding and competitive industry.

The EST (*Earth Observation, Exploration, Science, SST, Telecom, Transportation*) Space Systems area has been critical in this development. With a combination of cutting-edge technology, talent, commitment, and passion from those who make up this area, GMV's driving force, we have achieved incredible feats: world leaders in satellite control centers, European references in the development of guidance, navigation, and control systems for complex missions and laying the foundations for leadership in security and space traffic management. In the coming years, GMV plans to consolidate its leadership and expand in strategic areas.

In the ground segment, we have continued to strengthen our position in control centers in both telecommunications and earth observation systems. Our participation in GOVSATCOM, Copernicus, as well as our collaboration with EUMETSAT and ESA, has established us as a unique reference in this area, including satellite data processing and emergency response services.

Moreover, in the flight segment, one of the company's fastest growing areas, we have developed innovative systems. From complete avionics hardware and software for micro launchers to *In-Orbit Servicing* (IOS), *Active Debris Removal* (ADR), *In-Orbit Assembly* (IOA), and *Refueling systems*. Our world leadership in the area of guidance, navigation, and control (GNC) is undisputed (Proba-3, Ramses O and we are laying the foundations to lead complete missions (LEO-PNT and CyberCUBE).

In the user segment, GMV is driving innovation to generate social impact and contribute to the SDGs. We lead the climate resilience and agriculture groups in ESA's Global Development Assistance program. And, as part of Copernicus, we provide critical services in emergencies and security, strengthening sustainability and global protection.

In the area of autonomy and robotics, as the sector moves towards robotic exploration, GMV is reinforcing its leadership and is currently developing critical autonomous decision systems for both commercial and interplanetary missions, guaranteeing safe and efficient operations in extreme environments. On the other hand, cybersecurity and artificial intelligence in space are a priority for us, so we have been investing in it for some time now for threat detection and the protection of space assets.

The challenges facing the sector include expansion in space telecommunications, disruption in the SATCOM market, orbital congestion, and strategic autonomy. We will face these challenges with robust and reliable technologies. In addition, advances in science and space exploration open up a promising outlook. The growth of New Space also offers opportunities in the manufacture of light satellites and the integration of new generation platforms. Together with Alén Space we are prepared to face strong growth, both in small satellites and in launcher subsystems, software-defined payloads and on-board navigation systems.

In these 40 years, our success has been based on talent, excellence and a culture of customer focus, supported by our capacity for innovation and adaptability. In the coming years we will undoubtedly consolidate our current leadership, with a clear aspiration to go further.

Luis Fernando Álvarez-Gascón

Secure e-Solutions General Manager

Four decades of innovation, three of them in cybersecurity and the digital transformation

At the end of the 1990s, I had the opportunity to read the essay "The Living Company", written by Arie de Geus. In it, the former Royal Dutch Shell executive summarized his analysis of the factors that had sustained the longevity of some century-old companies. Essentially, he identified four: the ability to adapt to the environment, cohesion and a solid identity, tolerance of new ideas, and financial conservatism.

Looking back over GMV's 40-year history, I believe that our trajectory is in line with that pattern. After a brilliant start, fundamentally in the aerospace sector, the first economic crisis we faced in 1992 stimulated the move into new markets, with new ideas. From that challenge came the opportunity to become, through what we then called Soluciones Globales Internet (SGI), one of the first providers of specialized services in the field of the Internet.

Few companies can boast a 30-year track record in cybersecurity and in the deployment of solutions for what we would now call the "digital transformation." Our path is marked by milestones that attest to our pioneering nature both in the implementation of cybersecurity technologies, organization (management systems, managed services), and in the development of our own solutions (e.g. ***Checker ATM Security®***, ***Gestvul***). With the name "Secure e-Solutions" we wanted to describe this comprehensive proposal, which had cybersecurity as its backbone but has been built on the different enabling technologies that have been maturing over the years (mobility, cloud, data analytics, etc.) and the ones that are in the process of evolution, most notably artificial intelligence (AI) and quantum technologies. Moreover, in recent years, considerations of sustainability and regulatory compliance have taken on special importance.

We have worked consistently to ensure that the range of services and solutions we offer are at the forefront of ever-changing demands, shaken by crises of various kinds over the years. We have also followed the challenging and exciting path of internationalization, starting from a purely Spanish customer base. A very important aspect of this journey has been to complement the capabilities of other GMV colleagues, especially in cybersecurity for the space sector.

At Secure e-Solutions, we approach the coming years with the aim of building on what we have achieved and continuously innovating in our areas of expertise. All this to continue growing at double-digit rates, with a clear international focus. Cybersecurity presents new challenges on a daily basis, both due to the development of the technological platform and the threat posed by a wide range of attackers. We will continue to strengthen our capabilities in 24/7 managed services from our CERT, improving our capacity for prevention, monitoring, detection, and response thanks to automation based on the intensive use of data and artificial intelligence. We have already begun to deploy solutions based on the use of quantum technologies, and we will undoubtedly see growth in this area. We will advance in the digital transformation of sectors such as the public sector, finance, insurance, healthcare, industry and services, leveraging the massive use of data with security and privacy protection (PET) technologies and AI. This growth means and will mean even more intensely in the future a challenge in the field of talent: attracting and retaining a growing team well-trained in such dynamic areas of knowledge. We will pay special attention to this chapter as the foundation of our competitiveness.

Imagining GMV beyond a decade, in such a changing environment, is far from trivial. But it is easy to be confident that if we remain faithful to the pillars of our success we will have by then a much bigger, more international project that continues to lead in its fields of specialization due to its innovation and capacity to serve clients, attracting the best talent from our universities and supported by the best technology. We have no ceiling and a world of opportunities ahead of us.

Miguel Ángel Martínez Olagüe

Intelligent Transportation Systems General Manager

Intelligent transportation systems, 40 years of a path blased by innovation and excellence

Since its founding, GMV has been synonymous with innovation, vision and technological leadership. Over the last 40 years, we have grown tremendously, consolidating our position as a leader in strategic sectors such as space, defense, cybersecurity, and intelligent transportation systems (ITS).

In the mid-90s, with the pioneering spirit that characterizes us, we decided to apply our experience in satellite navigation to the transportation sector. This is how our ITS business unit came into being, a risky venture at the time, but one that has made us one of the five most important companies in the world in this sector. From our first major milestone, the Valladolid fleet management system, to our consolidation as a leader in Spain and as one of the three main companies in the sector in the USA , the path has been blazed by innovation and excellence. Our systems are currently in use in over a hundred cities on all five continents, from Los Angeles to New York in the USA, and from Madrid and Barcelona to Warsaw in Europe. In the USA, passing through Madrid, Barcelona or Warsaw in Europe.

Over the years we have expanded our product portfolio and now offer ITS ticketing solutions, operations management, passenger information, video surveillance, and more for buses, trams, trains, and subways. Since 2019, thanks to our collaboration with GMV's satellite navigation area and the rest of the company's business units, we have offered a unique product in the automotive market that is being used by BMW in its autonomous driving system.

Our ITS strategy stands out for being very selective in the products we offer and the target market segments. We specialize in a few areas with the aim of being able to go far. In fact, our goal is to be the world number one in these segments in terms of business volume, profitability and technological leadership. Thanks to this strategy of focus, since 2017 we have embarked on an ambitious program of productization of our offering and a change in business model from selling engineering and bespoke suits to selling product-based solutions, promoting a much more scalable high-recurrence growth model. Our competitive strategy is very clear: leadership in the total life-cycle cost of our systems thanks to excellence. We have made a major commitment in which we have had to redo from scratch all the legacy software accumulated over 20 years to incorporate state-of-the-art software engineering and renew our entire portfolio of embedded products, and now we are seeing the fruits of our labor, as we have a very competitive product portfolio that puts us far ahead for the coming years.

The numbers back up our potential: with a target market of more than 40 billion dollars, more than 4,000 clients and a pipeline of 700 million dollars in opportunities, we are in an unbeatable position for sustained growth of more than 10% per year. Our goal is clear: surpassing 200 million dollars in turnover by 2030 and consolidating our position as the undisputed leader in the sector.

Over the next 10-15 years, GMV will not only be a leader in ITS, but it will also set the course for the sector with disruptive technologies that will define the future of intelligent transportation. Our vision is ambitious, but we know we have the talent, experience, and capacity for innovation to make it a reality.

The future of intelligent transportation is being written, and GMV is destined to be the main character in this story.

Manuel Pérez Cortés

Defense and Homeland Security General Manager

Forty years contributing to European security and defense

Since its foundation in 1984 as a modest university working group, GMV has become a leader among Spanish technology companies in the defense and security sector. This growth has been marked by technological innovation, participation in strategic projects in Spain and contribution to European autonomy in security and defense through European programs.

We develop advanced defense and security solutions in various lines of activity with a focus on implementing systems with high added value proprietary technologies that improve the operational and strategic capacity of armed forces and security organizations. For example, our experience in C4ISR systems has improved the planning and execution of military operations with NATO-interoperable ISR and command and control tools that optimize situational awareness. GMV's border surveillance and maritime security solutions are also deployed by various users.

GMV is also a leader in military terrestrial, naval, and airborne positioning, navigation and timing systems, integrating GNSS technologies with inertial navigation and other positioning sources to ensure accuracy in hostile environments. In addition, we participate in all major aeronautical programs such as FCAS/NGWS, Eurodrone, or SIRTAP with innovative avionics solutions, certified to the highest level of criticality.

In cyberdefense, GMV protects critical infrastructure and military networks with advanced information security technologies, threat monitoring, and cross-domain systems to ensure the secure exchange of classified data. The acquisition of Autek has strengthened our capabilities in this area.

GMV's future in the defense and security sector looks promising and points to sustained growth thanks to our focus on technological innovation and our participation and leadership in strategic Spanish and European programs. We have demonstrated considerable capacity to adapt to the needs of the sector and this versatility positions us as a key player in the development of global defense.

Another crucial aspect of our development has been our strong commitment to autonomous systems and robotics applied to defense. The global trend towards automation and the use of unmanned platforms in military operations will allow us to continue innovating in this field, providing advanced navigation, artificial intelligence, and command-and-control solutions.

In the future, we will have to face challenges such as growing competition in the defense sector, the need to remain at the technological forefront and the consolidation of strategic alliances with other global players. However, I firmly believe that our track record of innovation, our participation in high-impact projects and our ability to adapt put us on an upward trajectory.

In 15 years' time, I see GMV as one of the major players in the European defense and security sector. Its growth will be driven by technological developments in areas such as artificial intelligence, quantum computing, command and control, cybersecurity, combat drones and unmanned ground vehicles, where the company already has a strong presence and will continue to be central to the security strategy of the major military powers.

Another sector in which we will be leaders is space and satellite defense, as the militarization of space is already a reality. I have no doubt that GMV will play a crucial role in the development of more sophisticated military satellite systems, with the capacity for threat detection, secure communication and geolocation resistant to electronic interference. Its collaboration with European and NATO defense organizations will enable it to advance in the development of security satellite constellations to improve global surveillance.

King Felipe VI visits GMV

On January 17, His Majesty King Felipe VI visited GMV's facilities and got a first-hand look at some of the company's most iconic and groundbreaking projects in its 40-year history.

Accompanied by Sara Aagesen Muñoz, Third Vice President and Minister for Ecological Transition and the Demographic Challenge, King Felipe VI was welcomed by GMV President Mónica Martínez Walter, along with the mayor of Tres Cantos, Jesús Moreno García, and members of GMV's management team.

Felipe VI's tour began with a speech by the president of GMV, Mónica Martínez Walter, who emphasized that the spirit of vocation for excellence that has characterized GMV since its beginnings is reaffirmed by the organization's commitment to a more sustainable, secure, and prosperous future.

His Majesty then visited the company's facilities and was able to see at first hand some of GMV's most iconic projects, starting with a presentation of the space and defense sector, strategic areas in which GMV has an outstanding presence.

During his tour, the King visited several of the company's most advanced facilities, such as the control room of the Galileo satellite constellation and the navigation laboratory for space operations (***Platform-art***©), a unique facility dedicated to the testing of guidance, navigation and control (GNC) systems for satellites and probes. This space is also used to validate critical technologies for space debris removal and in-orbit servicing missions. In addition, His Majesty attended a demonstration in the space robot test terrarium, an environment that simulates the surface of Mars and where robotic planetary exploration technologies are tested.

The visit continued with a presentation on the information and communication technologies sector. Afterwards, His Majesty attended an exhibition focusing on intelligent transportation systems, where he could see first-hand several of the projects that GMV is working on in this field.

King Felipe VI took the opportunity to talk with a group of young engineers and other GMV professionals, highlighting the fundamental role that technological innovation plays in economic development and in improving Spain's competitiveness.

The day ended with His Majesty signing the company's visitors' book and posing for a photograph with a large group of employees, putting the finishing touch to an emotional ceremony commemorating GMV's four-decade history.

Throughout the visit, the King showed considerable interest in and rapport with the company's professionals. In his dedication, he congratulated everyone “for this growing and exemplary success, which demonstrates how much can be achieved from and in Spain in the world’s most advanced technological sectors.”

Felipe VI, after the photo with GMV professionals:

"Congratulations to all of you. What has been achieved in 40 years is spectacular, and a large part of it is thanks to all the men and women who work here with a great atmosphere, excellent work, and with ambition, discretion, drive, and conviction. Keep going, and here's to many more years to come."

Pau Gasol

Basketball star, consultant, and investor

Born in Barcelona in 1980, Pau Gasol became a star of the NBA, the Spanish national team, and the Spanish ACB league in a professional basketball career spanning over two decades. In the ACB, he played for FC Barcelona in two stints (1999-2001 and 2021). In 2001 he broke into the NBA with the Memphis Grizzlies, where he made history as Rookie of the Year. In 2008 he was traded to the Los Angeles Lakers, where he played six seasons and won two championship rings (2009 and 2010). He then went on to cement his NBA legacy with the Chicago Bulls, San Antonio Spurs, Milwaukee Bucks, and Portland Trail Blazers before returning to Barça to close out his career.

With the Spanish national team, Gasol won the 2006 World Cup, three Olympic medals (two silver and one bronze), and three EuroBasket championships, achievements that have made him one of the best players of his generation.

Pau retired from professional basketball in 2021 and has since become known for his philanthropic work and commitment to children's health through the Gasol Foundation, which he co-founded in 2014 with his brother Marc. He is currently a consultant, investor, and activist for sports and wellness projects, as well as a member of the IOC Athletes' Commission and a UNICEF Global Champion for Nutrition and Zero Childhood Obesity.

We were honored to have you at our 40th anniversary celebration. What were your expectations for the event and what impressions did you come away with?

I was truly honored to be part of GMV's 40th anniversary celebration. I knew it was going to be a special event, with a great team of professionals and a company that has achieved amazing milestones over these past four decades. And as I had anticipated, it was an opportunity to share experiences and learn from a company with an impressive track record based on values such as innovation and excellence that I fully identify with.

I came away with a very positive impression. The entire GMV team was so warm and friendly. It was also great to see how the company's ambition to innovate and improve is still going strong, 40 years later. Events like this are always exciting because they're an opportunity to celebrate achievements. But for me, what's even more important is that they also help us reflect on the lessons learned along the way and look to the future with ambition. I've always said that success comes from what we learn along the way. It was clear to me that GMV isn't going to rest on its laurels; it's still looking for new challenges and opportunities to grow and keep making a difference. In that sense, I'm very pleased to see how these values and this forward-looking vision are reflected in the recent partnership between GMV and the Gasol Foundation, which will undoubtedly further our positive impact on society.

One of the values that Juan José Martínez, GMV's founder, conveyed to all of us at the company is excellence in both our work and our behavior. How does one of the best basketball players of all time define excellence? What does the constant pursuit of excellence bring to your work?

For me, excellence is an attitude. Some people think it's just about winning or achieving great things, but I see it in the way we approach our work and our challenges on a day-to-day basis. It's the constant commitment to outdo yourself, to be the best you can be, and not to settle for what's easy or what's right in front of you.

In my sports career, excellence meant taking care of every last detail, from physical and mental preparation to my work ethic and commitment to the team. Now, in this new chapter, I continue to apply that mentality to every project I'm involved in, whether it's in business or in social impact through the Gasol Foundation. Excellence is the driver of improvement, both in sports and in the business world, and I always try to instill this attitude in the people I work with.

Obviously, meeting the goals you set for yourself is highly satisfying, as we know firsthand at GMV. But sometimes, after milestone achievements such as an NBA ring or a world championship, it's hard to know how to face the next challenge because they all seem small in comparison. How can you continue to challenge yourself when you've already reached the top in a particular area?

There's no shortage of challenges out there. The key is to stay connected to the world around you and have the curiosity and mindset to keep seeking them out.

> "It was an honor for me to participate in GMV's 40th anniversary celebration and share experiences with a company that has such an impressive track record based on innovation and excellence, values I fully identify with"

In my case, after winning championships with the national team or in the NBA, I always focused on what was next: improving my game, helping my team become even more competitive, or finding ways to keep growing as a leader both on and off the court.

When I left professional basketball, I faced a similar situation. After so many years of competition, I could have assumed the most important chapter in my career was over, but instead, I saw a world of opportunities ahead of me. I decided to embark on new challenges in the business world, to use my platform as an athlete to help fight child obesity, a cause I care deeply about, and to represent the interests of my fellow athletes in the Olympic movement. My advice to everyone is to be aware that each stage of life brings new challenges, and we just have to know how to identify them and give them our all the same way we've done in the past, since these challenges make us better people.

At GMV, we're undergoing a growth process that involves coming up with bigger projects, leading large-scale missions, and being world leaders in our lines of business. Maybe you went through something similar when you were wrapping up your time in Memphis and signing with the Los Angeles Lakers. How did you deal with that period? How did you overcome your fears or insecurities in relation to a great but challenging opportunity?

Major challenges can be scary, but if you see them as an opportunity and prepare properly, you can feel confident and secure in taking the plunge. When you're in a growth environment and the next step is much bigger than anything you've done before, it's normal to feel overwhelmed. In my case, being traded to the Lakers was a turning point in my career. I went from being on a team where I had grown as a player and taken on a key role, to coming to a franchise like the Lakers that had several championships under its belt and very high expectations. It was a huge change, not only athletically, but also in terms of the pressure and responsibility of chasing a championship in one of basketball's most demanding environments.

> "Major challenges can be scary, but if you see them as an opportunity and prepare properly, you can feel confident and secure in taking the plunge"

I took it on with an open mind, seeing it as a unique opportunity to continue growing and evolving as a player. At first, as with any major change, there were doubts and uncertainties, but I drew strength from my work, my professional ethics, and my confidence in my abilities. Being surrounded by people who helped me in this transition, from my teammates and coaches to my family, was also crucial. Major challenges can be scary, but if you see them as an opportunity and prepare properly, you can feel confident and secure in taking the plunge.

Throughout your career, you've been in the locker room with great leaders and you yourself have taken on a leadership role on many occasions. You even had to lead a World Cup final from the bench due to an untimely injury. What qualities do you think a team leader should have? What does the team gain from a good leader?

A good leader is someone who can put the team before themselves, someone whose actions inspire others, and someone who understands that it's not just about doing their personal best, but also about making those around them better. I've been lucky enough to play on teams with great leaders, and I've learned something different from each of them. Without a doubt, the most special was my great friend Kobe Bryant, who taught me the importance of mentality, leading by example, and never settling.

I believe that a leader must have vision, empathy, resilience, and communication skills. It's not just about giving orders or taking responsibility; it's about understanding the needs of the team, motivating your teammates, and knowing when to step up and when to let others shine.

Strong leadership on a team creates an environment of trust and commitment where everyone knows their role and works towards a common goal. I experienced this with the Lakers and with the Spanish national team, and it's something that goes beyond sports: in any organization, a good leadership culture can make the difference between a group of talented individuals and a truly winning team.

Team strength is a factor that clearly contributes to the success of a sports franchise or a company. You've been part of many wildly successful teams. How do you define a high-performance team? Were there any particular qualities they all shared? What values do teams need to have in order to succeed?

For me, the key to a high-performance team is effort. Many people think that success is based on talent, but hard work, discipline, and the ability to work together are really the factors that set successful teams apart.

All the teams I've been on that have achieved great things shared that effort mentality. It wasn't just about having talented players, but also about being committed to daily improvement, making sacrifices for the team, and understanding that success is collective, not individual. Groups with this shared work ethic and culture of mutual trust are much more likely to achieve great things.

At GMV, we're committed to diversity and feel strongly that everyone has a place here regardless of gender, culture, religion, sexual orientation, or age. How do you think diversity has benefited the teams you've played with?

I've always valued diversity and equality, both in sports and in life. I've been lucky enough to be part of teams with players from different cultures, countries, and ways of thinking, and that's always been a source of learning and growth. Diversity brings different perspectives, enriches the way we take on challenges, and strengthens team bonds.

In basketball, as in any company, having people with different experiences and backgrounds makes us more well-rounded and helps us find innovative solutions. Now, in this new chapter in my life, I'm still working to promote diversity and equality through different projects, because I firmly believe that quality doesn't care about gender, race, or age. We have to create environments where everyone has the same opportunities to thrive and bring their best selves.

AERONAUTICS

SATNUS carried out its first flight test campaign for the NGWS/FCAS programme

With the successful completion of these tests, SATNUS continues to move forward according to the planned roadmap for Phase 1B of the NGWS program

Recently, SATNUS* has carried out the planned flight test campaign at the facilities of the El Arenosillo Experimentation Centre (CEDEA) in Huelva. This campaign has been part of the activities assigned to SATNUS in Pillar 3 of the Spanish-French-German cooperation programme NGWS/FCAS, responsible for the maturation of technologies for remotely controlled aircraft systems (Remote Carriers) and collaborative flight with manned or unmanned aircraft (MUT, Manned-Unmanned Teaming). With the support of INTA and for two weeks, SATNUS has carried out multiple validation flights of the MCSD demonstration platform (a modified target drone system), meeting the objectives set and establishing new challenges for future campaigns.

SATNUS has successfully validated the modifications introduced in the flying target drone and its ground controller. During this campaign, in addition to the changes introduced at a structural level, the remote control, communications and FTS (Flight Termination System) subsystems, as well as different payloads, have been validated. A first version of the DIM (Demo Information Management) system and the first C2 (Command and Control) prototype have also been satisfactorily evaluated, both deployed on the ground.

At a general level, tests have been carried out on the multi-platform simulation tool, integrating real and simulated aircraft during the same test, thus laying the first stone for collaborative flights, involving multiple real MCSD demonstration platforms in future campaigns.

With the achievement of these initial tests, SATNUS continues to advance according to the roadmap planned for Phase 1B of the NGWS programme, with the ambitious final objective of demonstrating MUT functionalities with multiple MCSD demonstration platforms in flight.

** SATNUS Technologies S.L. is the company formed by GMV, Sener, and Tecnobit-Grupo Oesía, to lead all activities at the national level related to the Technological Pillar of Remote Carriers for the Next Generation Weapon System (NGWS) within the Future Combat Air System (FCAS) program*

Innovation in the Inspection of Radio Navigation Aids with UAVs

In today's increasingly congested air traffic environment, radio frequency interference (RFI) is affecting Global Navigation Satellite Systems (GNSS), which are essential for navigation. In response to this challenge, radio navigation aids have become indispensable, either as a primary system or as a reliable backup. In this context, the Emil-DRON project, developed by GMV in collaboration with ENAIRE, the air navigation service provider in Spain, aims to revolutionize the way these aids are inspected and analyzed using unmanned aerial vehicles (UAVs).

GMV has designed an advanced solution for the inspection of radio navigation aids, combining commercial off-the-shelf (COTS) components, such as the drone platform, with its proprietary ***Emil®*** software. This integration significantly improves efficiency and accuracy during the inspection of radio navigation aids.

Currently, the inspection and calibration of radio navigation aids are carried out using specialized aircraft and technicians, a method that is costly, time-consuming, and sometimes requires the interruption of commercial operations at airports. In contrast, UAV-based technology represents an innovative and efficient solution. This approach not only reduces operational costs and downtime but also optimizes the safety and reliability of maintaining radio navigation aids.

As part of the Emil-DRON project, GMV has successfully integrated its UAV platform with its proprietary ***Emil®*** software. The solution was tested during a flight campaign conducted last November at Girona-Costa Brava Airport. In these tests, the technology demonstrated excellent performance under real conditions and effective coordination with Air Traffic Control (ATC), ensuring safe and smooth operations even with active commercial traffic.

Looking ahead, the project will expand its scope by evaluating this technology at other airports in the ENAIRE network, including major hubs like Madrid-Barajas. The goal is to validate its effectiveness on a larger scale and ensure it meets the stringent operational requirements of different airport environments.

GMV contributes to automation of in-flight refueling operations

This project represents a step forward in the modernization and automation of aerial refueling, which will enhance Europe's operational and defense capabilities

GMV has taken part in the A3RHD-SC1 project, which is a CAT-B initiative coordinated by the European Defense Agency (EDA) as part of the CapTech Air framework. The aim of this project is to encourage cooperation among the Member States and industry, to improve operational capabilities for military aviation. The project is being carried out by a consortium led by Airbus and featuring participation by AES Technology and GMV, with the purpose of advancing the use of automation during in flight refueling. This is a key aspect in terms of improving the efficiency and safety of these airborne operations.

GMV's specific contribution to this project has involved the instrumentation used for the drogue, which is a basket-like device installed at the end of the refueling hose. This work has allowed compilation of the navigation data needed in order to develop a positioning solution that takes into account the movements of the tanker plane, receiver probe, and drogue, all based on global navigation satellite system (GNSS) technologies. GMV has also produced the types of evidence needed to ensure safety during the experimental flights, by taking into account environmental conditions as well as structural aspects and factors such as electromagnetic interference (EMI) and electromagnetic compatibility (EMC).

In 2024, relevant data was compiled during a series of experimental flights, with analysis of those data now in progress. The results obtained will be decisive in terms of validating the technologies developed, while allowing further progress towards implementation of automated solutions for operations of this type.
It is expected that this project, which represents a significant step forward in terms of modernizing and automating in flight refueling operations, will be completed in June of this year, with positive repercussions for Europe's operational and defense capabilities.

This project represents a significant step forward in terms of modernizing and automating in flight refueling operations, with positive repercussions for Europe's operational and defense capabilities.

Safe integration of unmanned aerial capabilities in European skies

As part of a consortium with the company AERTEC, GMV has been awarded the contract for “LOT 1: Unmanned Aircraft Systems Single European Sky Experimental Integration”, as part of the Industry Synergies & Enablers (ISE) cluster entitled “Enablers for Safe Airspace Integration of Military Air Capabilities in the European Sky”. The purpose of this project is to develop innovative solutions that will help ensure safe integration of unmanned aerial systems (UASs) in European airspace.

GMV’s technical proposal, known as AIRSENSE, is focused on developing an advanced payload based on sensor fusion and artificial intelligence (AI) technology. This solution will provide robust and precise positioning, navigation and timing (PNT) capabilities for UASs, even under adverse conditions, or in complex environments where global navigation satellite system (GNSS) signals could be compromised.

The system will use on board sensors to detect and mitigate interference as well as jamming and spoofing attacks, along with advanced algorithms and integrated databases. In addition, it will be able to ensure optimal performance in various types of unmanned aerial systems. The payload assembly will also be compatible with existing UASs, and will be validated using in flight demonstrations.

During the project’s first phase, the work will be centered on bringing the AI-based solution to a technology readiness level of TRL 4, and that phase will be completed with a hardware-in-the-loop test campaign. The project’s kickoff meeting was held at GMV’s headquarters in February.

With its AIRSENSE proposal, GMV is reinforcing its leadership position in developing advanced technologies for unmanned aviation, while further demonstrating its commitment to safety and innovation in European airspace.

GMV leads the development of collaborative navigation for autonomous systems and heterogeneous swarms

GMV has been awarded a framework agreement to perform studies on collaborative navigation for autonomous systems and heterogeneous swarms, based on the SHARD technical proposal it submitted to the European Defense Agency (EDA) as part of the CapTech Guidance, Navigation and Control (GNC). The purpose of this framework agreement is to advance autonomy in military systems by developing innovative swarming and collaborative navigation technologies, which must be able to operate in environments where a global navigation satellite system (GNSS) is unavailable or is affected by electronic warfare.

The project’s primary objectives are to reduce operator workload, mitigate risks, and establish a roadmap for effectively integrating these new technologies into military operations. In this context, the first specific contract will be focused on positioning and collaborative navigation, by using artificial intelligence (AI) and sensor fusion to improve autonomous vehicle self-positioning within heterogeneous swarms.

The initial phase will include an assessment of the current status of collaborative positioning technologies, along with identification of key technologies and operational challenges, such as limitations on sensors, environmental restrictions, and electronic threats. In addition, a roadmap will be developed to allow progressive integration of these technologies into the operating environment.

The objectives include a review of the state-of-the-art in positioning and navigation technologies applied to vehicle swarms; definition of operational scenarios for applications such as autonomous surveillance, search and rescue, and combat; and a study of human-swarm interaction to ensure effective control and optimize decision-making.

The project will also be assessing the risks associated with electronic warfare and sensor degradation, as a way of developing mitigation strategies that can strengthen the system’s robustness in vulnerable situations. The final roadmap will define the key milestones for technology readiness and for deployment during military operations.

GMV strengthens its satellite navigation collaboration with ENAIRE

With the ATEGNOS-ENAIRE2 project, GMV has further solidified its collaboration with ENAIRE, which is the Spanish government’s air navigation management company. This contract will make it possible for a team of five GMV engineers to provide support services to Enaire, in areas related to the use of satellite navigation systems in Spanish airspace.

This is a service agreement that covers the period of 2024-2027, with the objective of providing support to ENAIRE for operation and maintenance of the EGNOS V2 system, and for developing and deploying EGNOS V3, which is a key technology for Europe’s satellite navigation program. As part of this initiative, GMV will be collaborating on preparation of infrastructure, hosting, deployment, and operation of EGNOS equipment at the ranging and integrity monitoring stations (RIMS), as well as at the mission control center (MCC) located at ENAIRE’S control center in Madrid.

Also, within the scope of the global navigation satellite system (GNSS), GMV will be providing support for development of GNSS interference detection and localization systems, to ensure the reliability of the satellite signals. The company will also be giving ENAIRE support in relation to performance analysis and metrics, so that the quality of the GNSS signal and ground-based augmentation system (GBAS) service can be evaluated.

GMV’s experience and know-how on the subjects of EGNOS and GNSS have allowed the company to serve as one of ENAIRE’S strategic partners for more than 15 years. During that period, GMV has made a significant contribution to the evolution of air navigation systems in Spain, as a way of enhancing air traffic safety and efficiency.

SPACE

GMV to Deliver Next-Generation Satellite Control Software Suite for the Telesat Lightspeed Constellation

This project strengthens GMV's leadership in providing advanced satellite control solutions and reinforces its reputation as a trusted partner in the global space sector

© TELESAT

GMV has been selected by Telesat (Nasdaq and TSX: TSAT) to develop and supply the next-generation satellite control center for Telesat Lightspeed, its low Earth orbit (LEO) constellation. The control center, developed by GMV, will oversee the flight operations of Telesat Lightspeed's satellites, enabling real-time monitoring and control of the entire constellation.

GMV's selection for this emblematic project provides a significant opportunity to further solidify its leadership in the satellite control segment. As global demand for LEO satellite services grows, GMV remains at the forefront of innovation, delivering critical solutions that help satellite operators maximize efficiency, safety, and performance.

By providing the technological backbone for one of the most advanced satellite constellations ever built, GMV strengthens its role in shaping the future of satellite communications. This project marks another significant milestone in GMV's mission to innovate, drive the future of space operations, and advance global connectivity.

The new satellite control center for Telesat Lightspeed will incorporate the latest advancements in automation, cutting-edge technologies, and cybersecurity, ensuring the highest levels of reliability, resilience, and operational efficiency. GMV's next-generation solution will enable seamless and efficient satellite operation management. Key components of GMV's solution include:

- ***Hifly®***: GMV's industry-leading solution for satellite monitoring and control, providing real-time telemetry and command capabilities while enabling the automation of complex satellite operations. GMV's fleet management tools, including ***Flyplan*** (operations coordinator), ***FleetDashboard*** (situational analysis), and ***Archiva*** (data analysis), will orchestrate the constellation's operations.

- ***Focussuite®***: a solution focused on advanced planning, automation, and optimization of operational processes, designed to improve efficiency and minimize human intervention.

- ***Flexplan®***: GMV's advanced mission planning solution designed to optimize satellite resource allocation, scheduling, and conflict resolution, ensuring smooth operations for the constellation.

Telesat Lightspeed, Telesat's groundbreaking LEO satellite constellation, is set to redefine global connectivity by providing ultra-fast, secure, and resilient broadband services worldwide.

Initially comprising 198 advanced satellites, the constellation is designed to deliver enterprise-grade connectivity with unprecedented speed, security, and low-latency performance. Positioned about 1,000 kilometers from Earth, Telesat Lightspeed integrates cutting-edge space technology with terrestrial network infrastructure, ensuring seamless global coverage.

GEXTRECS project reaches its halfway point with promising results

The GOVSATCOM Extreme Crisis Management Service (GEXTRECS) is a project funded by the Horizon Europe program of the European Union (EU), the objective of which is to define and demonstrate a comprehensive GOVSATCOM crisis management support service. Coordinated by GMV, the project focuses on the integration of satellite communication solutions with other components of the EU's space program, such as Galileo and Copernicus. GEXTRECS will prototype and test these solutions in real-world scenarios, including cross-border land and maritime emergencies.

GMV is playing a key role in the project. In addition to coordinating a consortium of eight partners, the company is developing the GNSS dynamic planner and GNSS receivers using Open Service Navigation Message Authentication (OSNMA) and Public Regulated Services (PRS) of the Galileo constellation, together with GMV's IBPL algorithm for secure positioning.

In its first year, GEXTRECS achieved major milestones, including successful onshore and offshore demonstrations, thus laying a strong foundation for the project's final demonstration scheduled for late 2025.

Going forward, the project will focus on further developing elements such as the dynamic scheduler and network balancer, as well as using a temporary connection to the G-HUB infrastructure for a more representative final demonstration.

GMV Participates in «GSAW 2025»

In February, GMV took part in the Ground System Architectures Workshop (GSAW 2025), held in Los Angeles, USA. Over three days, the event brought together experts in ground systems from around the world, fostering knowledge exchange and collaboration around this year's central theme: "Amplifying User Effectiveness: Automation, Augmentation, and AI/ML."

Since its inception, GSAW has served as a key platform for the ground systems community, and its 29th edition was no exception. GMV actively participated in various activities, including tutorials, working groups, plenary presentations, technical exhibits, and specialized sessions. The company showcased its latest innovations in automation and machine learning, highlighting its commitment to developing advanced solutions for the industry. GMV seized this opportunity to exchange ideas with other key industry players and enhance its presence in the international ground systems community.

With its participation in GSAW 2025, GMV reaffirms its role as a leader in developing innovative technologies, contributing to the advancement of automation and artificial intelligence in ground systems.

Launch of SpainSat NG-1, the first of Europe's two most advanced military telecommunications satellites

© SpaceX

After a delay caused the storm that hit the United States during the last week of January, the SpainSat NG 1 satellite was launched from Cape Canaveral in Florida on January 29 at 20:34 (January 30, EST 2:34 CET), a milestone marking a crucial moment in Spain's space history.

This satellite is part of SpainSat NG, an ambitious Hisdesat-led program that will provide secure communications services for the armed forces of Spain, the European Union, and NATO, with GMV playing a key role as the company in charge of the program's ground segment.

Specifically, GMV is in charge of integrating all the systems that will manage the two SpainSat NG satellites from the ground. This integration will be carried out both at the main center in Hoyo de Manzanares and in the redundant center located at the National Institute for Aerospace Technology's (INTA) Maspalomas Space Station. GMV's responsibility includes the development and deployment of the control systems of the satellite and its payload, as well as supervision of the latter's performance in its different bands (X, Ka, and UHF).

The systems provided by GMV will be equipped with the most advanced technologies available, with a special focus on the configuration and control of the telecommunications payload. This aspect is particularly challenging for software-defined satellites, such as SpainSat NG. The complexity of managing these payloads lies in their high capacity to adapt and reconfigure themselves, allowing for greater flexibility and operational efficiency. This advanced technology not only optimizes the performance and capacity of the satellites, but also ensures greater reliability and resistance to possible interference or failures, key aspects for the success of critical telecommunications missions.

The commissioning of the new ground segment is a major milestone in the launch of the SpainSat NG satellites. In this case, the technology needed on the ground is as important as the technology used in the satellite itself. That's why Hisdesat turned to GMV, the leading ground segment supplier, to ensure the success of Europe's most advanced satellites.

TaRDIS Project: Innovation in Decentralized Programming and Intelligent Swarms

■ In January, GMV hosted the General Assembly meeting of the TaRDIS project (Trustworthy And Resilient Decentralised Intelligence For Edge Systems), which brought together the eleven consortium partners from prominent industries, SMEs, as well as leading universities and research centers in the field of edge systems and swarm research and innovation. The consortium represents eight countries, with five partners from EU-27 countries (Denmark, Germany, Greece, Portugal, and Spain) and three from associated countries (Serbia, Switzerland, and the United Kingdom).

TaRDIS focuses on supporting the correct and efficient development of applications for swarms and decentralized distributed systems, combining a novel programming paradigm with a set of tools to facilitate the development and execution of applications.

Funded by European funds, TaRDIS aims to develop a language-independent, event-based programming model that provides distribution abstractions and decentralized machine learning primitives. It also seeks to build a development environment specifically designed for heterogeneous swarms, incorporating integrated semantic analysis that enables a correctness-by-design approach. Additionally, the project will work on developing schemes that support decentralized intelligence in these swarms, as well as creating decentralized algorithms and protocols to ensure the TaRDIS programming model functions at runtime. Finally, the project will focus on ensuring a high level of interoperability in its distributed execution environment, allowing compatibility with a wide range of devices and programming languages.

Within TaRDIS, GMV will be responsible for promoting concepts of Autonomous Distributed Orbit Determination and Time Synchronization for large constellations of satellites in Low Earth Orbit. The key technology enabling the use case consists of ISLs (Inter-satellite Links), which facilitate communication between the different nodes of the system.

TaRDIS provides GMV with a framework for developing distributed algorithms based on Machine Learning (particularly Federated Learning and Reinforcement Learning) and for emulating a swarm system composed of different independent processes working in parallel, especially at the communication protocol level. This working environment will allow GMV to streamline the development and testing process of algorithms and applications for satellite swarms in a safer and faster manner, in view of future products.

Innovation and Space Collaboration at SATELLITE 2025

GMV was part of the 2025 edition of the SATELLITE Conference and Exhibition, held from March 10 to 13 in Washington, D.C. This event is a key meeting point for space industry leaders, policymakers, and innovators looking to shape the future of the sector.

SATELLITE 2025 provided attendees with the opportunity to network with professionals from various industries, build business connections, explore new products and solutions, and gain valuable market insights. Additionally, the event served as a collaborative platform to address the technical, regulatory, and financial challenges facing the space industry. Beyond the aerospace sector, the conference attracted experts from government, military, transportation, media, agriculture, finance, and telecommunications.

In a year marked by global challenges and significant political changes in the United States, SATELLITE 2025 stood out as a must-attend event for the satellite and space industry. GMV played a prominent role in the event, showcasing cutting-edge satellite and payload mission control products and services at a booth where attendees could experience its innovations and technological advancements firsthand.

GMV to deliver advanced space surveillance and control simulator to Spanish Air and Space Force

■ Through its Directorate-General of Procurement (DAD), the Spanish Air and Space Force's (EA) Logistics Support Command (MALOG) has awarded GMV a contract for the integration and deployment of a simulator that will be used in orbital mechanics training for all its personnel involved in space operations. GMV will also be providing maintenance services and instructions on use.

In recent years, space operations have become increasingly important in military operations, and the communication, location, and monitoring needs of armed forces are increasingly dependent on the capabilities provided by satellite systems. In addition, there has been a significant increase in risks and threats to these assets in the space domain, including hazards both natural (e.g., space weather and asteroids) and man-made, whether unintentional (e.g., possible collisions with space debris and dangers linked to an increase in megaconstellations) or intentional threats resulting from the militarization of the space domain. The growing importance of this field is evidenced by the new name of the Air and Space Force ("Space" was added in 2022) and the creation of the Space Command (MESPA) in 2023, the latter encompassing Spain's Space Surveillance and Operations Center (COVE).

Since it was launched in 2019, the COVE has been steadily developing its capabilities and space situational awareness and surveillance tools, with its operational workforce growing each year. In order to enhance these capabilities, space operations personnel must be adequately qualified and properly trained for this work. Specifically, they must have an extensive, in-depth understanding of the space domain and, in particular, of orbital mechanics (also known as astrodynamics).

GMV, which has been serving the COVE from the very beginning by supplying software tools and providing support in international space cooperation exercises such as Global Sentinel, recently won a contract for the provision of a simulator to be used in advanced orbital mechanics training. This contract includes training and development activities in this area at various educational facilities, as well as training for personnel from units, centers, and organizations involved in space operations, especially at the COVE.

The simulator is expected to be available by late 2025, and it will be used as a training and operational tool for Air and Space Force personnel starting in 2026. Due to the project deadlines and its suitability for providing the required features, the solution for the simulator will be based on ***Ecosstm***, GMV's COTS (Commercial Off-The-Shelf) software for space surveillance systems, already being used in operational centers such as the German military's space surveillance system (Weltraumlagezentrum), the civilian space surveillance systems of several other countries, such as Greece, and GMV's commercial space surveillance operations center (***Focusoc***). It will also be the foundation of the COVE's space surveillance system (Space Situational Awareness and Control System, or CCSE), which will be launched in 2025.

GMV key role in CAT-IOD, the ESA's pioneering mission in Active Debris Removal

■ GMV is advancing in potentially become one of the first European company, if not the first one, in testing in orbit key technologies and operations for and to perform cooperative and non-cooperative ADR exercises in space for prepared satellites.

In early 2015 GMV started working, together with ESA, in addressing how to increase the feasibility of successfully and safely performing ADR missions (both in terms of cost and technically) by identifying concepts that could be hosted on board a spacecraft to facilitate future ADR scenarios. Those concepts included three major elements: aids to support tracking and pose estimation of the debris (from ground and on-orbit), aids to facilitate capture, and space systems for attitude stabilization after operational lifetime/at end of life.

As result of this effort, GMV, in close collaboration with different partners, started working on multiples concepts, among those PRINCE, a passive mechanical interface with integrated rendezvous / navigation aids suitable to enable the safe capture and removal of a prepared non-operational/non-cooperative satellite for uncontrolled re-entry (i.e. no high thrust manoeuvres / loads because of controlled re-entry burns). As from ESA's specifications, PRINCE had to minimize its impact on the target satellite (power, mass, and volume), and reduce the risk, cost and/or complexity of a chaser, which will perform the capture of the non-operational satellite after end-of-life.

Nowadays, after almost ten years of hard work, five over six of the currently under design new generation of EU Copernicus Sentinel Expansion missions, will be equipped with a set of elements facilitating their safe removal in case of contingencies, being MICE, the passive interface derived from PRINCE, developed by GMV in strict collaboration with AVS.

In 2021, GMV, AVS and Admatis were awarded from ESA with the CAT (Capture Bay Design and End-to-End Verification of Design for Removal) project, devoted to design, build and validate a Capture Bay for ADR, the active counterpart of MICE.

Finally, 2023 and 2025 have been witness of GMV being awarded by ESA with two successive projects devoted to study a mission, CAT-IOD, whose objective is the in-orbit demonstration of the 1:1 version of the CAT solution while mounted on a servicer satellite and used to capture the MICE installed on the client satellite.

With the idea of proposing CAT-IOD for member state approval during the November 2025 Ministerial Conference (CM25), ESA is thus running two parallel Phase A activities/contracts. CAT IOD mission is today a key ingredient/ cornerstone of ESA's ambitious objective/ goal to achieve the goal of "Zero Debris" by 2030. GMV is working hard to make CAT-IOD happening, confirming its compromise/commitment to contribute to a safer and sustainable space environment.

GMV at the eighth annual GOVSATCOM conference

On 27 February 2025 Luxembourg was the setting for the European Union's eighth annual defense and security conference, GOVSATCOM, a key event bringing together the main international players in the satellite, government, institutional and defense fields.

Satellite communications have established themselves as an essential element in defense, security, emergency response and diplomacy. In this context, more than 500 experts and participants in the field of GOVSATCOM (Government Satellite Communications) met to discuss ways to enhance Europe's competitiveness in this sector. The conference was a meeting point for military and civilian stakeholders, promoting close collaboration with industry.

Within this framework GMV, the event's gold sponsor, had the chance to present its latest technological solutions. With its own stand the company showed its commitment to innovation and the development of new capabilities in the field of satellite communications, a strategic area for security and defense.

GMV contributes to the definition of the future "Rules of the Road" in Space

■ GMV has signed a contract with AFNOR/BNAE (Bureau de Normalisation de l'Aéronautique et de l'Espace) for the development of the future European Space Traffic Management (STM) standard and its associated Rules of the Road. The selected experts belong to European National Space Agencies (French CNES, German DLR, Italian ASI and Spanish AEE), ESA, and industry (GMV, Thales Alenia Space and Airbus Defence and Space).

Since the beginning of the space age, the number of objects orbiting the Earth has exponentially increased. In the next decades, with the emergence of new actors and the commercial exploitation of the Space, a population in the order of several hundreds of thousands of objects is foreseen, with circa 75% of them being active objects. In this scenario, the Space Traffic Management will become essential to guarantee the in-orbit safety, mitigating the risk of collision between manoeuvrable satellites, the radiofrequency interference, or, more generally, coordinating the space activities from launch to mission disposal.

The European Commission, in its joint communication on the 15th of February, 2022 stresses the importance of guaranteeing the safety and sustainability of the space environment.

Under the scope of the contract with AFNOR/BNAE, GMV will contribute to the identification of the main elements of such a standard, and it will also perform studies to define the applicable rules and operational thresholds.

The activity is financed by the European Innovation Council and SMEs Executive Agency (EISMEA) under the frame of the support to Standardisation activities performed by CEN, CENELEC and ETSI (RRS – SMP-STAND-2022-ESOS-02-IBA).

GMV reinforces its commitment to space sustainability at the 9th European Conference on Space Debris

GMV took part in the 9th European Conference on Space Debris held by the European Space Agency (ESA) between 1 and 4 April in Bonn, Germany. The event, which is the leading international forum focused on management of orbital fragments, brought together experts from around the world to address current and future challenges in the space environment.

In recent years GMV has consolidated its position as European leader in the development of space surveillance, command and control systems and solutions for the mitigation, tracking and active removal of space debris. GMV's participation in the event was particularly noteworthy, with a delegation made up of 14 engineers from six of the group's subsidiaries. The company also led a total of 10 technical presentations and 3 posters, and it contributed to more than 10 additional papers in collaboration with partners across Europe. GMV also took part in two discussion panels, contributing its strategic vision of the sector's future.

GMV's participation in this conference reaffirms its commitment to a Zero Debris strategy, in line with the vision promoted by ESA and its recently published Zero Debris Charter. This approach aims not only to reduce waste growth, but also to ensure the long-term sustainability of the space environment for future generations.

With its consolidated experience and leadership in technological solutions, GMV continues to position itself at the forefront of space traffic management and orbital sustainability, working hand in hand with international agencies, institutions and stakeholders to build a safer and more responsible space.

Modular AOCS for Smallsats

GMV's AOCS specialists in Portugal and Poland are enabling the development of modular satellite control systems fast deployment of Attitude and Orbit Control Systems (AOCS) on small satellites.

Traditionally, larger satellites have required custom attitude control algorithms and hardware interfaces tailored to each mission. However, the rapidly growing small satellite market has shifted the focus towards the need to quickly deploy payloads into orbit. As a result, current efforts are focused on developing a cost-effective, modular, and quickly-deployable AOCS for small satellites.

The AOCS is a crucial component in satellites, managing their orientation and stability in space, ensuring they maintain the correct position and direction for their mission objectives.

This initiative, supported by the European Space Agency (ESA), aimsto develop a modular AOCS, which incorporates GMV's AOCS software in the multipurpose interface connector (MA61C) from Space Products and Innovation Inc. (SPiN). GMV will lead the development of the AOCS software and simulator and integrate the system's verification and validation campaign.

The Modular AOCS will be capable of connecting to various sensors available in the new small satellite market, providing an independent AOCS subsystem. This versatile system is expected to be useful for a range of applications, including Earth observation and telecommunications scenarios.

GMV leads the MUSO project, key to European security

GMV in Portugal has been selected for the framework contract for the implementation of the Multisource Analytical Assessments (MUSO) project. This contract marks a significant milestone in GMV's continued support for European security and policy decision-making.

The consortium led by GMV includes several partners: ALSO Space, CLS, IABG, IKNOWHOW, and SERTIT. Together, they will develop the MUSO reports to provide in-depth analysis in key areas, including border security, cross-border crime, human smuggling, security and foreign policy, and transit to the EU and Schengen-associated states.

These reports, developed under the guidance of the European Union Satellite Centre (SatCen), will support the European Border and Coast Guard Agency (Frontex) under their existing Service Level Agreement. Leveraging open-source intelligence and geospatial analysis of Earth observation data, MUSO reports will deliver critical insights for enhanced situational awareness and policymaking.

GMV's expertise will drive the integration of both quantitative and qualitative methodologies, including literature reviews, predictive analytics, behavioural sciences, and geospatial analysis. By combining these approaches, the MUSO reports will offer a comprehensive perspective on security challenges, helping European authorities to address emerging threats with data-driven strategies.

GMV's leadership in this project reinforces its position in the geospatial intelligence field and strengthens its collaboration with European institutions to address critical security challenges.

European planetary defense mission Hera sends first images and analysis of Mars

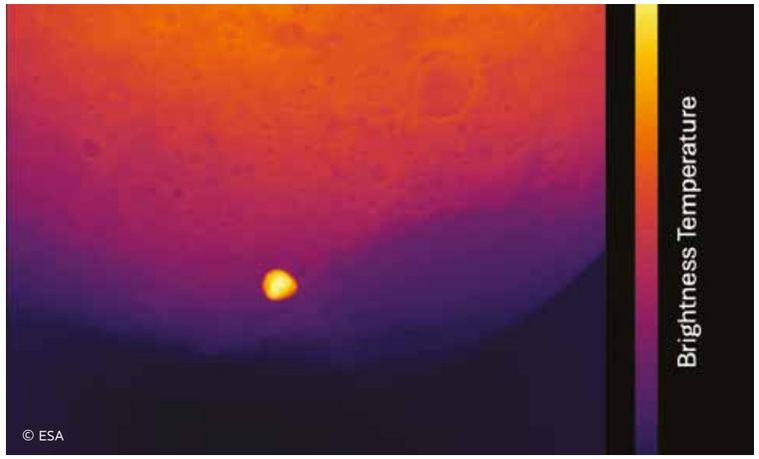
On October 12, the European Space Agency's (ESA) Hera mission reached a significant milestone in space exploration. During a flyby of Mars, the Hera spacecraft captured images of Deimos, the smallest and most enigmatic moon of Mars. This marks the first time Hera has used its scientific payload for objectives beyond Earth and the Moon.

During the Mars flyby, Hera's instruments gathered valuable data from both Mars and Deimos. In addition, the "Feature Tracking" image processing algorithm, developed by GMV, was successfully tested. This algorithm will help Hera navigate close to asteroids by providing data to the brains of the probe. On its way to the Didymos binary asteroid system, which includes Dimorphos, Hera performed a key maneuver to drastically reduce the amount of fuel required for its space journey, a flyby maneuver that gave the probe a gravitational boost of nearly 1 km/s, propelling it closer to its destination.

Since its launch in 2007, GMV has played a key role in the Hera mission, leading an international industrial consortium. The company is responsible for designing and developing the guidance, navigation, and control (GNC) system, as well as conducting mission analysis near the target asteroids. GMV is also collaborating with France's CNES (*Centre National d'Études Spatiales*) in Toulouse on the CubeSat Flight Dynamics and Science Operations Centre, which will manage the control, planning, and execution of Hera's CubeSats, including Juventas. GMV has been instrumental in developing Hera's operational simulator and providing mission control support.

During this flyby, as parti of its support for the mission control center, GMV was on-site at ESA's operations center in Darmstadt, Germany (ESOC), where it provided support to ESA/ESOC and actively contributed to this mission-critical interplanetary maneuver- Hera's first since launch.

Not only does the Hera mission represent a breakthrough in planetary defense technology, it will also be collecting invaluable scientific information about the formation and evolution of our solar system. With this milestone, Hera is set to continue its journey to its final destination: Didymos.



GMV showcases its advances in the Hera mission at the AAS GN&C 2025 conference

GMV had a prominent presence at the 47th Rocky Mountain AAS Guidance, Navigation, and Control (GN&C) Conference, held from January 31 to February 5, 2025, at the Beaver Run Resort in Breckenridge, Colorado. During the event, Andrea Pellacani, GMV's GNC technical lead for Hera, presented the latest advancements in the mission's Guidance, Navigation, and Control (GNC) subsystem.

The Rocky Mountain AAS GN&C Conference, known for its focus on the full lifecycle of guidance, navigation, and control systems, also featured the STEMscape program, aimed at inspiring more than 100 high school students and educators in aerospace exploration. Through this participation, GMV continues to demonstrate its commitment to technological excellence and its contribution to the future of space exploration.

The UAE´s MBZ-SAT Earth Observation satellite successfully launched

On January 14, the UAE's MBZ-SAT Earth observation satellite, was successfully launched from the Vandenberg Space Force Base in California, USA.

MBZ-SAT is the fourth Earth observation satellite to be developed and launched by MBRSC and the most advanced commercial satellite in the region for high-resolution satellite imagery. With capability to capturing images across a wide expectrum, it will double the image capture capabilities. The satellite features an automated system for continuous image acquisition, processing, and cataloging. This guarantees that it will provide the highest standards of quality for satellite images specifically designed for global commercial use.

Through the project, MBRSC greatly improve its capabilities for image production, addressing the growing demand for its services. This enhancement is supported by GMV, which has contributed through its expertise in automated image planning and processing. This collaboration ensures that the high standards of service quality and performance MBRSC is known for are upheld.

GMV plays a crucial role in developing the data services system for MBZ-SAT. The company is responsible for data reception, mission planning, processing, and user services for the satellite. This automated system ensured the continuous acquisition, processing, and cataloging of images, maintaining the highest quality standards for satellite images designed for global commercial use.

In particular, GMV contributed its expertise in automated image planning and processing, utilizing advanced products such as ***Flexplan®*** (mission planning), ***Visualfocus*** (orbital calculation and 2D/3D visualization), and ***Prodigi*** (data processing and user services). These products had been successfully implemented in previous space missions, and their introduction in the MBZ-SAT mission represented a significant advancement in imaging capabilities, with the potential to double the image resolution compared to previous systems. Additionally, GMV has developed high resolution image processors.

The introduction of these technologies to the MBZ-SAT mission represents a significant leap forward in imaging capabilities, with the potential to more than double the resolution of images compared to previous systems. This marks a milestone for MBRSC, ensuring it remains at the forefront of space exploration and satellite imagery, ready to meet the demands of current and future missions with reliability and advanced technological support.

Enhancing Earth Observation applications with Synthetic Data

GMV successfully concluded Synthetic Data for Earth Observation (SD4EO), a research initiative in collaboration with the ARTEC group of the University of Valencia, funded by the European Space Agency's FutureEO programme. The project aimed to demonstrate the benefit of integrating physically- and AI-based synthetic data into Earth Observation (EO) applications. SD4EO focused on two types of simulation:

- Physically Based Rendering. The ARTEC group used Unity graphics engine to generate realistic synthetic images by accurately simulating light behaviour and sensor characteristics.

- AI-driven simulation. GMV implemented advanced conditional diffusion models, starting with random statistical distribution and iteratively shaped by constraints, allowing features to evolve and resemble the target image or signal.

The synthetic data was integrated with real EO data into AI-driven analytic pipelines to explore their potential in enhancing performance in target categorisation applications:

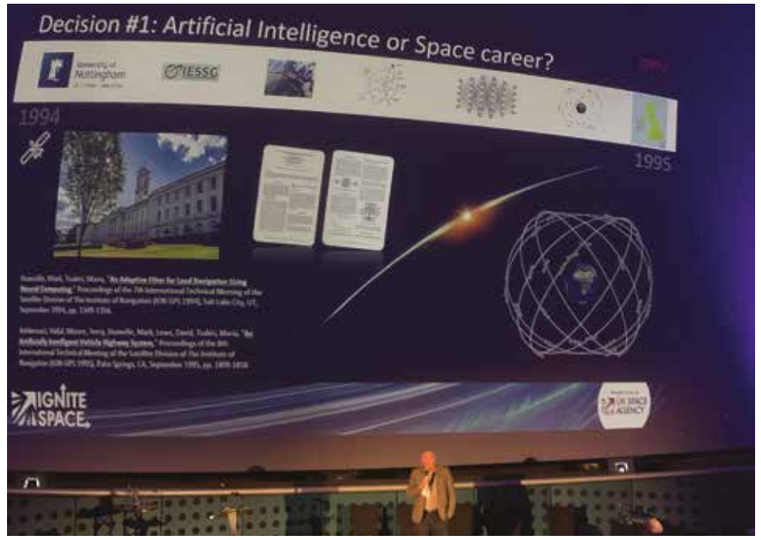
- Categorisation of crop fields. Integrating synthetic data generally maintained or slightly improved classification performance. Combining synthetic data of rare crops only (oats and alfalfa) with real EO data yielded the highest accuracy, highlighting the effectiveness of targeted synthetic data in addressing classification challenges for multi-class tasks.

- Categorisation of human settlements. The integration improved overall performance in detecting built-up areas. Promising results using only synthetic data warrant further investigation, particularly when real EO data is hard to obtain.

- Monitoring of photovoltaic panels. Model performance generally improved, with the best results achieved when both physically- and AI-based datasets were used. Findings suggest that an appropriate amount of synthetic data can enhance model performance, with the ideal quantity varying based on data distribution and volume.

These promising results lay the foundation for further investigation, including refinement of synthetic data and additional experiments to better understand their advantages in EO applications.

GMV Participates in Ignite 2025: Boosting Innovation and Collaboration in the Space Sector



■ GMV participated in the latest edition of Ignite 2025, a key event organized by the UK Space Agency, which took place on February 5th and 6th at the National Space Centre in Leicester, UK.

Ignite is a strategic event for the space sector, with the main goal of driving commercial growth and strengthening the UK's position as a leader in space technology and exploration. During this forum, industry leaders, startups, and key players in the supply chain gathered to explore new opportunities for collaboration and innovation.

A key moment of the event was the keynote speech by Mark Dumville, manager of GMV in the UK, who shared his inspiring journey, from working in startups and SMEs to leading GMV in the UK, part of one of Europe's largest space companies.

Speaking on the main stage, Mark emphasized the crucial role of public-private collaboration, the importance of addressing technological and operational challenges, and GMV's commitment to driving sustainability, innovation, and growth in the space industry.

With a long-standing track record in Position, Navigation and Timing (PNT), Space Domain Awareness, Satellite Systems, GNC, and In-Orbit Servicing, Assembly, and Manufacturing, GMV continues to lead advancements in these critical areas, helping to shape the future of the UK space sector.

Additionally, GMV had a stand at the exhibition, where it showcased its latest technological advancements and innovative solutions, reaffirming its leadership in the space industry.

GMV participates in the III Space Day of EMACOT of the Air and Space Force

GMV participated in February in the III Space Day organized by the School of Command, Control, and Telecommunications Techniques (EMACOT) of the Air and Space Force.

The day, inaugurated by Major General Jerónimo Domínguez Barbero, Chief of the General Air Command, began with a lecture on "Space Dominance in the Armed Forces" given by Major General Isaac Manuel Crespo Zaragoza. Subsequently, the programs of the Multidomain Systems Command were addressed in a presentation by Colonel Manuel María Jiménez Rodríguez, followed by the presentation of the "NumantIA" project, winner of the national phase of the CASSINI Hackathon and third prize in Europe, by cadets from the LXXVI class of the AGA studying at EMACOT.

Throughout the day, technical conferences delved into key areas such as the capabilities of the Aerospace Observation Systems Center (CESAEROB), presented by Lt. Col. José Felipe Vega Andrades, and the functions of the Space Surveillance Operations Center (COVE), presented by Lt. Col. Manuel Olmos Holgado.

The session featured a joint strategic vision, led by Lt. Col. Manuel Olmos (Air and Space Force) and Cristina Pérez (Spanish Space Agency), who lead the Space Surveillance and Tracking (SST) systems in Spain: COVE, with a military focus, and S3TOC, dedicated to the civil sector. GMV took advantage of the event to showcase its main activities in the fields of Space, Defense, and Security, highlighting the company's leadership in key projects at both the national and international levels.

ESA expands the WorldSoils project

■ The European Space Agency (ESA) has decided to expand the activities of the WorldSoils project, designed to develop a pre-operational system for monitoring Soil Organic Carbon (SOC) on a global scale. This project combines the exploitation of Earth Observation (EO) satellite data with large soil databases and modeling techniques.

In 2024, WorldSoils reached a key milestone with the presentation of its validation results. However, new opportunities have been identified to expand its activities and maximize its impact. Among future priorities, the project aims to continue SOC modeling at a regional scale with the goal of extending its application to the continental level. New soil indices and indicators will also be explored, such as the Soil Moisture Index (SMI), Soil Water Index (SWI), drought index, average annual basal area increment (BAI), and soil sealing index.

Additionally, the SOC/clay ratio will be estimated using advanced EO techniques, as indicator of soil health and fertility in relation to soil nutrients, moisture and micro biotic activity and to expand test sites in Europe and other continents, considering data quality and availability and institutional agreements reached. Collaborations will also be established with international organizations such as FAO, EEA, EUSO, NASA, and JAXA, promoting synergies with certification entities. To optimize the use of EO-based SOC products, training programs will be designed for end users.

The project's achievements were presented at the "Earth Observation for Soil Protection and Restoration" Symposium, organized by ESA in 2024. Although the developed tools and algorithms have been positively evaluated, there is a need to improve the production and validation of high-resolution global SOC maps, as the focus has mainly been regional in Europe so far.

In response to this challenge, ESA has issued a request for a contract change for the project. The expansion will include improvements in SOC models and products, as well as the production and acquisition of new EO-based soil products in broader areas. Validation of these products will also be carried out at regional sites in the EU, with subsequent implementation in other global regions. To ensure service continuity, long-term support and integration of systems with ESA's Application Propagation Environments (APEx) are planned.

The project extension is estimated to last 14 months, starting in March 2025. With this expansion, WorldSoils strengthens its role as a key initiative in developing innovative EO-based solutions, contributing to the protection and sustainable management of soils globally.

GMV leads the WorldSoils consortium, which includes the German Research Centre for Geosciences (GFZ), the German Aerospace Center (DLR), the International Soil Reference and Information Centre (ISRIC), the University of Leuven (UCL), Aristotle University of Thessaloniki (AUTh), Czech University of Life Sciences Prague (CZU), and Tel Aviv University (TAU).

SmallSat Symposium 2025 analyzes the future of satellite technology

■ In February, GMV participated in the tenth edition of the SmallSat Symposium, held in Silicon Valley, Mountain View, California.

This year's conference explored the trends and challenges that will shape the industry in 2025, including technological breakthroughs, emerging regulations, and investment opportunities. In a dynamic global context, SmallSats continue to account for around 95% of satellite launches, demonstrating their strategic relevance in applications such as connectivity, Earth observation, and space services. The event covered a wide variety of topics, including the impact of megaconstellations; the integration of technologies such as artificial intelligence, IoT, and cloud computing; and the growth of in-orbit services. These discussions provided a critical perspective on the future of the industry and highlighted the importance of international collaboration and constant innovation.

GMV played a prominent role in the event, with a stand where it showcased its most advanced products, including ***Hifly®***, its satellite control solution; ***Focussuite®***, for flight dynamics; ***Flexplan®***, for mission planning; ***Magnet***, for ground station monitoring and control; ***Smart Payload***, for payload management; ***Focusoc***, offering a collision avoidance service; and ***Prodigi***, specialized in data processing.

In addition to GMV, Alén Space also participated in SmallSat Symposium, reflecting its key role as a standard-bearer in the integration of advanced technology for CubeSats and as a provider of groundbreaking solutions for the SmallSat sector.

The small satellites industry boosts its future at the SSSIF

Malaga hosted the VI edition of the Small Satellites & Services International Forum (SSSIF) from 18 to 20 February 2025, reaffirming its position as the main European meeting point for the small satellite industry. This edition brought together more than 175 companies and 400 professionals from 20 countries, addressing the trends, challenges and opportunities of the sector.

Under the slogan "Industrialization and sustainability in space", the congress focused on European strategic space autonomy, supply chain protection and investment in sustainable space technology. In addition, advances in technologies for lunar and Martian exploration were analyzed.

The event was inaugurated by the Mayor of Malaga, Francisco de la Torre, and the Deputy Minister of Industry, Energy and Mines of the Junta de Andalucía, Cristóbal Sánchez Morales. During the opening ceremony Enrique Fraga, GMV's General Manager of EST Space Systems, stressed the disruptive moment the sector is going through and also the need to boost the competitiveness of the Spanish and European space industry in order to take its place alongside the world powers in the new space race.

This sixth edition of SSSIF also saw GMV representatives taking part in various round tables. Enrique Fraga took part in the panel "Security Challenges in Space"; Alfredo Antón, head of GMV's division for the ground segment of ESA's space security program, presented the paper "Space Debris and Sustainability"; Mariella Graziano, GMV's Director of Strategy and Business Development of Science, Exploration and Transportation of Space Systems EST, presented the topic "In Orbit Services" and also took part in the panel "From Moon to Mars".

Startical trusts Alén Space's SDR technology in its IOD-2 satellite

This satellite paves the way for the Startical constellation, which aims to deploy more than 200 satellites in the future

Startical unveiled its IOD-2 (In-Orbit Demonstrator-2) satellite this February, featuring SDR technology from Alén Space. The project aims to demonstrate the feasibility of a solution to optimize air traffic management from space.

The satellite incorporates multiple subsystems with software-defined radio (SDR) solutions provided by Alén Space through its TREVO product, applied to VHF, ADS-B, and feeder link payloads.

TREVO is a flight-proven SDR solution designed to adapt to various high-performance applications in space. Its modular and configurable capabilities facilitate integration with different systems and mission types.

In the specific case of ADS-B and feeder link, Alén Space was also responsible for developing the specific application. The mission engineering and satellite payload were developed by Indra, with support from ENAIRE.

The IOD-2 satellite, which has passed the testing phase at the facilities of the National Institute for Aerospace Technology (INTA), is paving the way for the Startical constellation, which plans to deploy more than 200 satellites in the future.

Equipped with a large VHF antenna and other aircraft position monitoring systems (ADS-B), Startical's satellites will enhance communications, particularly in areas without coverage and remote regions. Startical's global coverage proposal enables a much more efficient and secure air traffic management system. Additionally, it contributes to a more sustainable aviation industry by allowing aircrafts to choose optimal routes, thereby reducing fuel consumption.

The IOD-2 satellite has undergone rigorous electromagnetic compatibility, vibration, and functionality tests at INTA to ensure its operational capability in orbit. Its launch is scheduled for mid-2025.

With its involvement in this mission, Alén Space strengthens its position as a supplier of advanced technology for the space sector, in a project that once again showcases the capability of the Spanish industry to develop innovative solutions for critical global applications.

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SPACE

GMV to support the evolution of the Galileo Reference Centre

The new version will incorporate several features, including real-time monitoring and the ability to monitor new Galileo system services

The European Union Agency for the Space Programme (EUSPA) has awarded GMV a new framework contract for the evolution of the Galileo Reference Centre (GRC). The main mission of the GRC is to carry out independent monitoring of the Galileo system, providing EUSPA with detailed reports on its operation, the quality of the navigation signals transmitted, and the actual performance of the various services obtained at user level.

The GRC, a Galileo service facility located in Noordwijk, the Netherlands, is a key element in the deployment and evolution of the various services that the Galileo system offers to its users. The GRC is a multi-system reference centre monitoring Galileo's performance and comparing it with similar GNSS systems such as the United States' GPS, Russia's Glonass, and China's BeiDou system.

The V2 version will provide EUSPA with the capabilities required to monitor GNSS services in real time. The evolution will also allow for the monitoring of additional services offered by Galileo or expected in the coming period, including:

- Signal Authentication Service (SAS): SAS will increase user confidence in the signals transmitted by Galileo.
- Time dissemination service: This service will allow for highly precise synchronization of the clocks used in critical infrastructure.
- Search and Rescue (SAR): SAR will improve operations to rescue people in emergency situations.
- Emergency Warning Satellite Service (EWSS): EWSS will make it possible to send warnings to the general public in case of natural disasters and other emergencies.

The new GRC V2 version will incorporate key operation improvements such as the following:

- Improved satellite navigation system monitoring capabilities using data from multiple institutions.
- Minimum latency: New real-time processing will enable the GRC to provide real-time monitoring and thus speed up the process of issuing warnings to Galileo users.
- More efficient upgrades: It will be possible to implement upgrades without affecting ongoing operations, thus facilitating continuous improvement processes at the centre.
- Strengthened cybersecurity: Advanced cybersecurity features will be integrated as part of a new platform-as-a-service concept.

With a highly ambitious development schedule for the new V2 version, GMV is confident it will be able to get the centre's new capabilities up and running in 2026 with no impact on the ongoing operations of the centre.

Preliminary design phase completed for LEO-PNT IoD

■ In April 2024, the European Space Agency (ESA) began its LEO-PNT In-Orbit Demonstrator project. Led by GMV, the purpose of this project is to demonstrate the feasibility of offering positioning, navigation and timing (PNT) services using satellites in low Earth orbit (LEO), while also developing the key technologies required in order to make this possible. The contract includes the launching of a satellite constellation with a total of five satellites: one Pathfinder A and four Pathfinder B.

Now, less than one year after the project began, GMV has successfully completed not only the preliminary design for the system (S PDR close-out), but also its internal and external interfaces and key aspects related to the navigation services.

In addition to solidifying the system's design, GMV has made substantial progress in terms of developing its various segments. This includes the Pathfinder A satellite, which is scheduled for launching in late 2025, along with its control segment and user receiver, which will receive and analyze the navigation signals transmitted by this first satellite. The experimentation plan has also been defined for this satellite, and its launcher has been selected.

The GMV team is now making progress towards the next milestone, known as Critical Design Key Point A, which is focused on completing the detailed design of the system. Since this is a New Space project, progress is occurring at a rapid pace, and despite the short amount of time that has passed so far, the Pathfinder A satellite and the additional segments associated with it have already begun to materialize.

In parallel with development of the Pathfinder A, the design process for the Pathfinder B satellites is also moving forward. In December 2024, GMV and OHB completed the preliminary design milestone for them, known as Design Key Point B (DKPb), which is equivalent to a preliminary design review (PDR).

Achieving these milestones represents major progress on the LEO PNT contract led by GMV, while setting the stage for the next phases of the mission.

17th European Space Conference Explores the Future of European Space

Brussels hosted the 17th edition of the European Space Conference this January, aimed at reviewing the state of the space sector, analyzing progress made, evaluating current challenges, and anticipating the near future.

GMV was one of the sponsors of the conference, which was held under the theme "Consolidating Europe's Space Ambition: Towards a Competitive, Secure, and Autonomous Future." The company took part in several panels, with prominent participation from its senior executives. Enrique Fraga, General Manager of GMV's Space Systems EST, participated in the panel "Towards a European Space Industrial Strategy"; Miguel Romay, General Manager of GMV's Satellite Navigation Systems, spoke in "Galileo – The Next Generation: Addressing the Challenges of PNT for a Secure and Reliable Future"; Miguel Ángel Molina, Deputy General Manager of GMV's Space Systems EST, took part in the session titled "The Future Commercial and Secure Connectivity Applications"; and Mariella Graziano, Director of Strategy and Business Development for Science, Exploration, and Transportation at GMV's Space Systems EST, participated in two panels: "Scenarios for Sustainable and Autonomous European Space Exploration to the Moon and Beyond" and "Developing European Capabilities and Ensuring Space Sustainability, In-Orbit Servicing and Active Debris Removal."

GMV will develop a new version of the Galileo HAS high accuracy service data generator

■ GMV has been selected by the European Union Agency for the Space Programme (EUSPA) to develop a new version of the High Accuracy Data Generator (HADG) as part of Phase 2 of the Galileo High Accuracy Service (HAS) development. This globally pioneering service is the first to offer free real-time precise positioning corrections to all system users. The first version of the HADG, also developed by GMV, is currently operational and provides users with the Initial Service (Phase 1) of the HAS.

The new contract, with a duration of up to 45 months and a budget of up to 12 million euros, includes the design, development, deployment, support to commissioning and, optionally, maintenance of an improved version of the HADG. This new version will also incorporate the new functionalities required to deliver the services planned for Phase 2 (Full Service) of the HAS deployment.

Specifically, the new version of the HAS data generator will:

- Improve the performance level of Service Level 1 (SL1): The deployment of a new version of ***GMV's magicPPP®*** algorithms for precise corrections calculation and the expansion of the ground station network will provide global coverage and enhance the accuracy and availability of the SL1 service.
- Implement a new Service Level 2 (SL2): This is a new regional service that will be available only in Europe. By transmitting atmospheric corrections, it will make it possible to reduce the convergence time required to achieve maximum accuracy at user-level.
- Implement a new functionality for the authentication of HAS corrections transmitted through the Galileo constellation, thereby increasing user security and confidence in the service.

Since 2020, GMV has led the development of the Galileo HAS data generator following the award of the first contract with EUSPA. Since its operational launch in January 2023, the Galileo HAS service has revolutionized positioning services, offering unprecedented accuracy for advanced applications in sectors such as navigation, agriculture, geodesy, and autonomous driving. In the new contract, GMV maintains its role as the main contractor and leader of an industrial consortium that includes atmospheric modelling experts from the Polytechnic University of Catalonia (UPC) and cybersecurity specialists from Sidertia.

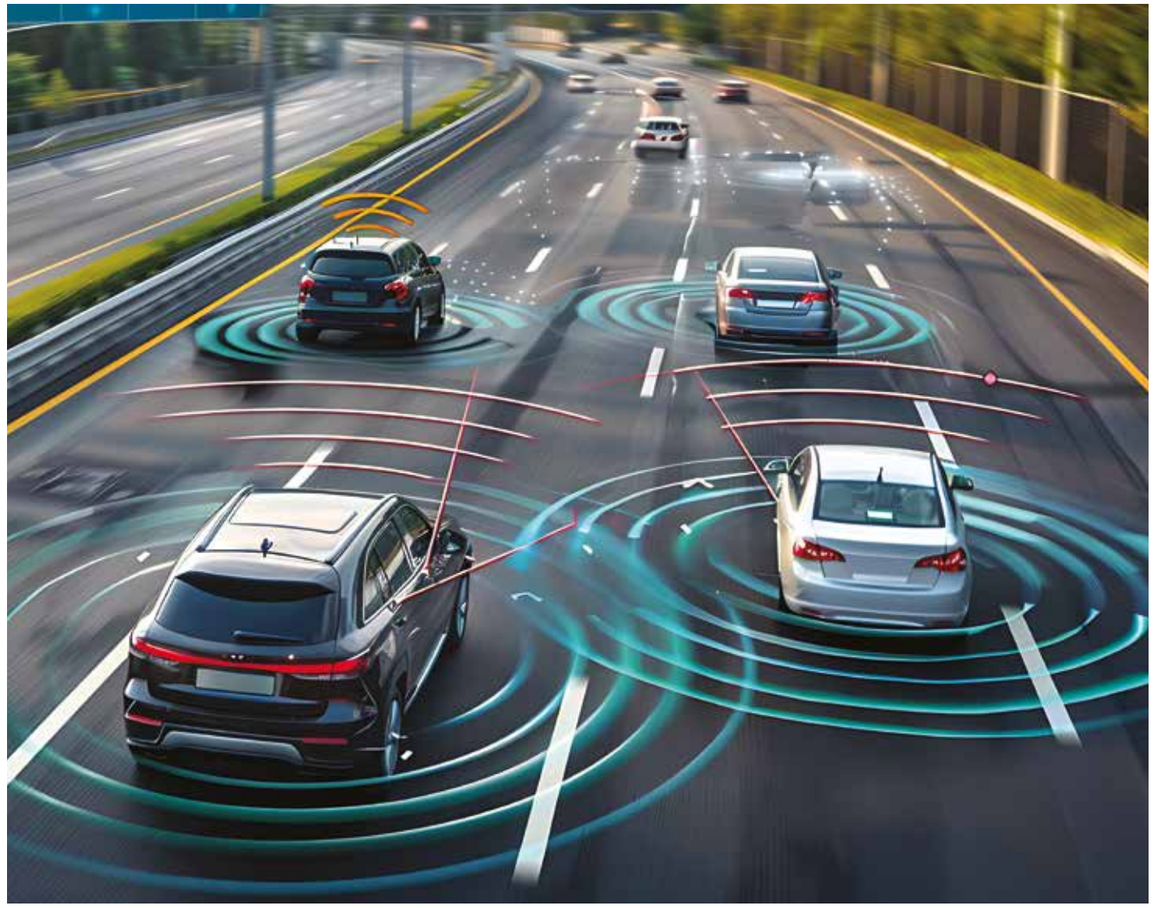
Advances in precise and robust navigation for autonomous driving

The European Space Agency (ESA) has selected GMV to carry out the project known as RANA (Robust Navigation for Autonomous Driving with Low-Cost/SWaP Arrays of Antennas). This represents a significant milestone for GMV's subsidiary in Portugal, which will be enhancing its capabilities and experience in the use of antenna arrays for robust and precise tracking of global navigation satellite system (GNSS) signals.

The RANA project has been designed to improve GNSS positioning for autonomous driving, by developing a robust solution with a low cost and low size, weight, and power (SWaP). Since the need for precise positioning services continues to increase for autonomous vehicles, the aim of the RANA project is to overcome the challenges caused by interferences, multi-path delays, and signal disruption in urban environments. By using advanced processing techniques for GNSS signals, such as direct position estimation (DPE) and beamforming, combined with a low-cost antenna array, the project is expected to improve the reliability and precision of positioning, navigation and timing (PNT) solutions.

GMV will be developing a low-cost prototype that will integrate these new technologies in a flexible way, with the aim of demonstrating their effectiveness under actual conditions of use. Field testing in complex urban environments will be applied in order to validate the resulting improvements in positioning robustness, with the goal of making autonomous driving safer and more efficient.

This ESA contract is another example of GMV's ongoing commitment to the advancement of satellite navigation technologies and delivery of high value-added solutions for industry. With the RANA project, GMV will be further solidifying its position as a key participant in creating the next generation of autonomous mobility and intelligent transportation systems.



GMV creates cryptographic module for Galileo Open Service data authentication

GMV has developed a secure cryptographic module that incorporates all of the required cryptographic algorithms and functions for the Galileo Open Service Navigation Message Authentication (OSNMA) service.

To ensure production of a robust, effective, and secure final product, the module has been developed in accordance with the strictest and most widely recognized international standards on the subject, namely ISO/IEC 19790:2012 (security requirements for cryptographic modules) and ISO/IEC 15408 (evaluation criteria for ICT security).

To give the module an important value-added element in terms of trust (with backing from Spain's cryptographic certification authority, known as the National Cryptologic Centre or CCN), the module has been developed in compliance with the cybersecurity requirements established in the international standard known as Common Criteria for Information Technology Security Evaluation.
The purpose of this is to obtain the corresponding certification after passing the appropriate official evaluation, performed by an accredited independent laboratory.

That common criteria certification will give the module an internationally recognized guarantee and allow its inclusion on the list of certified products published by the Common Criteria organization. This will also make it possible for the module to appear in the CCN's Catalog of Information and Communication Technology Security Products and Services (CCN-STIC 105).

To prepare for the planned migration to post-quantum cryptography, GMV has designed and developed the module in accordance with the principle of cryptographic agility. This will help simplify future updating of the module with the new post-quantum algorithms and all others required by the new Galileo authentication services, while also allowing for maximum automation of the updating process. In this way, GMV will be able to effectively take on the upcoming cryptography challenges that will result from the development of quantum computing technology and implementation of new Galileo authentication services.

The ultimate goal is to have a secure and trustworthy cryptographic module that can ensure effective application of the cryptographic algorithms and functions required by the Galileo system's current and future authentication services.
For GMV, this represents a first step towards achieving its own cryptographic capabilities, to give the company technological independence in a field characterized by increasing activity and importance.

CCN Resolution 26646, recently published in Spain's Official State Gazette (BOE), certifies the security of the product GMV GNSS Cryptographic Module v2.1.7, and confirms its compliance with the Common Criteria for Information Technology Security Evaluation.

GMV key player at the Munich Satellite Navigation Summit 2025

For yet another year GMV took part in the Munich Satellite Navigation Summit, one of the most important international satellite-navigation events, held from 26-28 March in Munich, Germany.

Under the slogan "Resilient PNT - Backbone of Autonomy & Critical Infrastructure!", the 2025 edition focused on the need for resilient Positioning, Navigation and Timing (PNT) systems, capable of coping with growing threats such as interference, spoofing or solar phenomena that affect both the precision and performance of critical infrastructures and autonomous systems on land, sea and air.

GMV played an outstanding part in the event, consolidating its position as an international benchmark in the GNSS field. Irma Rodríguez, Director of Satellite Navigation Systems Products and Services of GMV, took part in the panel "Resilient PNT - Leveraging resilience for autonomous systems and critical infrastructure". Manuel Toledo, Director of User Segment and PRS of GMV, took part in the session "Galileo PRS: Receivers". Also present was Andrés Juez, Division Head of Low Earth Orbit Positioning, Navigation & Timing (LEOPNT) of GMV, who took part in the panel "Enhancing resilience with LEO-PNT".

GMV expands its presence in the UK Space Sector

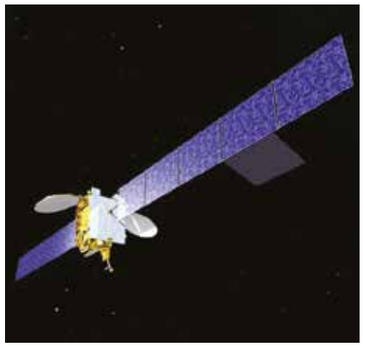
GMV continues to demonstrate an established and significant presence in the UK's space markets with active participation in two major events, the Space-Comm Expo 2025 and the 2025 Farnborough International Space Show. At Space-Comm Expo, held on March 11–12 at London's ExCel, GMV was one of the 190 exhibitors at the UK's largest space event, which brought together over 5,000 delegates and 200 speakers, including prominent leaders such as Peter Kyle (UK Government), Josef Aschbacher (ESA), and Paul Bate (UK Space Agency).

Later, from March 19 to 20, GMV took part in the first edition of the Farnborough International Space Show, an event with a more institutional and defense-oriented focus, supported by the ADS association. It featured 145 exhibitors, including space agencies, key suppliers, and notable figures such as Sarah Jones (UK Minister of State for Industry) and Air Marshal Allan Paul Marshall.

During the events, GMV's exhibition stands showcased the company's contributions to the UK space sector, showcasing its expertise in Positioning, Navigation, and Timing (PNT), robotics, Earth observation, ground control systems, lunar exploration, and Space Domain Awareness. This served as an opportunity to build relationships with key players in the UK's space and aerospace industries, including startups, suppliers, government agencies, and universities.

UKSBAS completes testing phase, securing the future of satellite navigation in the UK

In late 2024, phase 2 of the UKSBAS test project, funded by the ESA under Element 3 of the NAVISP program, was successfully concluded. The project, utilizing ***GMV's MagicSBAS®*** product family, has demonstrated the capabilities of a Satellite-Based Augmentation System (SBAS) in the UK. The project has not only defined potential system architectures but also conducted field tests in the maritime, aviation, road, and rail sectors.



The UKSBAS system, which has been operational for over two years, first transmitted SBAS signals on the L1 frequency in May 2022 during the initial phase of the project. By October 2023, during phase 2, the project introduced new services, including the Dual Frequency Multi-Constellation (DFMC) SBAS system, supporting GPS L1/L5 and Galileo E1/E5a, as well as a high-precision Precise Point Positioning (PPP) service. Despite relying on non-dedicated reference stations, the UKSBAS system has demonstrated performance and availability on par with operational SBAS systems, surpassing traditional L1-based augmentation systems with its DFMC service. The PPP service also delivered exceptional accuracy and improved solution convergence times.

In tests conducted for the aviation sector, the system has shown the potential to support nationwide landing procedures, helping mitigate the economic impact of the EGNOS Safety of Life (SoL) service withdrawal at small and medium-sized airports. In the automotive sector, GMV's ***MagicPPP®*** system demonstrated its potential for high-precision applications, such as autonomous driving, even in the most demanding urban environments. In the railway sector, ***MagicPPP®*** outperformed traditional Real-Time Kinematics (RTK) systems for geo-fencing applications, providing a reliable alternative to portable safety devices used by workers on the tracks. The SBAS system has also proven to be a key enabler for ETCS Level 3 architectures, offering enhanced train protection by ensuring the integrity of GNSS satellite pseudorange measurements.

For UAVs, the project's findings suggest that effective regulation of geospatial awareness and remote identification could unlock new markets for safe augmentation systems in air navigation. Finally, maritime trials confirmed the potential of SBAS systems for ocean and coastal navigation, improving safety through integration with RAIM, alternative positioning sources, and hybrid sensors.

The UKSBAS project has provided valuable data and key insights, reinforcing the role of SBAS and Precise Point Positioning (PPP) systems in the UK's future navigation solutions. Based on these findings, it is recommended to continue exploring the potential of SBAS systems in the next phases of the UKSBAS program.

ESA trusts GMV and DFM to advance the next generation of optical clocks

Today's EGNOS and Galileo ground infrastructures rely on well-established commercial ground clock technologies (Active Hydrogen Maser, Cesium and Rubidium) that are driving the performance, reliability, and availability of very critical functions in the systems, in particular the continuous generation of the Galileo System Time. These ground clocks are made of complex and non-standard technologies that are only mastered and controlled by a very limited number of suppliers, moreover with complex management of maintenance and obsolescence, as well as overall sustainability of the supply chain in the long term.

Over the last decades, significant progress has been achieved in the science and technologies of new types of atomic clocks demonstrating improved performances, for instance but not limited to, optical clocks. This has resulted in the introduction of new commercial products in the US, or early performance demonstration at prototype level in Europe.

In view of the long time required for the development of such a new critical product in an extremely reduced market, and to the specific programmatic needs of the European GNSS ground infrastructure, a first assessment of European candidate technologies is needed prior to embark into a development of an operational solution, such as an industrial product or alternatives.

GMV and DFM, the Danish National Metrological Institute, have been awarded by ESA a contract to pre-develop an optical clock. The objective of the project is to design and prototype the clock, identifying critical components and securing their supply chain, in order to de-risk the development of a commercial clock at a later stage.

The proposed optical clock is based on a laser stabilised to a specific transition of the acetylene molecule, using a spectroscopy unit and a feedback control loop. The resulting optical frequency is converted into a standard microwave signal (10 MHz) by means of a frequency comb. Such a clock is expected to provide a stability near the one of a present-day Active Hydrogen Maser.

Revolutionizing Railway Positioning with Quantum Technology

GMV has entered into a new contract known as QAPTCHA (Quantum Atom-based Positioning for Train Control with a Hybrid Accelerometer), which has the aim of exploring the contributions that quantum technology can make to high-precision positioning, navigation and timing (PNT) applications. With funding from the Innovate UK innovation agency, the project is being launched in April 2025, to bring together a consortium of quantum technology leaders and experts from the United Kingdom.

The goal of this project is to develop a portable hybrid accelerometer that will be commercially viable and suitable for mass production. Currently existing quantum accelerometers are bulky, which greatly limits their potential for use outside of the laboratory environment. The need for a newly designed hybrid device is clear, because conventional accelerometers, even aviation-grade models, are affected by long-term drift that causes significant positioning errors over time. Quantum accelerometers based on cold atom interferometry, on the other hand, offer exceptional performance and can reduce long-term drift by at least an order of magnitude. However, their low sampling rate presents a major limitation in terms of their practical application. By combining the features of conventional and quantum accelerometers, the hybrid device will offer the advantages of both types, with a high sampling rate and minimal long-term drift.

With more than two decades of experience in PNT solutions, GMV will be playing a key role in designing this hybrid accelerometer, while ensuring that the device will meet the specific requirements of the railway sector. GMV will also be developing a testing plan that will be used to validate the hybrid device's performance under realistic conditions, including dynamic tests on board a moving vehicle. The results obtained will be a key part of defining an operational roadmap, which will detail the further steps needed in order to create a commercially available product.

The QAPTCHA project will also give GMV an opportunity to gain practical experience in managing quantum accelerometer data in real operational scenarios, such as analyzing measurements and integrating them into high-precision navigation algorithms. The company will also be assessing the potential for applying these advances in the railway sector, as well as in other industries where high-precision navigation is required. In this way, GMV will be making an important contribution to the further development of advanced navigation solutions, paving the way for the next generation of PNT solutions based on quantum technology.

DEFENSE & SECURITY

GMV achieves a new milestone for development and validation of its SENDA system

During the campaign, the operation of ***SENDA*** was also validated within the SCOMBA combat system environment

In October, a test campaign was carried out in the USA at Lockheed Martin's headquarters in Moorestown, New Jersey. These tests, conducted under laboratory conditions, were focused on integrating GMV's ***SENDA*** system (a navigation system and synchronization server for Spain's F 110 frigates) with the advanced electronic guidance and instrumentation systems (AEGIS) for fire control, based on use of Lockheed Martin's new SPY 7 radar.

The campaign was primarily focused on integrating position and time data, as calculated by the ***SENDA*** navigation system in vessel configuration, into the airborne target detection and fire control algorithms developed by Lockheed Martin, to allow operation on the F 110 frigates. During the testing, functioning of the SENDA system was also validated within the operating environment of the most advanced version of the SCOMBA combat management system, which the company Navantia has developed for the Spanish Navy.

GMV was present throughout the entire test campaign, providing technical support to personnel from Navantia and Lockheed Martin. This included assistance with operating and configuring the equipment, which undoubtedly contributed to the campaign's success.

The testing carried out in Moorestown is part of the contract that has been entered into by GMV and Navantia for supply and installation of five ***SENDA*** systems, including replacement parts, with the equipment deliveries expected to begin in 2027.

A ***SENDA*** system team will remain in Moorestown for an extended period of time, so that Lockheed Martin will be able to perform a progressive series of integration tests, without GMV's direct involvement but with remote technical support available if necessary. The purpose of these activities is to anticipate and minimize integration risks for the new version of AEGIS on the F 110 vessels with SCOMBA, and to verify proper functioning when using the navigation sensors.

Revolutionizing detection and neutralization of explosive ordnance

In January, GMV led the kickoff meeting for the GENIUS project, which is one of the eight projects awarded to the company under the latest European Defense Fund (EDF) call for proposals. With funding from the European Commission, GENIUS is bringing together 18 leading European entities in a collaborative effort to address the critical challenges presented by improvised explosive devices (IEDs), unexploded ordnance (UXO), and land mines.

Traditional methods for detecting and neutralizing these threats are often inadequate, which presents significant risks to the safety of personnel and the success of operations. The GENIUS project, coordinated by GMV, will be transforming this reality by overcoming the limitations that currently exist. By applying an integrated, high-technology approach that incorporates advanced sensors, unmanned platforms, and artificial intelligence, the project aims to deliver unmatched precision and reliability in terms of threat management, while also reducing risks to personnel and increasing mission effectiveness.

As the project coordinator, GMV is leading the design process for the infantry systems, as well as for the command and control (C2) system, with integration of sensors, effectors, and unmanned platforms. GMV is also contributing to the design of the C2 architecture, requirements, and interfaces, to ensure interoperability and delivery of a demonstrator for the testing activities.

The GENIUS consortium officially launched the project with a kickoff meeting held in December 2024, along with an initial workshop that was held at GMV's facilities on January 28 29. During the meeting organized to launch this ambitious and transformative project, the consortium's members discussed the project roadmap, which is being created to overcome the technical challenges, as well as the project's context in terms of ethics and security.

Over the course of the next 36 months, the GENIUS consortium will be developing solutions focused on enhancing threat detection probabilities in complex, high-risk environments, while also providing reliable threat management systems that can be adapted to the realities of modern warfare, with a reduction in false alarms to improve operational confidence and efficiency.

GMV will modernize the VTS system in the ports of Aveiro and Figueira da Foz

The Ports Administration of Aveiro (APA) and Figueira da Foz has chosen GMV to lead the technological modernization of the VTS (Vessel Traffic Service) systems operating in the Ports of Aveiro and Figueira da Foz (Portugal). This initiative aims to enhance navigation safety and improve communication with emergency and rescue entities.

A VTS systems play a crucial role in monitoring maritime traffic, allowing real-time tracking of vessel movements and ensuring safety in restricted navigation areas. This modernization will help reduce the risk of accidents and minimize potential environmental impacts.

GMV's team conducted a detailed analysis of the IALA's stringent requirements, including target detection under various weather conditions. As a result, a solid-state radar technology solution operating in the X-band was selected, providing superior target detection even in adverse weather and low-visibility conditions.

The new system will feature radar technology compliant with IALA standards, two next-generation solid-state radars equipped with 18-foot antennas, and three next-generation solid-state radars with 12-foot antennas. It will also incorporate RDF (Radio Direction Finder) technology, AIS (Automatic Identification System) technology, a VHF radio communication system, and a data recording and storage system for video and audio. the new solution also compromises weather stations and a power supply system with both standard and backup options, including UPS and a generator.

With this modernization, the VTS systems will be accessible remotely via web, allowing authorized operators to monitor maritime traffic from any location. Additionally, pilots will be able to track navigation directly on-board vessels using PPUs (Portable Pilot Units).

New version of NATO-CSD

Reaffirming its commitment to the NATO Communications and Information Agency (NCIA), GMV has delivered a new version of the NATO-CSD (coalition shared database), which introduces significant improvements in response to emerging operational needs.

The purpose of this Enduring Solution CSD is to distribute intelligence, surveillance and reconnaissance (ISR) products in the context of NATO and the Allied nations. GMV has completed the specifications, design, development, testing, deployment, and support elements based on the NCIA's requirements, and in compliance with the interoperability standards. This will allow compilation of information from multiple sources in a variety of formats (video, images, radar, etc.), so that intelligence analysts will have the tools they need for exchanging ISR information and workflows, along with the ability to interact during all phases of the joint ISR (JISR) process. This project is taking place at GMV in its JISR systems area, which is a field the company has been working in for more than 15 years.

According to the established agreement, GMV will be delivering three new annual versions of NATO CSD. This will be done as a way of ensuring that the system will continue to evolve at the pace required by the Alliance and Allied nations, from both operational and experimental perspectives, and in line with the need for continual updating of the interoperability standards. The new version incorporates improvements that were requested via engineering change proposals (ECPs), as a way of optimizing the system's functionality and its adaptability for use in operational environments.

This version will now be subject to NATO's internal validation process so that it can be declared as a new operational baseline, and prior to its final implementation for the NATO command structure and deployable forces, it will undergo validation during the STEADFAST COBALT 2025 (STCO25) exercise. This will be a key event in terms of assessing this version's interoperability and performance during realistic mission scenarios, while also ensuring its compliance with the NATO standards.

With this delivery, GMV continues to solidify its role as one of NATO's strategic technological partners, by ensuring evolution and reliability for one of the most critical shared databases for the Alliance's joint operations.

GMV advances Cybersecure Quantum Optical Communications in European Defence Fund Program

OPTIMAS, a European project co-funded by the European Union through European Defence Fund Program (EDF), has started, with the mission to develop an advanced free-space optical communication system for multi-domain defence applications.

This ambitious program will deliver high-speed data transfer with unprecedented security by integrating cutting-edge encryption technology such as quantum key distribution (QKD). By leveraging laser-based communications, OPTIMAS aims to drastically increase bandwidth and confidentiality for military communications, far beyond traditional systems.

As a significant step forward in airborne laser communication, OPTIMAS is engineered to operate within satellite constellations and provide robust connectivity for space, air, naval, and ground units. The network's laser links will enable secure, high-throughput connectivity among satellites, unmanned aerial vehicles (UAVs), ships, and terrestrial nodes.

In its final stage, the project will showcase a bidirectional optical link between an uncrewed aerial vehicle and a Low Earth Orbit (LEO) satellite, proving the concept of truly secure, high-speed communications between air and space. Extending these capabilities to Medium Earth Orbit (MEO) and Geostationary Orbit (GEO) platforms will also be explored, broadening the network's reach and laying the way for future global optical communication coverage.

As a core member of the consortium, GMV plays a key role in the project's technical development being responsible for developing the satellite control system that will manage the OPTIMAS satellite in orbit. This system will monitor and control the satellite from launch through all operational phases, using telecommand and telemetry links to supervise every critical subsystem. Furthermore, GMV is leading the work package for ground and maritime architecture studies with its expertise in satellite control systems and secure communications, integrating the optical and quantum technologies into a unified defence communication network.

OPTIMAS brings together 12 organizations from 7 European countries, showing a broad commitment to collaborative defense innovation. Supported by the EDF's 2023 program, the project underscores Europe's strategic focus on technological sovereignty in critical defense capabilities.

Through its involvement in OPTIMAS, GMV reinforces its leadership in advanced satellite systems and secure communications, contributing to a major step forward in European defense interoperability and cyber resilience.

OPTIMAS stands as a key milestone for the evolution of laser-based communications for defense, paving the way for faster, safer links between all corners of battlespace.

Co-funded by the European Union

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Dialogue on the present and future of defense

In March, GMV took part in a breakfast colloquium organized by Executive Forum España, in collaboration with Hisdesat Servicios Estratégicos S.A. This event featured a keynote speech by Brigadier General Vicente Torres Vázquez, who currently serves as Spain's Deputy Director-General for Defense Industry Strategy. This speaker was able to share some valuable insights regarding the current challenges and opportunities existing for the defense industry in Spain.

This event also brought together a wide range of institutional representatives, including the Director General of Weapons and Material from Spain's Ministry of Defense, plus numerous representatives from the defense industry. This presented a very useful opportunity for open dialogue, to address some important topics such as strategic autonomy, the role of technological innovation, and the need to strengthen critical security and defense capabilities in Spain and in Europe as a whole.

In a geopolitical context where defense has taken on a prioritized position in the public discourse, GMV is reaffirming its commitment to technological development, industrial sovereignty, and public-private collaboration as fundamental aspects of securing a safe and resilient future.

Spain's port management company continues to rely upon GMV for updating its AIS network

Puertos del Estado is the Spanish government's port management company, and once again it has relied upon GMV for updating and evolving its automatic identification system (AIS) network, through awarding of a two-year contract.

The Puertos del Estado AIS network is designed to provide its users with real-time data on the identity of vessels and their position, course, speed, cargo type, destination port, and time of arrival, along with other information. It also incorporates a variety of value-added features for optimizing port operations and managing navigational aids. All of the information received is securely stored, so it can be used later for statistical purposes, investigating incidents, and performing studies.

Since 2005, GMV has been developing, implementing, and maintaining this AIS network for Puertos del Estado, based on the ***Shiplocus®*** solution, designed by GMV for port management and vessel traffic services. ***Shiplocus®*** makes it possible to receive, process, and distribute the localization information transmitted by vessels via their AIS terminals, in compliance with the requirements imposed by the International Maritime Organization (IMO).

GMV's solution also covers the needs of Spanish port authorities and operators in a wide range of areas, with services that allow real-time monitoring and tracking of vessels. This makes it possible to implement aspects such as optimized port planning, integration of intermodal freight transport, management of port calls, operation of recreational marinas, monitoring and control of navigational aids, and issuance of hydrological and meteorological data by Puerto del Estado's systems.

Tools like ***Shiplocus®*** are an essential part of port management, because they provide a way to optimize port planning and operations, and GMV's tool is typically used by control centers, operational services, and navigational aid departments. This has given Shiplocus® a solid reputation as a key solution for effective management of port-related activities.

The new contract between Puertos del Estado and GMV includes maintenance, operational assistance, monitoring of the network's status, and incident management. As part of this contract, GMV will be deploying a new version of ***Shiplocus®*** with additional features, most notably improved graphic interfaces, more extensive report options, and expanded AIS coverage by connecting new data sources for the areas surrounding Portugal and France.

The CRUCIAL HINTS Cyber Resilience Project Enters Its Second Phase

■ The "Cyber Resilience in the Air Domain and Feasibility Study for an Aviation Cyber Exercise" (CRUCIAL HINTS) project, led by GMV in partnership with the Netherlands Aerospace Center (NLR) and Vedette Consulting from Ireland, aims to enhance cyber resilience by specifically addressing cybersecurity challenges in the air domain.

Promoted by the European Defense Agency (EDA), the project has entered its second phase, focusing on analyzing military aviation dependencies on the radio spectrum (RS) along with associated cyber threats and risks. It also involves investigating the capabilities and applications of Electromagnetic Spectrum Management (EMA) in the air domain within a Multidomain Operations (MDO) context. Additionally, the project seeks to establish preventive and mitigation measures to ensure effective responses to cyber threats and risks. Finally, work is underway on developing a new concept for an aviation cyber course in support of the European Security and Defense College (ESDC).

In January, the CRUCIAL HINTS team organized a workshop at EUROCONTROL, the European Organization for the Safety of Air Navigation, to lay the groundwork for an aviation cyber course. This workshop brought together experts from EDA, EUROCONTROL, independent cybersecurity professionals, GMV, Vedette Consulting, NLR, and the EAG. The goal was to design, execute, and gather insights, marking a key step toward the development of the first pilot course by creating the curriculum in collaboration with the relevant counterparts. The insights gained will support the team in drafting, refining, and finalizing the course curriculum for further review and implementation.

GMV hosts visit from course given to Spanish military officers by the Center for Advanced Defense Studies (CESEDEN)

On February 13th, GMV received a visit from the 26th edition of a course given to Spanish military officers by the Ministry of Defense's Center for Advanced Defense Studies (CESEDEN).

This course is offered to high-ranking members of the Spanish Armed Forces with the goal of complementing their training in advising and supporting top-level leadership. The theoretical part of the course is complemented by practical learning, which includes educational trips and visits to pertinent organizations, companies, research centers, and other locations of interest.

As a leading company in the international defense industry, GMV is typically included in the schedule of visits that CESEDEN arranges with Spanish companies.

During their visit to GMV, the course participants were able to learn about the company's technological capabilities in the fields of artificial intelligence, space, ISR (intelligence, surveillance and reconnaissance), aeronautics, and command and control (C2) systems, all of which reflect the company's leading role in the area of defense innovation.

GMV gave a presentation that featured its C4ISR solutions, which have been integrated with NATO standards, as well as some of its current artificial intelligence projects, which are being carried out in collaboration with various Spanish and international entities on subjects such as data fusion, decision support, and management of unmanned systems.

In relation to aeronautics, an emphasis was put on GMV's participation in the Future Combat Air System (FCAS) program, as well as other projects such as EuroMALE and SIRTAP, where it is contributing critical navigation and flight control systems.

The visit was concluded with a general overview of GMV's leadership role in the space industry, through its participation in various programs, followed by a group discussion of some of the topics addressed.

Autek is strengthening security for information exchanges by Spain's Ministry of Defense

■ Autek has been awarded a project entitled "Acquisition of a high-availability secure gateway for interconnectivity of CESAEROB and INTA and two PSTjreap gateways within the National Command and Control System (SC2N) of the Ministry of Defense 2024". The purpose of this project will be to improve security when information is being exchanged between secure domains within the Spanish Ministry of Defense.

This represents a response to two specific needs that the Ministry has in relation to information security. First, it has a need for secure interconnectivity between networks with different levels of classification within the Center for Aerospace Observation Systems (CESAEROB) and the National Aerospace Technical Institute (INTA); and second, it has a need to strengthen security when data is being exchanged within the Ministry of Defense's National Command and Control System (SC2N), to ensure information integrity and confidentiality.

To achieve these objectives, Autek will be supplying secure gateways from its PSTgateways line of products, along with its Cross-Domain technology, which is the company's proprietary solution developed in Spain, specifically for perimeter protection and secure information exchanges between isolated networks. These devices are designed to act as the only point of information exchange between networks, without allowing any direct packet transfers or connections between them, as a way of ensuring true isolation.

The PSTgateways are a solution that allows for controlled and verified data flows between networks, while at the same time preventing any type of unauthorized traffic. Their architecture is based on separation into two appliances and full disconnection of the TCP/IP protocol stack, which ensures robust protection against threats.

Also as part of the scope of supply, secure PSTgateways will be provided for secure file exchanges and interaction via web services. The project also includes supply of the company's secure PSTjreap gateways as a specialized solution for exchanging tactical JREAP C data.

With this new contract, Autek is reaffirming its commitment to innovation and development of advanced technological solutions for information security in critical environments. Implementing the use of these gateways will help strengthen cybersecurity for the Ministry of Defense, while ensuring the integrity of information on its strategic networks.

Autek collaborates on the Agile APQP Guide promoted by the association TEDAE

GMV and Autek have been active participants in the working group to produce the Agile APQP Guide, in collaboration with other industry experts. This initiative has been sponsored by the Quality Committee of the Spanish Association of Defense, Security, Aeronautics and Space Technology Companies (TEDAE), with the aim of developing a practical way of combining the APQP and Agile approaches to project management.

The completed guide was presented at the 5th Technical Workshop on Practical Tools for the Defense, Security and Aerospace Industries, which was held on January 30th. This guide's development has been based on the need to bring together two key approaches for innovation and competitiveness in the industry, namely advanced product quality planning (APQP), and Agile methodology with its emphasis on flexibility and adaptability.

The APQP approach is focused on early detection of quality issues in processes and products, so that they can be addressed from the earliest stages of the product life cycle. On the other hand, Agile methodology allows for better adaptability in situations where clients may have changing needs, and it relies upon iterative development and continual improvement. What the Agile APQP Guide is able to demonstrate is not only that these two methodologies are compatible with each other, but that they can be combined as a way to optimize project management, encourage collaboration by multidisciplinary teams, and enhance an overall focus on client satisfaction.

Unlike other approaches that are exclusively limited to quality assurance (QA), this Agile APQP approach is based on a cross-cutting integration model, which incorporates key elements and activities from APQP into the series of iterative cycles that are characteristic of Agile methodologies. The end result is improved project planning, control, and execution in highly dynamic environments.

One of the most notable aspects of this guide's development has been the opportunity for sharing of knowledge and experience among professionals with different backgrounds and specializations, as a way of enriching the content with a comprehensive perspective on the industry. This initiative has also been useful as a platform for discussing some of the main concerns of the companies involved, while exploring new opportunities for innovation and process improvement.

With this collaboration, Autek has reaffirmed its commitment to excellence and continual improvement in quality management, while making an active contribution to incorporating highly relevant advanced methodologies into the defense, security, and aerospace industries.

Opinion

Protecting our future: cybersecurity and efficiency within the NIS2 framework

In the field of cybersecurity, the need for regulations such as NIS2, which is mandatory as of October 17, 2024, shows that the law is sometimes the key to making up for a lack of awareness and good practices in some industrial sectors.

WHAT DOES NIS2 REQUIRE AND WHY DID IT ARISE?

The measures required by the directive are not revolutionary and do not require massive investments. In fact, they are based on basic cybersecurity principles that are long overdue, such as risk management, documentation and reporting of relevant security and continuity incidents, regular vulnerability audits, and a cyber-attack response and continuity plan.

The fact of the matter is that essential sectors still lacked these practices prior to the introduction of NIS2. Their implementation not only seeks to protect critical infrastructures, but also to foster a preventive and proactive cybersecurity culture. This directive is a response to several factors:

- **Increased cyber-attacks**: critical infrastructures have been frequently targeted, exposing the need for a more robust approach.
- **Expanded scope**: while the first version of the directive in 2016 covered only seven sectors, NIS2 now encompasses 35.
- **Technological and threat evolution**: since its initial implementation, the landscape has changed radically, requiring stricter measures and penalties for non-compliance.

The ultimate goal is a more secure, resilient and reliable environment, where essential services can operate without interruption even in the face of a cyber-attack.

CYBERSECURITY AS A PRIORITY

NIS2 seeks to transform cybersecurity into an everyday matter, integrating it into strategic decision making. This means creating collective awareness of its importance and ensuring that data protection is a crucial part of any organization.

Adopting these measures does not mean jeopardizing the budget or operating performance. In fact, it is possible to combine cybersecurity and efficiency through the following:

- **Automation**: use of intelligent systems and machine learning to detect and respond to threats.

Carlos Sahuquillo. cybersecurity consultant of GMV's onboard systems.

- **Training**: train personnel so that each employee is a strong link in the security chain.
- **Continuous evaluation**: review and adapt countermeasures to new threats.

AN OPPORTUNITY FOR A SUSTAINABLE FUTURE

Beyond compliance, NIS2 enables the building of a more secure and sustainable digital environment. It reduces the impact of attacks, ensures business continuity and prevents economic losses or irreversible reputational damage. Adopting NIS2 measures is not only an obligation, but also an investment in trust and long-term sustainability.

GMV gives the keys to protecting smart ports from cyber-attacks

In February, GMV took part in February in the 2nd Smart Ports Chair Conference, organized in Castellón by the Smart Ports Chair UJI of the Jaume I, the Port of Castellón, the PortCastelló Foundation and Puertos del Estado.

The event, which is key to the future of digitization and cybersecurity in Spanish ports, was attended by experts in technology and innovation in the port sector. GMV was represented by Daniel San Miguel Reyero, head of 5G security solutions of GMV's Secure e-Solutions. He shared the company's strategy for achieving the highest levels of cybersecurity in the state's ports, protecting the port network and its ecosystem and ensuring a secure and resilient environment for authorities, companies and the public.

In his presentation, Daniel San Miguel explained how the impact of a cyber-attack on a port "affects both availability, which could paralyze the port's activity with a substantial economic impact, and the integrity of the information, which could lead to improper decisions being taken".

1st Financial Sector Cybersecurity Conference

More than 200 professionals from the financial sector met in mid-January at the Cecabank Auditorium in Madrid to participate in the 1st Financial Sector Cybersecurity Conference entitled "DORA: Strengthening a Solid Resilience Framework". The event, organized by Red Seguridad and Fundación Borredá, was supported by GMV and brought together experts to analyze the impact of the new Digital Operational Resilience Act (DORA) regulation on financial institutions.

The regulatory framework seeks to ensure the continuity and quality of financial services as well as to reinforce cybersecurity, a central pillar for the stability of the financial ecosystem.

The event allowed attendees to learn first-hand about the keys to adapting to these regulations, highlighting the importance of implementing advanced security measures to reduce risks and protect the digital infrastructure of financial organizations.

For GMV, the coming into force of this regulation represents a significant step forward in the consolidation of an approach based on technological risk management, continuous supervision and operational resilience in the financial sector.

Artificial intelligence and lung health, a quantum leap in diagnosis and prognosis

AI and deep learning can optimize the detection, assessment and predictability of the course of diseases such as idiopathic pulmonary fibrosis.

GMV, in collaboration with the Complutense University of Madrid and the Hospital Universitario La Paz, is taking part in a research project funded by the Centro para el Desarrollo Tecnológico y la Innovación (CDTI), whose aim is to improve the diagnosis and prognosis of Diffuse Interstitial Lung Diseases (DIDD), a group of complex pathologies that affects thousands of people.

The project employs artificial intelligence (AI) and deep learning (DL) to optimize the detection, assessment and predictability of the course of diseases such as idiopathic pulmonary fibrosis (IPF) and sarcoidosis.

DIDDs represent a major diagnostic challenge due to inter-observer variability and overlapping pathologies in medical imaging. Using AI, GMV's project seeks to identify abnormal patterns in the lungs, such as inflammation, scarring or fluid accumulation, thus making it possible to detect and classify diseases such as idiopathic pulmonary fibrosis and post-COVID fibrosis, as well as different types of pneumonia. In addition, it will facilitate the assessment of the severity of each case in order to personalize treatments and improve care management.

Another key advance will be the ability to predict the course of the disease through medical imaging and respiratory testing. Moreover, AI will allow for detecting additional anomalies in the thorax, such as rib or vertebral fractures, pleural fluid and pulmonary nodules, which are decisive factors in diagnosis and treatment.

AN UNPRECEDENTED CHALLENGE

There is currently no commercial product or patent that encompasses all of these clinical functions, making this project a milestone in the field of medical imaging and AI applied to health care. The research will focus on improving algorithms to optimize pattern segmentation, disease classification and disease course prediction.

The plan will be implemented in three phases. The first will consist of the study of research advances and strategies. The second will focus on the implementation of the algorithms and internal testing. Finally, in the third phase, the technology will be clinically assessed at Bellvitge Hospital to validate its effectiveness in a real-world environment.

This project may not only transform the diagnosis of lung diseases, but also serve as a model for the application of AI in other areas of medicine.

TARTAGLIA brings research into real-world environments

After three years of research, the TARTAGLIA project has concluded with promising results in the application of artificial intelligence (AI) to clinical and health care research in Spain. Led by GMV and a public-private consortium of 16 key organizations in the sector, it has shown the impact of AI in the diagnosis, treatment and prevention of complex diseases.

One of its most outstanding achievements has been the implementation of advanced AI models to analyze health data. For example, it has achieved 80% accuracy in predicting prostate cancer. This advance represents a crucial step in the personalization of treatments and the improvement of medical care. The impact of the project has been recognized by the Spanish Society of Health Informatics (SEIS), which awarded it an honorable mention in the National Health Informatics Awards, presented by the Minister of Health, Mónica García Gómez.

The public-private collaboration of the TARTAGLIA consortium has developed diagnostic, treatment and prevention tools for diseases such as Alzheimer's, prostate cancer, diabetes and cardiometabolic pathologies.

One of the project's milestones is the secure federated network, based on AI and advanced cryptography, which has been created to exchange data between hospitals and research centers free of the risk of exposure. In addition, it has optimized the quality of medical images by improving diagnostics using ultrasound technology.

TARTAGLIA has also reached a TRL7 technology maturity level, thus proving its viability in real environments. It has validated the use of federated learning and analytics technologies to safely accelerate research in Spanish health care institutions. In addition, its federated data network, with seven computing nodes, allows different regions and national health institutions to contribute to and benefit from data banks, thus improving the training of mathematical models for clinical decision making.

As a result of public-private collaboration in the implementation of AI algorithms in health care systems, we are now in a position to improve diagnoses and have accelerated the validation of models in hospitals. All this in compliance with security regulations and applying European standards such as ISO 27001 and the FAIR principles for data protection.

Launched in 2022 as part of Digital Spain's AI R&D Missions 2025 program, TARTAGLIA scored the highest in its category and received €7.5 million in funding from the European Union under Next Generation EU. This project marks a turning point in clinical research in Spain, laying the foundations for more precise, accessible and personalized medicine.

Technological Governance for a Secure and Efficient Digital Healthcare System

In February, Santander became the epicenter of digital health as it hosted the Health Data Security and Protection Forum, organized by the Spanish Society of Health Informatics (SEIS). The event brought together professionals from a wide range of disciplines—physicians, nurses, pharmacists, researchers, students, managers, executives, and ICT experts—alongside data protection authorities and technology leaders, all united in their commitment to the safe use of health technologies.

During the forum, GMV stood out with a presentation by Eduardo Hernández Perdiguero, a consultant specializing in privacy, information security, and cybersecurity. He highlighted how the healthcare sector offers a wide array of opportunities through the intelligent use of data—from developing solutions that enhance clinical diagnosis to driving biomedical research and innovation.

One of the key topics of the event was the concept of federated data spaces—environments where different organizations share information to maximize collaborative value. As GMV's expert explained, this strategy also introduces risks that must be carefully managed to ensure data sovereignty, information security, the rights of individuals, and regulatory compliance.

In this context, GMV emphasized the crucial role of the European Health Data Space regulation, which aims to govern the interoperability, accessibility, and reuse of health data among healthcare entities across Europe. The regulation seeks to establish a framework capable of properly addressing emerging risks while fostering a secure and efficient data ecosystem.

Opinion

Digital transformation in health care: a change that cannot wait

Digital technology is advancing swiftly, transforming industries and redefining the way we live. However, the health care sector still faces structural challenges that require urgent solutions. The aging population, the rise in chronic diseases and the shortage of medical professionals make digitization essential to ensure an efficient, accessible and sustainable health care system.

Despite scientific advances, health care continues to rely on fragmented processes and obsolete systems that hinder efficiency and quality of care. Digital transformation not only optimizes hospital management and medical decision-making, but also provides patients with more equitable access to health care services. Tools such as artificial intelligence (AI), the Internet of Things (IoT), 5G and cloud computing are proving their enormous potential in improving health care.

Countries such as Estonia, Denmark, and Finland have successfully embraced the digitization of health care. Although it has initiated measures with the Digital Health Strategy and the Recovery Plan, Spain still has room for improvement.

AXES OF CHANGE

The digitization of the health care system must center on four key pillars. The first is the creation of integrated health data platforms to manage clinical information both efficiently and securely. The second pillar is predictive and generative artificial intelligence. In the United Kingdom, for example, AI applied in the NHS system has led to a 15% reduction in hospital readmissions for heart failure, thus improving the efficiency of the system and the quality of life of patients.

The third pillar is patient telemonitoring, a technology that improves quality of life and reduces the burden on hospitals.

CYBERSECURE TRANSFORMATION

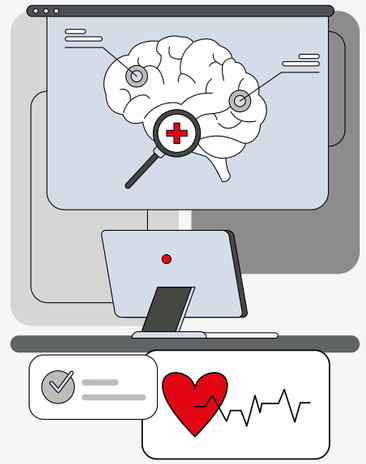
Cybersecurity is central to the digital transformation of health care. Protection of sensitive data is key to building trust in the use of digital tools. Germany, for example, has reduced attempted cyber-attacks on hospitals by 40% through use of strict regulations and advanced security systems.

The future of digital health care is promising, but it requires continuous work. Europe is moving toward the development of federated health data platforms that will facilitate the efficient use of AI and advanced data analytics.

To ensure responsible use of AI in health care, GMV has developed a governance model aligned with the EU AI Act by setting up control mechanisms for model accuracy, bias detection and explainability in decision making. These measures seek not only to comply with regulations, but also to generate trust among health care professionals and patients.

We are at a turning point in the history of health care. While the Industrial Revolution made it possible to overcome physical limitations with the steam engine, the digital transformation is revolutionizing cognitive and operational capacity in health care. This is not just about efficiency; it is an opportunity to build a more equitable, accessible and sustainable health care system. The question is no longer whether we should digitize health care, but how to do it in the most effective and ethical way possible.

Juan Carlos Sánchez-Rosado
Executive at the Health Business Unit of GMV's Secure e-Solutions sector



GMV to bring EMV payment solution to CRTM concessions

The project, which marks a milestone in the digital transformation of public transportation in Spain's capital, will enhance the service's accessibility, sustainability, and efficiency

GMV, leader in technological solutions for public transport, has been selected to implement its contactless EMV bank card payment system in most of the franchises of the Regional Transport Consortium of Madrid (CRTM). This project marks a milestone in the digital transformation of the region's public transport, boosting the service's accessibility, sustainability, and efficiency.

When the majority of operators decided to place their trust in GMV, it is because of the excellent results achieved in the pilot project inaugurated in December 2024 by the Regional Minister of Housing, Transport, and Infrastructure of the Community of Madrid, Jorge Rodrigo. This pilot project, implemented on city buses in San Lorenzo de El Escorial, Torrejón de Ardoz, and Pozuelo de Alarcón, showed the potential of the EMV payment solution to modernize access to public transport, benefiting both residents and visitors.

As a result, with the contracts that have already been signed so far, GMV will increase its presence as a ticketing technology supplier for CRTM operators, going on to have more than 80% of the fleet using its ***TV100*** validator solution. This breakthrough makes GMV the leading supplier of payment solutions for public transport in the Community of Madrid, where its solutions are now being used by over seven different operators.

A highlight of this project is that the ***TV100*** validator, designed, developed and manufactured entirely by GMV, is in compliance with the specifications of Annex ITS of the preliminary concession renewal bill published last year. This device, in addition to being robust and adaptable, enables fast, secure, and universal payments through physical or virtual bank cards on devices such as cell phones and smart watches.

The opening ceremony was attended by prominent personalities such as Jorge Rodrigo, Minister of Housing, Transport and Infrastructures of the Community of Madrid; Pablo Rodriguez Sardinero, manager of CRTM; and representatives of municipalities and operators such as ALSA. GMV was represented by Miguel Ángel Martínez Olagüe, General Manager of Intelligent Transportation Systems; María Jesús Calvo, Director of Customer Service and Maintenance of Intelligent Transportation Systems; Carlos González Bayod, Business Development Manager of Intelligent Transportation Systems; José Cuesta, Upsell Development Manager in the Intelligent Transportation Systems area; and Antonio Blanco, Business Development Manager of Intelligent Transportation Systems for Spain, Portugal, and Morocco.

The success of the pilot project was crucial in persuading the operators to choose GMV's solution and extend it to other franchises, scaling up the implementation to a greater number of buses and guaranteeing a consistent user experience throughout the region.

With over 30 years' experience in the development of ITS solutions, GMV has strengthened its position as a strategic partner for transport authorities and operators in Spain and worldwide. This new project consolidates GMV's leadership in public transport innovation.

GMV to supply Samar and Rubiocar with ITS systems for their Castilla-La Mancha franchises

■ The operators Samar and Rubiocar have taken on GMV to supply, implement, commission, start up, operate, and maintain their operational assiatance system (OAS) and their ticketing system. This project will cover the vehicles that these two operators have in the regular interurban public passenger transport concessions that operate in the autonomous community of Castilla-La Mancha, which means equipping 69 and 89 vehicles, respectively.

Both projects have been awarded grants, financed with funds from the Recovery, Transformation, and Resilience Plan, by the Government of Castilla-La Mancha to the operators. These grants form part of the program to digitize and modernize the companies that manage the regular public bus transport service for general-use travelers in the community.

The two new projects, together with the central system of the Government of Castilla-La Mancha, also recently awarded to GMV, allow the company to position itself as the leading technology provider in this region.

On the technical side, GMV will equip the buses of both operators with a fare collection system incorporating EMV payment technology and QR code reader. Furthermore, the equipment supplied by GMV functions as on-board fleet management equipment, with tracking and communications functions. At the control center level, GMV will supply its backoffice ticketing and fleet management systems, which, in turn, will report operational information to the central systems of the Government of Castilla-La Mancha.

GMV showcases its intelligent ticketing innovations

GMV took a leading part in "Transport Ticketing Global 2025", one of the main events on ticketing and digital payments in public transport, held in London on March 4-5. As sponsor and exhibitor, GMV reaffirmed its commitment to innovation and sustainability in urban mobility, leveraging its stand to display solutions that improve operational efficiency and user experience in the areas of intelligent transport systems in general and ticketing in particular.

Particularly of not among the innovations presented were the ***DTD200*** multifunction desk, a comprehensive solution that combines ticket sales and validation, operating assistance system, on-board information through screens and public address system, video surveillance, and efficient driving Attendees were also able to get a close-up look at the ***TV100*** external validator, designed to optimize the user experience in high-traffic environments. In addition to these solutions, GMV also presented complementary technology such as service planning systems, on-street passenger information, and automatic vending and recharging equipment.

GMV took advantage of the event to strengthen its network of contacts and explore new business opportunities, interacting with sector leaders, decision-makers and ticketing experts of transport operators, public authorities, and technology providers. The company was also able to learn first-hand about the latest innovations in the sector, attend conferences given by industry leaders, and discover cutting-edge solutions at an exhibition with more than 90 stands.

Siemens chooses *SAE-R®* to manage Medellin's streetcars

With this project, Medellín Metro joins the distinguished list of urban rail authorities and operators that rely on GMV's solution

Siemens has recently chosen GMV's ***SAE-R®*** system to manage the CRRR streetcars of the Metro de la 80 project in Medellín, Colombia. This project marks a significant milestone for GMV, as it is its first public transport project in Colombia and its first collaboration with SIEMENS and CRRC. With this contract, GMV has also expanded its portfolio of rolling stock manufacturers in the railway sector who place their trust in its technology.

Specifically, after a private bidding process, Siemens awarded GMV the lot including the ***SAE-R®*** operating aid system and the service planning system. The Metro de la 80, also known as Línea E de Ecociudad, is Ça light rail project that will run north-south through Medellín, mainly along Avenida de la 80, the main thoroughfare in the western part of the city. With a total length of 13.25 km and 17 stations, it is scheduled to open in 2028.

Empresa de Transporte Masivo del Valle de Aburrá, known as Metro de Medellín, awarded the civil works project and purchase of trains to Unión Temporal Metro de la 80, jointly owned by the Chinese manufacturer CRRC (Hong Kong) Co. Limited, which is responsible for supplying the trains. Within the project, Siemens Mobility participates as a supplier of the UTE Metro de la 80, heading up the power supply and signaling systems.
As part of this project, ***SAE-R®*** will enable precise positioning and facilitate real-time fleet monitoring and management through different visualization modes to represent rolling stock and stations, as well as graphical tools and advanced functions to regulate the use and analysis of recorded data. On the other hand, the planning system will make it possible to define and edit both the standard gears used in the operating plans and the operating plans themselves.

The ***SAE-R®*** system will be installed on 20 double cab trains, which will be equipped with on-board computers, driver interfaces, and beacon readers, in addition to the necessary track beacons. The project also includes software developments to adapt the solution to the specific needs of Metro de la 80, including advanced regulation features for real-time decision making fpr changes in demand or possible emergency situations.

SAE-R® will be integrated with various third-party systems, both on-board and central, such as the master clock, on-board and in-station passenger information systems, CTC, and TCMS. GMV will also provide service information in standard interfaces such as SIRI or JMS, facilitating integration with third-party applications.

With this project, Metro de Medellín joins an outstanding list of urban rail authorities and operators that rely on ***SAE-R®***, such as the streetcars of Sydney, Warsaw, and Barcelona, among others.

GMV provides the ALVS system for the Al Ula tramway of Saudi Arabia

GMV has recently been selected by Alstom to supply the AVLS (Automatic Vehicle Location System) for its "Al Ula Experiential Tramway" project in Saudi Arabia. This project, which will operate with the supply of 20 CITADIS model trains, involves the construction of a 22.4 km route and 17 stations between Stadium and the archaeological site of Hegra, a World Heritage Site. This tramway will provide a seamless connection between Al Ula's five main historic districts, combining technology and sustainable mobility in one of the country's most iconic cultural enclaves.

The solution that GMV will implement for the Al Ula Tram will be based on the ***SAE-R®*** product, the advanced fleet management system developed by GMV for rail and tram environments that has already been implemented in projects and for clients such as RENFE and TRAM Barcelona (in Spain), outfitting the entire fleet of these two operators, as well as other international ones such as TfNSW in the city of Sydney, Warsaw Tramways in Poland, and ONCF in Morocco.

This system will combine the classic functions of this product, such as the precise location of the train fleet on geographical or schematic maps of the line and station, managing messages with drivers and passengers, providing information to passengers on board and in stations, managing drivers and service regulation operations, with other advanced and innovative implementations such as automatic route requests or continuous information to drivers in order to optimize energy consumption in their driving.

SAE-R® will be functionally integrated with a wide range of external systems, both in the control center (planner, passenger information at stops, integrated operation and control system (SiOC)/Smart City, etc.) and on board (Train Control and Management System (TCMS), passenger information, route request, Automatic Train Protection (ATP), Traction Power Supply (TPS) or passenger counting).

All trains will be equipped with on-board units, designed and manufactured by GMV, as well as touch monitors such as HMI (Human Machine Interface) for the driver. The solution is complemented by the installation in the central offices of a control center ecosystem with workstations to monitor and analyze the operation by the transport network operator, both in real time and in delayed mode, the latter being made available to external systems for the calculation of KPIs concerning the operation of the system.

Finally, the AVLS system as a whole will be designed to ensure the highest availability in the event of specific errors in any of its components, in addition to complying with current cybersecurity requirements.

GMV plays a leading role at the 25th ITS Spain Congress

As another demonstration of its commitment to mobility, GMV was a key participant at the 25th edition of the Spanish Congress on Intelligent Transportation Systems, known as ITS Spain, which took place from February 18 20 at the Spanish Engineering Institute in Madrid. In addition to GMV' role as one of the event's sponsors, representatives from the company took part in various sessions, which provided a unique forum not only for discussing topics related to transportation, but also for proposing innovative solutions.

This year's gathering took place under the slogan "The Road to ITS Seville 2025", in reference to the ITS European Congress that will be held in that Spanish city in May. This edition of the event addressed multiple aspects of public transportation and intelligent mobility, with some of the most notable topics including autonomous driving, ITS in infrastructure, connected mobility, ITS in interurban traffic, smart cities, and data use and management for optimizing urban mobility. There was also a focus on other essential elements for modernizing public transportation, such as data integration and advanced ticketing systems.

During the event, representatives from GMV shared updates on the company's activities in the industry, and they gave presentations on several of the company's current projects. During the session entitled "Information Systems in Public Transportation", Antonio Abascal, head of Bus and Light Rail Projects in GMV's Intelligent Transportation Systems division, gave a talk entitled "Global Computer-Aided Dispatch and Automatic Vehicle Location (CAD/AVL) and its International Implementation", and Isidro Prieto, head of Railroad Segment Business Development in GMV's Intelligent Transportation Systems division, discussed ways of integrating ITS into railroad projects during the session entitled "Data and Public Transportation". Two of GMV's other experts in Intelligent Transportation Systems, Oscar Casado and Fernando Ibeas, participated in the consecutive sessions held on "Advanced Ticketing Systems in Public Transportation", where they addressed the topics of interoperability and modern payment methods.

The event culminated in a ceremony to announce the winners of the ITS 2025 Awards, where GMV took the top spot in the Public Transportation category, with Miguel Ángel Martínez Olagüe, GMV's General Manager of Intelligent Transportation Systems, present to accept the award on the company's behalf.

Expansion of video surveillance systems on the Barcelona MTA bus fleet

After implementing the operational assistance system (OAS) by the end of 2023 in the 900 vehicles that currently provide regular passenger transport service in the Barcelona Area Metropolitan Transport Authority (*Autoridad del Transporte Metropolitano del Área de Barcelona*). (ATM), the ATM has renewed its trust in GMV to install video-surveillance systems in 460 of its vehicles.

This project, financed with funds from the European Union within the framework of the Next Generation EU Recovery, Transformation, and Resilience Plan, began as one of the actions included in the plan of measures for the prevention of sexual harassment in public transport, an action agreement for public transport operators in Catalonia. This measure was developed in collaboration with the Department of the Vice-Presidency and Digital Policies and Territory (DVPGT), the Catalan Institute for Women, ATM, user groups, organizations, and operating companies. Framed within the actions foreseen in the Mobility Master Plan 2020-2025 of the Barcelona Area, its objective is to improve the perception of safety on board buses and to protect public transport users and personnel from criminal acts and incidents, and in particular, as a deterrent to prevent sexual harassment.

Although the main SAE project involved video surveillance in 82 vehicles used on night routes, this new extension means that, by June 2026, a total of 542 vehicles will have this security system. This represents 60% of the regular transport fleet in the Barcelona area.

The project, based on previously implemented SAE technology, includes the provision of video cameras and communications switches, the integration of hard disks to store the recordings in the previous SAE on-board equipment and the installation of this set of elements.

In general terms, the video surveillance system allows the encrypted images recorded on the on-board equipment to be transmitted to the storage server for possible viewing. It also allows live images to be sent via streaming when the driver activates the panic/emergency button or when requested by the video surveillance system controllers.

TMB places its trust in GMV to update its data-digitization system

GMV has won the contract for the third phase of the telemetry project for Transports Metropolitans de Barcelona (TMB). This new contract represents a milestone in the digitization of public transport, extending telemetry to the entire TMB bus fleet, improving operational efficiency, maintenance and service sustainability.

Awarding this contract is a natural progression of the project's previous phases, in which GMV has already played a key role. In the first phase, a telemetry base system was implemented in the fleet to capture mechanical and operational data from the buses. Subsequently, in the second phase, the software and hardware infrastructure was optimized, extending coverage to more than 380 buses and improving data collection capacity. Now, in this third phase, the project will reach its highest use by integrating approximately 849 buses and guaranteeing the incorporation of future acquisitions.

The project's main objective is to equip the entire TMB bus fleet with an advanced telemetry system, providing real-time monitoring of key parameters such as energy consumption, engine status, air conditioning, suspension, and steering. The information obtained will be integrated into TMB's operation and maintenance systems, optimizing decision making and reducing operating costs.

To achieve these objectives, GMV will develop the telemetry engineering, configuring the software and generating integration files with the different bus models in the fleet. It will also implement the technology in vehicles via CANBUS connection or inductive devices, ensuring non-intrusive integration.

In addition, testing and validation will be performed, including data capture in laboratory environments and pilot testing under real conditions to ensure the quality of the system. Finally, GMV will provide support and maintenance during the five years of the contract, integrating new units and technologically developing the system.

This contract reinforces GMV's commitment to public transport innovation and its capacity to develop cutting-edge ITS solutions. With the implementation of this phase, TMB is taking a decisive step towards smart and sustainable mobility, optimizing its fleet's operation and improving the user experience.

The regional Minister of Mobility of the JCyL visits GMV to learn about advances in transportation digitalization

On March 19th, José Luis Sanz Merino, the regional Minister of Mobility and Digital Transformation for the regional government of Castille-León (the JCyL), accompanied by Raúl Gómez, the Mayor of Boecillo, visited GMV's facilities in the Technological Park in this town in the province of Valladolid. The purpose of the visit was to review the progress of a number of modernization works that GMV is implementing under the contracts signed with the JCyL.

The delegation was welcomed by Miguel Ángel Martínez Olagüe, General Director of Intelligent Transportation Systems; Carlos González Bayod, Business Development Director; and Sergio Díez Iglesias, Product Director, who presented the advancements in the onboard ITS equipment developed for regional transportation. These new systems, developed by GMV, will enable the digitalization of the bus fleet and are part of the JCyL's broader modernization initiative, which, with an investment of €9.8 million, aims to make public transportation more efficient, safer, and better connected.

GMV is currently manufacturing the equipment to be installed on buses operated by service providers throughout the region. Among the devices are new ticket validators, passenger counting systems, and video surveillance, all of which will be connected to a central ITS management system—also supplied by GMV—that will enable real-time monitoring and access to this information.

During the visit, Minister Sanz Merino emphasized GMV's key role as a "preferred partner" in the modernization of regional transportation and highlighted that the company has been awarded two of the most significant contracts in a €25.4 million investment plan.

The minister further underscored the importance of collaborating with GMV, an internationally recognized company known for providing cutting-edge technological services in the transportation sector. Today, more than 1000 clients in 35 countries across five continents rely on the intelligent transportation management systems developed by GMV.

Renewal of SATELISE® support and maintenance contract for AUTEMA

This initiative by Cintra, developed by GMV, enables users to access a dynamic toll payment system for the highway based on satellite navigation technology

After several years in operation and several technological improvements, GMV has recently renewed the support and maintenance contract for the SATELISE® application for 2025.

SATELISE®, the pioneering initiative of Cintra (Ferrovial) developed by GMV for pay-per-use of infrastructure using GNSS technology and smartphones deployed in AUTEMA (Sant Cugat - Terrassa - Manresa Highway), provides users with a dynamic highway toll payment system based on satellite navigation technology.

Renewal of the maintenance contract coincides with the utilization of SATELISE® as one of the methods by which local motorway users can obtain 100% discounts associated with essential travel, such as daily trips to work, school, or other essential services.

To get discounts on the Terrassa-Manresa section (Sant Vicenç de Castellet main and side toll gates), users of motorcycles and light vehicles (cars and vans) must register free of charge in advance in order to benefit from toll-free travel on return trips made within a 24-hour period and at the same tollgate as the outward journey, from Monday to Friday (non-holidays).

The introduction of the essential travel discounts in November 2024 has led to a significant increase in the number of daily users of the service. A system like SATELISE® is a simple tool for administrations in the process of promoting essential travel, optimizing high-capacity roads, helping to decongest conventional roads, increasing safety and reducing accidents.

GMV strengthens relations and explores new collaboration opportunities at Tech.AD Europe

■ From March 16 to 18, Berlin hosted another year of "Tech.AD Europe", a leading event in the field of autonomous driving and advanced driver assistance systems (ADAS).

With more than 600 experts and industry leaders, the summit served as a meeting point to discuss the latest advances in validation technologies, functional safety, sensor integration, artificial intelligence and software development for autonomous mobility. In addition, attendees had the chance to learn about real success stories through different sessions where technology transfer has made all the difference, enabling the automotive industry to implement innovative solutions in cybersecurity, software management, and environment perception through AI and machine learning.

GMV played a prominent role in the event, consolidating its position as a key player in the development of safe and connected mobility. The company had a stand that became a strategic meeting point for original equipment manufacturers (OEMs) and Tier 1 suppliers, and it also gave a presentation by Sara Gutiérrez Lanza, director of GMV's Automotive Business Unit.

During her talk, “Driving Innovation in Automotive - Lessons from Space, Avionics, Robotics, and Cybersecurity,” Gutiérrez Lanza explained how GMV has transferred its experience in highly demanding sectors such as space, avionics, robotics, and cybersecurity to the automotive industry. Her presentation highlighted how adopting advanced methodologies and critical technologies from these fields has improved the safety, reliability, and autonomy of autonomous driving systems and software-defined vehicles (SDV).

Similarly to “Tech.AD USA”, held in December 2024, where ***GMV's GSharp®*** positioning solution won an award in the “Mapping & Localization” category, the European edition of the event served to consolidate GMV's international visibility, showcase its technological advances, and continue to position itself as a leader in advanced systems innovation for the automotive industry.

GMV and Openvia Mobility analyze the roads of the future

Following the success of the first edition, held in 2024, on 20 March Openvia Mobility organized a new installment of its webinar series entitled “Roads of the Future: The Technological Innovations that will Change Mobility Forever” in which the special guest was GMV. The event provided an opportunity to analyze the technological breakthroughs that are redefining road infrastructure and transforming mobility.

With a focus on smart, connected roads, the event addressed key issues for infrastructure operators, automakers, and users, such as the implementation of CV2X, 5G, and 6G in mobility, the impact of the Internet of Things (IoT) and Artificial Intelligence (AI) on traffic optimization and safety, and the challenges and benefits of these innovations in terms of sustainability and efficiency.

Participants included Bruno Gonçalves, Business Manager for Intelligent Transportation Solutions at GMV Portugal and Pablo Fernández Vivanco, Product and Innovation Manager at Openvia Mobility, who analyzed the technological and regulatory challenges facing road operators in this new digital era. GMV’s participation in this event has strengthened its relationship with Openvia Mobility, Globalvia’s groundbreaking technology platform. The two companies have been working closely together since 2023, when they signed a strategic agreement under the NeoRoads by Openvia initiative, a program focused on developing connected, safe, and sustainable roads.

Embracing the digitalization of transportation, road safety, and sustainable mobility, GMV is continuing to lead the way in the evolution of the sector. Its commitment to developing advanced technology solutions is paving the way to make mobility safer, more efficient and better connected.

GMV tackles the transformation of Spain’s automotive sector in the ANFAC Forum

■ On 20 February, GMV participated in the Spanish Association of Automobile and Truck Manufacturers’ (ANFAC) 5th ANFAC Forum, a can’t-miss event for the main players in Spain’s automotive sector. Held in Madrid with the theme of “MobilitAtion,” this new edition brought together the main stakeholders in the sector and both public and private organizations to address the challenges and opportunities currently facing the industry and the next steps to bring about the comprehensive transformation of the sector and boost its competitiveness.

Miguel Ángel Martínez Olagüe, GMV’s General Manager of Intelligent Transportation Systems, participated in the round-table discussion on “Technology and mobility: allies of the future.” He was joined by Miguel Borrás, General Manager of DHL Express Spain; Diego Martínez, President and CEO of Ericsson Iberia; and Beatriz Corredor Sierra, President of Redeia. During the round-table discussion, the speakers highlighted the importance of technology in tackling the new challenges facing the sector.

Miguel Ángel stressed the need to invest in the R&D of competitive products in the face of vehicle digitalization and automation, highlighting GMV’s developments in this field and the key role of artificial intelligence. He also previewed some of the in-cabin intelligence product developments aimed at improving driver safety and comfort that GMV is currently working on.

The event was attended by the president of the Partido Popular party, Alberto Núñez Feijóo, and the final speech was given by the Spanish Minister of Industry and Tourism, Jordi Hereu, who called for the mobilization of the entire sector and of national, regional, and local governments.

Mobility and road safety featured on International Women's Day

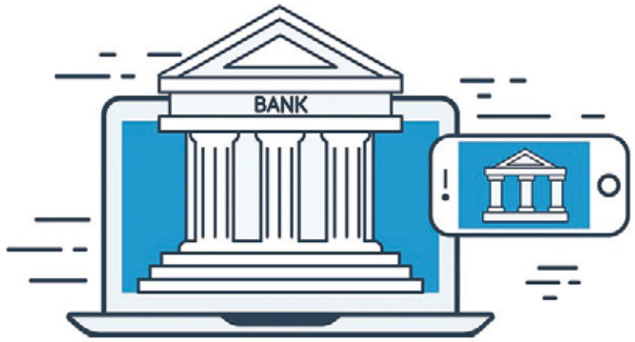
■ International Women's Day, observed on March 8, was the perfect setting to highlight the importance of mobility and road safety, with two significant events.

The first was the Women's Circle, hosted by the Automotive Cluster of Castile and León (FACYL) on March 5. At the opening, María de la Paz Robina, General Manager of Michelin Spain and Portugal and also President of the cluster, stressed that the objective of the meeting, which was held under the slogan #CadaVezSomosMás (We are growing all the time), was to give visibility to women and demonstrate that they have an important role to play in the automotive industry. Thirteen women representing the automotive and mobility ecosystem in the region took part in this meeting, including Patricia Alcalde, project manager of GMV's Automotive unit. Throughout the day, the participants discussed their career paths, their proposals for improving access to STEAM careers for girls and teenagers, and how they have faced the barriers they have encountered.

The second important event was the Women and ITS conference, held on March 11 at the Dirección General de Tráfico. In this conference, Sara Gutiérrez, director of GMV's Automotive business unit, participated in the roundtable entitled “Application of Technology for the Improvement of Road Safety. Challenges for the Future.” This event was hosted by ERTICO, the Directorate General of Traffic (DGT), and ITS España. The discussion was chaired by Ana Luz Jiménez Ortega, provincial head of the Seville traffic department of the Directorate General of Traffic (DGT), and in addition to Sara Gutierrez, representatives from the DGT's Monitoring Department, the company Abertis Autopistas, and the Transport Consortium of Asturias took part to discuss the future challenges in the application of technologies to improve road safety.

Both events underlined the relevance of mobility and road safety in the context of International Women's Day, highlighting the crucial role of women in these sectors.

Bank of Spain awards GMV the data analytics contract for Sepblac



The Bank of Spain has awarded GMV the data analytics implementation, support, and maintenance contract for the Executive Service of the Commission for the Prevention of Money Laundering and Monetary Offenses (SEPBLAC). The award was made through a public tender process as part of the institution's digital transformation plan.

GMV obtained the highest score in the selection process with a proposal that not only met all Sepblac's requirements but also proved that it has the experience and capabilities to meet the project's objectives. GMV has been developing critical data platforms for institutional clients for over 20 years, including public health care services, large private companies in the financial sector and telecommunications operators, among others. The company tackles highly complex projects with a strong technological component, sometimes working hand in hand with its clients' innovation departments. GMV also has its own DataOps methodology, along with a highly qualified team. It has led a number of consortia in recent years in implementing projects based on the use of state-of-the-art technologies in the field of PET, quantum computing and artificial intelligence, building technological tools that contribute to the efficiency of its clients' processes.

Another important factor in GMV's high score was the company's experience in fraud-prevention services, which helped the company devise a creative solution to the use case put forward in the bid. GMV's approach, which is based on the use of different machine learning techniques, was a decisive factor in the excellent technical evaluation it received.

Quantum computing, key to transforming urban mobility and sustainable logistics

The ALIA Living Lab, organized by the Aragón Logistics Cluster in collaboration with the Aragón Technological Institute (ITA), hosted its second edition.

This forum showcased innovative solutions designed to optimize last-mile mobility, with a focus on advanced management systems, personalized route planning, and the digitalization of loading and unloading zones in urban environments.

Ana María Sánchez Montero, head of the quantum computing section in GMV's Secure e-Solutions, participated in the "Innovation Pitch in Urban Mobility" panel, where she discussed the disruptive potential of quantum computing in logistics. Sánchez Montero explained how quantum computing can optimize route planning and the management of loading and unloading zones, offering adaptive and efficient real-time solutions.

Through its ability to process vast amounts of data and tackle complex optimization challenges, quantum computing is poised to be a critical factor in the sector's transformation. From improving delivery efficiency to reducing emissions, this technology marks a quantum leap toward creating smarter, more sustainable cities.

GMV's leadership in this field is exemplified by its involvement in projects like CUCO, driven by CDTI and supported by the Ministry of Science and Innovation as part of the Recovery, Transformation, and Resilience Plan. The project applies quantum computing to key sectors of the Spanish economy, including logistics.

Opinion

Quantum computing and the new Y2K

There is nothing a quantum computer can do today that a powerful traditional computer cannot do. To speak of quantum computing (QC) is to speak of the future, of a new reality in which new computers will perform tasks that, today, are impossible. The tipping point is what is called quantum supremacy, and it is above all its disruptive nature that attracts our attention.

Accepting that quantum supremacy will become a reality at some point, the first significant question is when this is expected to happen. The reality is that we are still a long way off, at least several years away. In terms of deadlines, the executives of the companies participating in this technological race are sending encouraging but not very concrete messages. This leads us turn our attention to their investors, who we feel will likely have some information on this matter.

Currently, two-thirds of these investments are backed by governments. However, governments do not make their decisions based on the imminence of quantum supremacy. Rather, they seek to ensure a certain minimum capacity for the sake of a sought-after quantum technological sovereignty that, however ill-defined, they consider strategic.

PRIVATE INVESTMENT IN QUANTUM COMPUTING

Private investment in quantum computing has been declining, falling below 1% of total global venture capital. This is due, in part, to uncertainty about the real value this technology will bring to end users: without a tangible business model, it is difficult to compete with the interest of other investment options such as artificial intelligence (AI). To further complicate the context, AI may end up taking over some of the most promising use cases that supported the QC investment. This is the case, for example, in the support of new drug development, which is beginning to benefit from tangible results obtained through generative AI.

There is a more important factor than the potential contribution of QC to our technological arsenal: the eventual breakdown of the security of many of the cryptographic primitives we use today. The omnipresence of cryptography in our lives and the apocalyptic threat of its collapse may be reminiscent of the famous Y2K bug, which had a worldwide cost in excess of 200 billion euros. That case, however, involved mostly custom software developments. In contrast, the essence of today's cryptography is provided by manufacturers, whose usual business is to proclaim the obsolescence of recently implemented technologies in order to provide us with new, more modern equipment or libraries. Here, we should all make an effort to push these manufacturers to add to their product portfolios new technologies that would be immune to quantum supremacy, so-called post-quantum cryptography: quantum key exchange. Each new cybersecurity technology update should allow us to take a step away from traditional cryptography, which will one day be vulnerable.

Juan Jesús León
Director of Products and New Developments at GMV Secure e-Solution

«Quantum supremacy has not yet arrived, but its potential is already redefining our technological priorities»

Qilimanjaro and GMV build Spain's first quantum computer with 100% European technology

Spain has entered the quantum era with the installation of its first quantum computer, developed within the framework of the Quantum Spain project with 100% European technology and integrated with the MareNostrum 5 supercomputer of the Barcelona Supercomputing Center - National Supercomputing Center (BSC-CNS).

Quantum Spain is an initiative to promote the creation of a quantum computing ecosystem in Spain, whose objective includes the creation of a high-performance quantum computer in Spain.

The construction of Quantum Spain's new quantum computer was led by the joint venture formed by the Spanish companies Qilimanjaro Quantum Tech and GMV, which contributed their experience in cutting-edge technologies to develop a system based on superconducting qubits, the fundamental information units in quantum computing. These qubits, unlike traditional bits, can represent multiple states simultaneously, enabling them to perform much more complex calculations.

This system, built with technology developed entirely in Europe, represents a decisive step in Spain's strategy in quantum computing and reinforces European technological autonomy, in line with the European Commission's strategy to reduce dependence on key infrastructures in third countries.

Quantum Spain is an initiative promoted by the Ministry for Digital Transformation and Public Function through the Secretary of State for Digitalization and Artificial Intelligence (SEDIA). Funded by the Recovery, Transformation, and Resilience Plan, the initiative is part of the Spain Digital 2026 program and the National Artificial Intelligence Strategy (ENIA).

GMV presents *uPathWay* at "XPONENTIAL Europe"

In February GMV took part in "XPONENTIAL Europe", Europe's benchmark event for the unmanned vehicle and robotics industry, held in Düsseldorf, Germany. In this edition, ICEX premiered the Spain Pavilion, a strategic space that served as a showcase for Spanish technological innovation. In this setting, GMV presented its ***uPathWay*** solution with live demonstrations, giving attendees a first-hand look at its capabilities and applications in industrial environments.

uPathWay is a hardware agnostic platform that enables management and optimization of fleets of mobile robots and autonomous vehicles of different types in industrial environments. Designed to increase efficiency and safety, it automates complex operations, optimizes routes in real time, and improves the coordination of autonomous fleets. Owing to its advanced artificial intelligence algorithms with dynamic planning capabilities, ***uPathWay*** reduces operating times, minimizes costs and maximizes productivity. In addition, it contributes to occupational safety by operating in hazardous environments, reducing personnel exposure.

Its versatility allows it to be used in multiple sectors, from logistics and manufacturing to critical infrastructure inspection. Industrial companies looking for operational efficiency and adaptation to Industry 4.0 find that ***uPathWay*** is an innovative and scalable solution.

GMV's presence at the event was a key opportunity to position ***uPathWay*** before international clients, government representatives and strategic institutions.

GMV celebrates one year of its internal K2 AI project with Edurne Pasaban

The final presentation included participation from GMV's management and all project contributors

On February 5, GMV held the final presentation of the internal K2 project, a strategic initiative launched at the beginning of 2024 with the aim of reinforcing and driving the use of emerging AI technologies across the whole company, while tackling the challenges this entails. More than 200 professionals from every area of GMV participated in the project.

Although GMV has been using AI technologies for decades in the different areas of technical activity, the management decided to launch and lead this project to increase knowledge of generative AI, encourage the incorporation of these new technologies in its technological solutions and analyze the impact of their use in GMV's internal processes with a view to boosting the company's efficiency and productivity. Representatives of GMV's management and all project participants in the working groups and associated activities attended the final presentation either in person or remotely.

The presentation reviewed the objectives, activities, main results and recommendations of the project, and some perspectives on its progress in 2025 were offered.

The highlight of the day was the address by Edurne Pasaban, a prominent Spanish mountaineer, engineer and businesswoman, known worldwide for being the first woman to climb all 14 eight thousand meter-high mountains. In her inspiring talk Edurne drew clear parallels between the challenges of mountaineering and the challenges faced by a groundbreaking technology company like GMV. She stressed the importance of ambition and the desire to excel for both personal and professional growth, motivation and passion as vital elements, communication as a key tool and teamwork as the foundation for success. Her moving presentation fascinated the audience and brought the project to a close brilliantly.

GMV celebrates the incorporation of 90 new interns

This February, in the new edition of the Global Talent Internship Program, GMV welcomed 90 new interns. This incorporation is a reflection of the company's ongoing commitment to attracting and training the future leaders of the technology sector.

On February 10, a special session was held in the auditorium of the Santiago Grisolía building, where 53 of these new members were welcomed, exceeding the participation of the previous edition by 12 people. The rest of the fellows have joined the Boecillo, Barcelona, Valencia and Seville sites.

The program is still open and, with special attention to March, it is expected to continue adding talent, including students from Higher Level Training Cycles (CFGS) in areas such as ASIR, DAM, DAW and electronics, thus maintaining the company's commitment to the diversity of technical profiles.

The Global Talent Internship Program focuses on connecting students with the real world of technology right from their first professional steps. GMV not only offers internships but also gives young people a chance to join groundbreaking teams, developing projects in crucial areas such as IT, telecommunications, software, aeronautics, data science and cybersecurity.

As competition for highly qualified talent intensifies, GMV is consolidating its position as a leader in the search for and development of young talent. The company continues to collaborate with universities and training centers to guide students in their professional careers and provide them with the necessary tools for growth.

GMV recognized at the City of Tres Cantos Awards for its commitment and international reach

As part of the Tres Cantos 34th anniversary celebrations, GMV was honored at the 2025 City of Tres Cantos Awards for its outstanding business trajectory and international reach. The award ceremony, held on March 21 and presided over by Mayor Jesús Moreno, marked the conclusion of the municipality's anniversary events.

With over 40 years of history, GMV has established a global presence with offices in 12 countries and clients in nearly 80, including the European Space Agency (ESA), for which it develops the test bench for the second generation of the Galileo system. This recognition highlights the company's contribution to economic growth, technological innovation, and its strong ties to the social fabric of Tres Cantos.

The gala was attended by institutional representatives, civil and military authorities, as well as numerous residents who came to pay tribute to those driving the city's progress in areas such as security, the environment, commerce, culture, sports, social action, and business.

During the ceremony, the significant role of companies like GMV in transforming Tres Cantos into a key reference both nationally and internationally was emphasized, along with the commitment of its professionals to fostering a more innovative, sustainable, and future-focused environment.

Pedro J. Schoch, GMV's Director of Corporate Development, Marketing, and Communications, accepted the award on behalf of the company, reinforcing GMV's strong connection with the municipality.

This recognition further solidifies GMV's position as a leader in technological innovation and international development, while strengthening its ties to the local community where its headquarters are based.

GMV shows its commitment to the development of capabilities in the defense sector

As a leading company in the technological and strategic field and a key supplier of both the Ministry of Defense and international organizations and agencies, GMV was present in March at two important events on the institutional and business calendar of Spain's defense sector.

On March 17, GMV sponsored the meeting "Defense, industry, and society: keys to strategic autonomy," held by the business daily Expansión. At this forum, representatives from the public and private sectors discussed the need for a competitive defense industry at the European level. Jesús B. Serrano, CEO of GMV, took part in the roundtable discussion "International Context. Europe and its global role: shared challenges in defense and security", together with executives from Airbus Helicopters, HISPASAT, and EM&E Group. In his talk he emphasized the role of defense as a driving force for integration in the face of global challenges, as well as the relevance of interoperability and European initiatives to reinforce strategic autonomy, innovation, and industrial competitiveness.

Along the same lines, GMV sponsored the "2nd Defense Challenges Forum. Face to face with industry," held on March 26 in Córdoba and hosted by the newspaper El Confidencial. The conference brought together the main industry representatives, policy makers, and defense experts, who addressed the major challenges facing the sector: budgetary stability, technological innovation, international cooperation, and the operational capability of the Armed Forces. Jesús B. Serrano gave a talk entitled "Specialize to be among the elite: how to compete to grow in the value chain."

Both forums agreed on the need to strengthen a solid European industrial base, promote collaboration between sectors and recognize the key role of the defense industry in the face of current geopolitical, technological and economic challenges.

European Funds V: Towards Strategic Autonomy

GMV sponsored the fifth edition of the forum "European Funds V: Towards Strategic Autonomy", an event organized by eldiario.es. The event, which took place in Madrid on March 27 and 28, featured the participation of Pedro Sánchez, Prime Minister of Spain; María Jesús Montero, First Deputy Prime Minister; Yolanda Díaz, Second Deputy Prime Minister; Sara Aagesen, Third Deputy Prime Minister; and other government officials, as well as Teresa Ribera, First Vice-President of the European Commission.

The event's agenda included several speeches, interviews and round tables that addressed the impact of European funds on issues such as the promotion of renewable energies and the circular economy, decarbonization and transformation of industry, sustainable mobility, innovation in the field of health, as well as the main advances in the digitization of the administration and the economic fabric of our country.

In addition to sponsoring the event, Jesús B. Serrano, GMV's CEO, participated in a panel discussion focused on the aerospace industry alongside Juan Carlos Cortés, Director of the Spanish Space Agency (AEE); Isabel Maestre, Board Member of the Official College of Aeronautical Engineers of Spain (COIAE) and Deputy Director of Prospective and Innovation at SENASA; and Miguel Ángel García Primo, CEO of Hisdesat.

Four decades with the best talent

C elebrating 40 years of history is about much more than looking back at the accomplishments. It is also a time to recognize the talent, passion, and effort of those who have made this success story possible. In GMV, we are aware that behind groundbreaking projects and cutting-edge technology lies what has made them a reality: TALENT. Our greatest strength is the exceptional people who, with their hard work, commitment, and dedication, have driven GMV's growth and made it a reference in its various fields of activity.

To commemorate these forty years of history in style and in recognition of this talent GMV has held two unforgettable events that have now become part of our history. In the first, over 3,000 people from all the company's offices came together in Madrid's Cívitas Metropolitano stadium for a unique meeting in which the amazing GMV family could meet up, share, connect, and continue dreaming big. And to top it all off, GMV received a visit from His Majesty the King of Spain at the beginning of this year, a tribute to GMV's groundbreaking capacity and its pioneering role in strategic sectors but above all a recognition of the work and dedication of all its professionals.

Talent defines us and drives us to continue looking to the future with the same enthusiasm that we started with. Beyond the milestones achieved, it is the people who give true meaning to our history. Today, three GMV professionals share their experience and their experience of these unique moments.

Jonas Porcar
North America Director of
GMV Secure e-Solutions

“A night of emotion and pride”

Looking back in hindsight, if I had to sum up my personal experience of our 40th anniversary event at the Civitas Metropolitano in two words, they would be emotion and pride.

Pride in retracing the company's development and milestones through the testimonies of its leading actors. A history of growth, resilience, and technological leadership, sustained by our values of quality, innovation, and total commitment to our customers. These are values that, I can confirm, are as valid today as they were on day one.

It was an intense feeling to hear the words of our president, especially her determination and courage in taking over the leadership of the company after the death of her father, our founder.

I felt proud to be part of a project of such magnitude and impact and to think, together with all my colleagues sitting there, that there is a little bit of each of us in that success. It was very impressive and inspiring, especially for the newest members of the team and those of us who work in subsidiaries abroad, to see those more than 3,000 people united under the same emblem in red letters: GMV.

And it was no less inspiring for me as a basketball player and fan since I was six years old that Pau Gasol was with us. His words on leadership focused on the success of the team, personal improvement, and the pursuit of excellence continue to resonate in my head.

There was excitement in all the hugs, laughter, and reunions I experienced at the Metropolitano. Sharing so many anecdotes about trips, projects, and clients with colleagues I hadn't seen for a long time or only knew through a screen. In any group of people you could soak up and feel first-hand the real thread of this success story: the exceptional human and professional quality of those who make up GMV.

It was an unforgettable night that will remain etched in the memory of all of us who had the privilege of experiencing it.

Estefanía Fernández
Office manager at GMV

“The visit that made history”

Week of December 16, 2024. As he does every morning, Ignacio Ramos, my Facilities Manager, opens the office door to say good morning, but this time with a different face than usual: “I have a meeting with Marketing and the Royal House. His Majesty the King is visiting us but, please, don't say anything for now.” With those words it all began.

In 2024, GMV reached an important milestone: Forty years of history and great achievements that have made the company so important that we are honored to welcome H.M. Felipe VI. It was a visit that we had only four weeks to prepare for, with Christmas right in the middle. However, I can assure you that it is one of the most interesting and exciting milestones that I have experienced in my, albeit short, working life.

There was excitement all round, especially because of the interest that this type of visit represents, but above all because of the unity we had between departments to set up a visit like this. The collaboration and coordination with all the departments involved was memorable and everything went perfectly.

I remember with special affection Ignacio's enthusiasm, which he passed on to the whole team. Seeing our manager with that excitement in every step we took was priceless.

They were long, hard days, and we even had some doubts about whether we would make the deadline, but I would do it again a thousand times over. Days like these make work especially rewarding, even more so if it is something you like, but it also makes more sense if the company and colleagues share these feelings and values. In record time, we managed to make our building reflect this and thus transmit it.

The thrill of seeing His Majesty the King enter through GMV's front door and the hug at the end of the day from all the people involved, some even with tears of emotion in their eyes, showed that the effort had been worthwhile.

We will all fondly remember January 17, 2025.

Andrea Pellacani
Technical manager of the Hera mission

“A celebration of success in style”

I remember the event held at the Wanda Metropolitano stadium as if it were yesterday. I had never seen so many GMVites together, from all the GMV offices around the world! I was also able to meet in person colleagues I have been working with for years, but whom I only knew from their photo. I also had the opportunity to meet up again with colleagues from the Romania office with whom I shared work and experiences when I was posted there between 2017 and 2018.

However, what surprised me most about the event was the video they showed of GMV's history, which showed how something that started out so small has been able to grow steadily and solidly for 40 years.

Nowadays we are used to startups that appear and grow quickly but then, just as quickly and almost overnight, disappear or are sold. However, the story of GMV is different and, apart from being a story of innovation and excellence, it is a story of stability and human values.

It has been 15 years since I came from Italy and, apart from developing professionally, GMV has allowed me to grow as a person in a friendly environment that I will always value greatly. And it has also given me the chance to meet the King of Spain!

The King's visit was an incredibly moving experience. The fact that a head of state was interested in my university education and my experience at GMV is something I will always remember fondly. It also coincided with everything surrounding Hera and its launch, ESA's first planetary defense mission, in which we have recently been able to consolidate a decade of effort. During the King's visit, together with other colleagues, we had the opportunity to present this mission as well as many others, thus highlighting GMV's competitiveness in all the sectors in which it operates.

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