News

No. 95

INNOVATING SOLUTIONS

Primary challenges for the development of defense capabilities in Europe

INTERVIEW
Amparo Valcarce
Spain's Secretary of State for Defense

XIX STIC CCN-CERT Conference

GMV will participate as a Gold Sponsor in the 19th STIC CCN-CERT Conference, held alongside the 7th ESPDEF-CERT Cyberdefense Conference and a special RootedCON Congress chapter, taking place November 24–27, 2025, in Madrid.

Under the theme “A digital shield for a connected Spain,” the event will bring together more than 7,000 national and international professionals, consolidating itself as Spain’s largest cybersecurity and cyberdefense gathering.

GMV reaffirms its commitment to national cyber defense.

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Letter from the president

In September 2025, a ransomware attack crippled automated check-in, baggage handling and boarding systems at major airports including Brussels, Berlin, London (Heathrow), and Dublin, leading to widespread cancellations and delays. This came on top of a surge in drone sightings at European airports in recent months. At least ten countries have reported drone incursions into airspace near critical infrastructure such as airports and military bases. This situation is seen as part of a “hybrid war” that combines attacks on critical infrastructure, cyberattacks, and disinformation campaigns aimed at sowing political and social instability across Europe.

The war in Ukraine has placed Europe in an increasingly unstable environment. Added to this are the growing economic rivalry with China and the protectionist turn in the United States, where tariff policies and industrial subsidies are reshaping global value chains and putting pressure on Europe’s competitiveness.

All of this is happening amid a global economic slowdown that is deepening social inequalities and fueling polarization. In this context, migration pressure is testing Europe’s internal cohesion and exacerbating political and social divisions, giving greater strength to extreme narratives.

Europe must strengthen its strategic autonomy, and technological sovereignty is a key pillar, strategically, geopolitically, and economically. Europe needs to attract and retain talent, train new generations in STEM disciplines, and reaffirm that defense is an essential service to society, one that requires innovation to ensure security and enable progress. At GMV, we embrace this responsibility, committing to innovation, cooperation, and the development of critical capabilities that reinforce Europe’s technological sovereignty.

Mónica Martínez

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Primary challenges for the development of defense capabilities in Europe

Europe is experiencing a decisive moment for its security and defense. Russia's invasion of Ukraine, instability in the Middle East, migratory pressure, and cyberattacks on European infrastructure (such as the one that recently targeted the airport in Brussels) have made it clear that it is no longer feasible for Europe's security to depend on vulnerable supply chains, or on capabilities that are dispersed throughout the Member States of the European Union (EU).

Previous issues of this magazine have addressed the challenges involved with developing defense capabilities in Europe from a technological perspective, but that development also requires a comprehensive approach that can encompass multiple dimensions, such as security of supply, attracting and retaining talent, industry collaborations, and protection of space as the final frontier. Each of these dimensions represents a structural challenge that could compromise Europe's strategic autonomy if not properly addressed.

Earlier this year, the European Commission released its comprehensive Readiness Plan for the EU, which lays out the steps that must be taken to reconstruct Europe's defenses, and it is now working on a Multiannual Financial Framework (MFF) that is consistent with that plan.

Technological sovereignty has become a fundamental strategic aspect for Europe. In a world where the balance of power now depends upon the ability to innovate, the need to rely upon non EU countries in critical fields such as semiconductor production, cybersecurity, artificial intelligence, and satellite navigation represents a structural vulnerability. The pandemic, tensions over trade, and the war in Ukraine have demonstrated that the ability of the Member States to react will be seriously compromised unless they can maintain control over their essential value chains. A commitment to technological sovereignty does not mean shutting Europe off from the rest of the world. Instead, it means ensuring that Europe can make its own independent decisions, protect its critical infrastructure, and maintain the competitiveness of its industries. Examples such as creation of the Galileo satellite constellation in the space industry show us that the European Union is able to take the lead with cutting-edge projects, when investment is channeled in a coordinated manner with a view towards the future.

The lessons learned from the COVID-19 pandemic can also be applied to the field of defense. Lack of essential medical supplies, disruptions to logistics chains, and dependence on external countries were all demonstrations of Europe's vulnerability. In the area of security and defense the risks are even greater, because they directly affect Europe's sovereignty and its ability to protect its citizens. The war in Ukraine has reinforced this perspective, because war has returned to European soil for the first time in decades, and this has forced a rethinking of strategic priorities.

Although defense has traditionally been considered as a subject for the individual Member States to address, it has now become a central issue for the cohesion of the entire European project. Just a few years ago, strategic autonomy was still seen as a distant aspiration, but today it is being viewed as an urgent need.

SECURITY OF SUPPLY

Security of supply is one of the fundamental elements of any defense strategy. Without guaranteed access to raw materials, resilient logistics chains, and industries that can respond to demand within the required time frames, strategic autonomy can become seriously compromised.

In the defense field, security of supply means the ability to cover the entire life cycle: design, production, maintenance, and sustainment of the systems involved. There are three dimensions to this issue: geographical (the material must arrive at the right location), temporal (it must arrive on time), and functional (it must meet the required specifications). However, ensuring success with all of these dimensions is a complex matter, for three main reasons: firstly, because actual management of supply chains is a task that is performed at least as much (or even more so) by industry than by public administrations (and with supply chains that involve thousands of suppliers); secondly, because the risks include scheduling aspects (delays, costs, lack of skilled labor, natural disasters) as well as political aspects (blockades, deliberate restrictions, prioritization of domestic customers), and these require different responses; and thirdly, because ideas about what constitutes a crisis are not uniform, i.e., while some countries are experiencing the war in Ukraine as a structural emergency, others see it as a manageable source of pressure, and this makes it difficult to put common mechanisms into practice.

Europe is highly dependent upon critical raw materials that have to be imported, such as lithium, cobalt, nickel, and rare earth elements. These are essential for manufacturing batteries, semiconductors, sensors, radar units, and communication systems. The fact that more than 75% of these resources are coming from China as their sole supplier has turned this dependency into a direct geopolitical risk. An additional problem is concentration of the world's entire production of explosives and gunpowder in just a few countries, which complicates large-scale manufacturing of ammunition.

The war in Ukraine has significantly changed the global geopolitical landscape. The EU's inability to manufacture and deliver the one million artillery shells and missiles it promised to Kyiv in 2023 revealed the structural limitations of European industry. This deficiency put the ability to help a strategic partner at risk, and it also exposed a lack of preparation for a prolonged, high-intensity conflict.

The solutions for issues like these must be ambitious. One of them consists of creating strategic European reserves for critical materials, similar to strategic oil reserves. Another solution would be to use European tax mechanisms and subsidies to incentivize the relocation of industry, while also forming closer alliances with trustworthy partners like Canada, Australia, and the Latin American countries. Finally, there must be a sustained R&D effort, in order to find substitutes and other technologies that can reduce dependency on scarce materials.

ATTRACTING AND RETAINING TALENT

For the defense industry, human talent is the most strategic resource of all. This is a moderately sized industry in comparison with others, with a need for specialized labor. Without highly qualified professionals, investments in technology, services, or infrastructure will always produce limited returns. Europe is facing a perfect storm: an aging workforce, brain drain towards more attractive industries, and low numbers of women entering the STEM disciplines.

In the aerospace and defense industries, 30-35% of the workers are over 50 years old. Within a decade, this situation will result in a wave of retirements that will leave thousands of critical engineering, design, production, and maintenance positions vacant. At the same time, competition with the big tech giants is making it hard to attract young engineers, because those companies are perceived as being more innovative and more in tune with the values of sustainability and diversity.

In order to reverse this trend, a different narrative is required. Defense must present itself as an industry at the leading edge of innovation, with a clear mission to protect security and peace in Europe. Members of the younger generations, especially Generation Z, are looking for jobs that have a global impact, and an impact on society. A decisive aspect might therefore be the need to demonstrate how the field of defense contributes to maritime security, the defense of space, cyberdefense, critical infrastructure protection, and resilience against natural disasters.

Other strategies include programs to promote collaborations between industry and universities, dual vocational training, incentives for international mobility, and a commitment to cultural and gender diversity. At GMV, we understand this challenge. The average age of our employees is 36, and during the last five years we have increased our workforce by 50%, while dedicating 10% of our revenue to R&D. We also offer international careers and opportunities to work on exciting high-tech projects such as SIRTAP, Eurodrone, and Galileo PRS, among many others. This helps make our company a magnet for talented young Europeans.

INDUSTRY COLLABORATIONS

Industry collaborations are an essential requirement for developing Europe's capabilities. The current scenario of fragmentation generates redundancies and excessive costs, while also putting limits on interoperability. Although the United States has standardized its military arsenal around models such as the Abrams tank and F 35 fighter jet, Europe has 17 types of tanks and 29 models of frigates. This diversity not only increases costs, it also makes it harder to take advantage of economies of scale.

The European Commission has set up instruments such as the European Defence Fund (EDF) with the aim of promoting collaborative projects in strategic areas, and programs like the EDF have been used to fund some of the initiatives in which GMV is a participant, such as FIRES and e-Colorss for precision artillery systems, GENIUS for detecting and neutralizing explosive devices, SEACURE for submarine warfare, and EMISSARY for space surveillance. There is a double objective here: to reduce fragmentation while also strengthening strategic autonomy.

However, collaboration means more than just sharing costs. It also requires a business culture based on trust. GMV is an excellent example of this, because we have turned our ability to establish alliances into a value that sets us apart. We do not just see alliances as static contracts, but rather as living ecosystems that continue to evolve and generate shared value. This mutually beneficial perspective makes it possible for medium-sized companies to end up at the heart of major European programs.

This cooperative approach has allowed us to achieve significant milestones: collaboration with the European Defence Agency since 2004, participation in 42 EDF/EDIDP projects, and leadership on initiatives such as CONVOY, which is using artificial intelligence to detect improvised explosive devices (IEDs), and

on major programs such as CELESTE, the low Earth orbit (LEO) positioning, navigation, and timing demonstration mission for the European Space Agency (ESA).

The conclusion is obvious: industry collaborations can no longer be seen as just a way to distribute the workload. We need to develop a culture of solid alliances based on trust, transparency, and joint creation of value.

SPACE AS THE FINAL DOMAIN OF CONFRONTATION

Space has become a new domain that needs protection, and it has therefore become the last frontier for cybersecurity as well. Europe depends upon satellites for navigation, observation, and communication. However, the proliferation of commercial constellations has multiplied the size of the attack surface and exposed critical vulnerabilities.

Although there are currently more than 11,700 satellites in orbit, that number is expected to grow exponentially as new private players continue to enter the field, and each of those satellites represents a potential attack vector. The risks we are now facing include jamming and spoofing of global navigation satellite system (GNSS) signals, cyberattacks on control centers, vulnerabilities in the software and hardware supply chains, and even kinetic and electromagnetic attacks on spacecraft in flight.

The attack against Viasat in 2022 demonstrated the potential for a space cyberattack to shut down civilian and military operations, and it highlighted the need to incorporate a robust security-by-design approach. There is also a need to establish encrypted communication channels, strict access controls, and the use of artificial intelligence to detect anomalies in real time.

The EU has responded to this situation by launching IRIS[2], a secure communications constellation with end-to-end encryption, and by promoting the Galileo PRS service, which is resistant to interference and spoofing. GMV is involved in its development and is leading the development of user receivers.

What this also demonstrates is that space has become a domain that is just as important as land, sea, or air. Space is an essential part of Europe's security, and close multinational collaboration is required in order to ensure its defense.

THE EU'S READINESS PLAN AND INITIATIVES TO STRENGTHEN ITS INDUSTRIAL AND TECHNOLOGICAL BASES

The document entitled "White Paper for European Defence – Readiness 2030", published in March 2025, establishes that the European Union must be prepared to respond quickly and effectively to military crises, hybrid conflicts, and security emergencies. This is a plan structured around three priorities: military mobility, civilian-military preparedness, and joint capabilities.

The first priority, military mobility, requires improvement of infrastructure elements such as highways, bridges, and railroad corridors, to facilitate agile deployment of troops and equipment across all of Europe. Civilian-military preparedness requires integration of civil protection systems into defense planning, as a way of ensuring coordinated responses to natural disasters, pandemics, and large-scale cyberattacks in Europe.

Finally, the priority of developing and strengthening joint capabilities is focused on improving artillery systems, air defense, anti-drone countermeasures, C4ISR systems, and space surveillance. Implementing the EU's Readiness Plan requires a combination of European, national, and private funding, with acknowledgment of the essential role played by the defense industry.

In line with this vision, and with the aim of reinforcing the required military capabilities, the EU has also launched some complementary initiatives designed to strengthen the industrial and technological bases for European defense. Some highlights of these include the European Defence Industry Reinforcement through Common Procurement Act (EDIRPA), which went into effect in October 2023, to encourage coordinated procurement and transnational cooperation among the EU Member States; the Act in Support of Ammunition Production (ASAP), which was enacted in July 2023 to expand Europe's production capacity for ammunition and missiles; the European Defence Industry Strategy (EDIS), which was introduced in March 2024 to define a roadmap for a more integrated and resilient defense industry; the European Defence Industry Programme (EDIP), jointly proposed in 2024 as the operational and financial framework for the EDIS, with a 2025 2027 time frame; and the Security Action for Europe (SAFE) instrument, adopted in May 2025, which is providing up to €150 billion in loans to support joint acquisitions and investment projects for critical capabilities.

Together with the EDF, these tools are creating the Readiness 2030 operational ecosystem, by bringing together policy, industry, and funding to make progress towards greater strategic autonomy for Europe.

In this context, GMV's multi-domain command and control systems represent solutions that are in line with the Readiness 2030 objectives, and which are ready for integration into European operational structures.

MULTIANNUAL FINANCIAL FRAMEWORK

The Multiannual Financial Framework (MFF) 2028–2034 represents another ambitious plan. With a total budget of €1.98 trillion, and €131 billion dedicated to defense and space, investment in these areas will be five times higher than during the previous cycle.

As part of this financial framework, the €450 billion European Competitiveness Fund will be used to support research, innovation, and deployment of disruptive technologies. In parallel, the Global Europe instrument will be dedicating €200 billion to international cooperation and global stability, while its flexibility mechanisms will provide reserve funds, lines of credit, and the funding needed to respond to unexpected crises.

In addition to their financial scope, governance is a key aspect of these programs. The EU must ensure transparency, democratic control, and an orientation focused on results, so that every euro invested will translate into tangible capabilities, while avoiding redundancies and bureaucracy. If this can be achieved, the MFF will be able to transform European defense.

Europe is now at a decisive crossroads in terms of its defense and security. There are many challenges that can affect the development of capabilities, including the need for security of supply, talent, industry collaborations, integration of space as an operational and cyber domain, joint preparedness, and sustainable funding. These challenges are interconnected, and they must be addressed at the European scale, in a comprehensive, coordinated way.

For Europe, strategic autonomy does not mean isolation. Instead, it means the ability to make decisions and take action independently, in cooperation with allies, and without critical dependencies. Achieving this will require a firm political commitment, stable investment, and a dynamic industry that is able to innovate and collaborate. Companies like GMV are demonstrating that with a vision focused on the future and a culture of alliances, Europe can position itself at the center of technological innovation and global security.

To succeed with this, the EU must be willing to transform its structures, overcome inertias, and invest in projects that can strengthen the entire continent's levels of resilience and cohesion.

In order to face the future, Europe will have to make some difficult decisions. Firstly, it has to accept that security has a cost, and that investment in defense is not an expense, but rather an essential condition for protecting the European social model. Secondly, it must continue to make progress towards true integration, where decisions about capabilities, acquisitions, and deployments are coordinated, not fragmented. Thirdly, it must recognize that innovation will be the decisive battlefield: the race to take the lead in areas like artificial intelligence, quantum computing, space, and biotechnology will have a direct impact on the global balance of power.

Companies like GMV are already demonstrating the path that can be taken: a reliance on innovation, nationalization of critical capabilities, and a culture of collaboration that is able to transcend borders.

Amparo Valcarce

Spain's Secretary of State for Defense

María Amparo Valcarce has served as Secretary of State for Defense since May 2022. She is directly responsible for implementing the Government's action in strategic areas such as armament and material policies, research, development and innovation, as well as industrial, economic, and environmental management related to defense. In addition, she oversees policies concerning infrastructure, systems, technologies, and information security within the defense sector.

She holds a degree in History from the University of Oviedo and is a tenured professor of Geography and History as well as an Education Inspector, with a distinguished career in school management, educational innovation, and teaching quality.

Her political career began at the Fabero City Council, continued as a regional councilor for El Bierzo, and was consolidated as a Member of Parliament for León during the 6th and 7th legislative terms (1996–2004). During that period, she served on the Budget Committee, acted as rapporteur for the Vocational Training Act, and was spokesperson for the Education Committee. Between 2004 and 2009, she held the position of Secretary of State for Social Policy, where she promoted the Law on Personal Autonomy and Care for Dependent Persons.

She later served as the Government Delegate in the Community of Madrid (2009–2011) and as a member of the Madrid Regional Assembly (2011–2015), where she held the positions of Second Vice President and Chair of the Budget Committee.

In the field of defense, she has been Director General for Recruitment and Military Education (2018–2020) and Undersecretary of Defense (2020–2022). She has been awarded the Grand Cross of Civil Merit and the Grand Cross of Alfonso X the Wise.

In your view, what are the main challenges that Spain is now facing in relation to its national defense, and how is the country preparing to address them in an increasingly unstable international context?

Our national defense is now having to contend with a profoundly transformed international context, which is characterized by geopolitical instability, the return of conventional warfare in Europe, and the emergence of hybrid threats that are a combination of military, technological, economic, and social dimensions. The war in Ukraine has made it clear that we need to have modern, well-prepared armed forces with advanced capabilities, as well as a solid and self-sufficient industrial base.

Spain has a strategic location on the southern border of the European Union and NATO countries, and we also have some special challenges related to control of migrant flows, maritime security, and critical infrastructure protection. At the same time, there is also an urgent need to strengthen our cybersecurity and reduce the kinds of technological dependencies that have been limiting our strategic autonomy for decades.

To address this scenario, Spain's central government has developed a comprehensive modernization strategy that brings together investment, innovation, and international cooperation. This strategy has now been materialized in the country's Industrial and Technological Plan for Security and Defense (PITSD), which the government has approved as a roadmap for ensuring that our armed forces have the most advanced capabilities, in a context that is increasingly demanding. This plan prioritizes technological and industrial sovereignty, while also promoting digitalization, strengthening our logistics chains, and enhancing our resilience against hybrid threats. It is also aligned with the European Defence Industrial Strategy (EDIS), to ensure that our national policy remains consistent with European initiatives.

What unique elements can Spain contribute to the integration of European defense, and to the shared objective of strategic autonomy?

Spain has a dynamic Defense Technological and Industrial Base (DTIB), with the ability to bring together major companies that drive the industry and innovative small-to- medium enterprises (SMEs) and startups. This is a structure based on collaboration and adaptability, and it makes it possible for us to respond quickly to new technological demands. The experience we have gained in relation to interoperability, management of critical infrastructure, and cyberdefense has put Spain in a leading position within the European ecosystem.

There is a double objective here: to promote the development of critical technologies such as artificial intelligence, cybersecurity, autonomous systems, and quantum telecommunications, and to strengthen our industrial sovereignty in strategic industries where Europe still has some vulnerabilities. Initiatives like PERTE Chip, which is being led by the Spanish Society for Technological Transformation, and centers of excellence such as CETEDEX, in the city of Jaén, and NumantIA, in the city of Soria, are examples of Spain's commitment to innovation and to integration of European technologies.

Now that Spain's investment in defense has increased, what role do you expect Spanish industry to play, and how can it contribute to the collective defense effort?

A sustained increase in our defense budget represents a historic opportunity to solidify a more competitive national industry, with more exporting and innovation as well. This is not just about satisfying the operational needs of our own armed forces. It is also about generating a fabric of industry that can further enhance Spain's reputation as a reliable partner in international markets.

Our Industrial and Technological Plan for Security and Defense is now acting as a catalyst for this transformation through public-private collaboration, and by emphasizing technology transfer, participation by SMEs and startups, and access to new foreign markets. Some specific examples of this type of collaboration would include Spain's Integrated Defense Information Infrastructure (I3D), as well as projects focused on developing capabilities in the space domain and on modernizing command and control systems. All of these projects are demonstrating that investment in defense can be a driver for growth, skilled employment, and cross-cutting innovation that can benefit the entire country.

> "The experience we have gained in relation to interoperability, management of critical infrastruc-ture, and cyberdefense has put Spain in a leading position within the European ecosystem"

What kind of role do you think technology will play in transforming Spain's defense in the coming years?

Technology is really at the heart of transforming our country's defense. The Spanish Ministry of Defense has been focusing its strategy on incorporating emerging and disruptive technologies, both for operational purposes and for administrative management. Cybersecurity and cyberdefense have also been established as national priorities. These days, threats against information systems, disinformation, and cyberattacks on critical infrastructure have become as dangerous as conventional aggression.

Our ability to defend information as a strategic asset can be complemented by integrating artificial intelligence, quantum computing, autonomous systems, and sustainable energies into our platforms and logistics chains. All of this will make it possible to create a more agile, precise, and resilient defense system. This is a joint effort that is being consolidated through Spain's National Cybersecurity Plan, approved in 2022, and through cooperation with our European allies.

Spain has made a commitment to spending 2% of its gross domestic

product (GDP) on defense in 2025. What kind of impact do you think this will have over time?
A sustained increase in defense investment will not only allow us to modernize our armed forces, it will also act as a lever for strengthening our Defense Technological and Industrial Base, generating high-skill jobs, and enhancing our national technological autonomy. In this way, defense is becoming a vector for innovation and growth, while also promoting strategic industries, encouraging synergies between the public and private sectors, generating tangible industrial returns, increasing our exporting capacity, and reducing our dependence on other countries.

As another reflection of this commitment, my own Office of the Secretary of State for Defense has created the Directorate General for Defense Industry Strategy and Innovation (DIGEID). Its mission is to coordinate industrial policies, promote internationalization, and ensure that Spanish industry will be participating in the primary European and NATO supply chains.

> "Threats against information systems, disinformation, and cyberattacks on critical infrastructure have become as dangerous as conventional aggression"

What role are Spain's Special Modernization Programs (PEMs) playing in the country's modernization strategy for its armed forces?
The PEMs are really the backbone of the modernization process for our armed forces. In addition to facilitating acquisition of new systems, their value is based on the ability to promote national technological sovereignty and strengthen the fabric of industry in Spain. These programs are integrating cutting-edge technologies such as artificial intelligence, multi-domain connectivity, and advanced command and control systems, to ensure interoperability with our allies and produce a qualitative leap forward in terms of our capabilities.

In addition, their focus on dual-use technologies with both military and civilian applications is multiplying their economic and technological impact. They are also encouraging long-term investment in Spanish industry, through prefinancing systems that make it easier for Spanish companies to participate in major projects. The new PEMs included in our Industrial and Technological Plan for Security and Defense 2025 are a reflection of our current geopolitical context, and they are making a contribution to developing a modern, innovative industry with an international scope.

What role do you think Spanish industry should play in developing critical technologies, and in reducing external dependencies?
Spain is taking on a leading role in strengthening Europe's security and technological sovereignty. To this end, our new Industrial and Technological Plan for Security and Defense is channeling unprecedented levels of investment into innovation, while also promoting dual use of these technologies for military and civilian purposes. This model is enhancing competitiveness, generating high-quality jobs, and attracting talent.

As I mentioned, Spain wants to continue to solidify its role as a leading provider of critical technologies, and as an active participant in European projects like the European Defence Fund (EDF) and Permanent Structured Cooperation (PESCO), where it is already providing solutions for cyberdefense, space, and autonomous systems.

What are some of the initiatives you would highlight as examples of collaborations between government and industry, both in Spain and more broadly in Europe?
Cooperation between government and industry is essential for achieving strategic autonomy. In Spain, the highlights for me would include our Defense Technology and Innovation Strategy (ETID) and our Defense Industrial Strategy (EID), which are focused on aligning our military R&D and innovation advancements with the country's scientific and technological policies. Also, our National Committee for Security and Technological Sovereignty, which was created as part of the Industrial and Technological Plan for Security and Defense, coordinates the Spanish ministries, public agencies, industry, and universities in order to optimize investment and prioritize key technologies.

At the European level, Spain has been strengthening its presence on European Defence Fund projects, as well as on the Permanent Structured Cooperation projects I mentioned earlier, as a way of promoting a more integrated and competitive defense ecosystem. In addition, my own Office of the Secretary of State for Defense is coordinating the Directorate General of Strategy and Innovation and the Directorate General of Weapons and Material, to ensure that innovation will translate into operational capabilities and real opportunities for Spanish industry.

What goals has Spain established to further consolidate its leadership position within the European defense ecosystem?
Spain has established five major goals, which will be used to orient the country's actions during the coming years. The first goal is to modernize our defense and dissuasion capabilities, so we can respond effectively to the new hybrid threats we are facing. The second goal is to further establish Spain as a trusted and relevant partner within the European Union and NATO, and to reinforce the role that Spain is playing in relation to our collective security. The third goal is to promote innovation and specialized training in dual-use technologies, which are fundamental for ensuring Spain's technological sovereignty and competitiveness. The fourth goal is to continue making progress with internationalization of our defense industry, encouraging its integration into global value chains and strengthening its international scope. Finally, the fifth strategic goal is to encourage territorial cohesion within Spain, by creating industrial and technological hubs that will generate skilled employment and ensure balanced development throughout the entire country.

The aim is to use these five goals as a way of solidifying Spain's position as a key player for building a more secure, more autonomous, and more technologically advanced Europe, while also generating development and employment in our own country.

Space has now become an essential part of defense. What role do you think Spain should play in this area?
These days, space has indeed become a decisive domain for security and defense, and space activities are providing critical capabilities related to surveillance, positioning, communications, and teledetection. Spain is advancing its own space sovereignty through national programs such as PAZ-2, which is focused on radar observation, and SpainSat NG, which is developing Europe's most advanced system for governmental satellite communications. These two projects have received more than €1 billion in investment, and they are strengthening Spain's technological autonomy and enhancing collaboration with our allies.

As another example, a Letter of Intention was recently signed between Spain and France, to strengthen their cooperation in relation to space. This reflects the shared intentions of both countries to jointly develop capabilities related to intelligence, surveillance, and reconnaissance, and to continue making progress with our shared focus on security and defense from space.

In this way, the Spanish space industry, which dedicates almost 10% of its revenue to R&D, has been called upon to play a leadership role in developing satellite constellations and orbital surveillance capabilities.

In conclusion, Spain has clearly entered into a decisive phase in relation to defense, and it is transforming its model for security through a combination of sustained investment, technological innovation, and international cooperation. With its expanding national defense industry and its Industrial and Technological Plan for Security and Defense, the country continues to make progress towards a modernized, sustainable, and autonomous defense ecosystem. By strengthening its technological sovereignty, promoting internationalization of its defense industry, and participating in major European projects, Spain has joined the group of countries that are constructing the new security architecture for Europe.

SATNUS completed its third Flight Test Campaign in the NGWS Program and is moving forward toward the final demonstrations of Phase 1B

■ SATNUS completed its third Flight Test Campaign in the NGWS Program in July 2025 at the facilities of the El Arenosillo Experimentation Centre (CEDEA) in Huelva. This campaign was primarily dedicated to validating the MCSD (MUT & Common Systems Demonstrator) platform, including both the Flight Segment and Ground Segment, as well as the in-flight integration and testing of the Next Generation Autonomy Computer (NGAC).

The campaign included three single-platform and three dual-platform flights.

During these, four NGAC prototypes were integrated and flight-tested as a core mission payload, alongside other improvements to the MUT & Common Systems Demonstrator in both flight and ground segments (e.g. Communication System, Flight Termination System, Avionics bay, Wing-tip camera POD, C2 System, Distribution and Information Management System and Mission Planning Station).

A key achievement was the end-to-end testing of the onboard and ground functional chains for multi-platform operations. Based on the campaign results, SATNUS has gained confidence in the system architecture and is now focusing on preparing the final Manned-Unmanned Teaming (MUT) demonstration flight campaign at the end of Phase 1B.

SATNUS Technologies S.L. is the company formed by GMV, Sener, and Tecnobit–Grupo Oesía to lead all national activities related to the Remote Carrier Technology Pillar of the Next Generation Weapon System (NGWS) within the Future Combat Air System (FCAS) program.

Recognition of Aeronautical Excellence

The Director of Defense and Security at GMV's subsidiary in Portugal, José Neves, has been awarded the Aeronautical Merit Medal – 1st Class, as part of the celebrations marking the 73rd anniversary of the Portuguese Air Force.

This prestigious distinction is reserved for individuals whose actions and dedication have significantly contributed to the efficiency, prestige, and fulfilment of the mission of the Portuguese Air Force. It is a formal recognition of professionalism and excellence in serving and supporting an institution whose role is vital to national defense, technological advancement, and operational readiness.

This recognition reflects GMV's collective spirit and expertise, and reinforces the company's commitment to excellence, innovation, and collaboration in every project we undertake.

The Minister of Defense meets with industries participating in the SIRTAP program

GMV presented its navigation and vision systems at the Unmanned Aerial Systems Test Center (CEUS), essential for the first flight of the SIRTAP

On July 21, during a visit to the Unmanned Aerial Systems Test Center (CEUS), part of INTA, Spain's Minister of Defense, Margarita Robles, held a meeting with representatives of the industries involved in the SIRTAP Program.

The Ministry of Defense was also represented by Amparo Valcarce, Secretary of State for Defense; Lieutenant General Ayuso, Director General of INTA; and Lieutenant General Gutiérrez Sevilla, Deputy Director General for Programs.

During the meeting with industry leaders, the Minister had the opportunity to hear directly from company representatives about their contributions to the program. Representing GMV, Hugo Martín, Project Manager and Head of Industrial Design and Product Development, and Ricardo Sáenz, Director of Defense and Security Programs, attended the meeting. They presented to the Minister the equipment GMV is developing for SIRTAP, the ***NERVA*** navigation system, the ASUR system for high-precision takeoff, landing, and taxiing, and the forward vision camera for the pilot — all of them key elements for the first flight.

For his part, Modesto Revuelta, Airbus Program Manager and program lead, emphasized to the Minister the high technological standards of the various industries involved and their commitment to meeting the demanding deadlines. GMV's technological excellence in the field of navigation — a critical factor for SIRTAP's success — was particularly highlighted.

During the visit, authorities and industry representatives toured the facilities where the first SIRTAP flight campaign will be carried out and were able to see the full-scale model of the aircraft.

SIRTAP is the most ambitious unmanned aircraft program ever developed in Spain. It will provide advanced capabilities to the Spanish Army and the Spanish Air and Space Force, while also offering clear export opportunities for other nations.

With its ***NERVA*** and ASUR systems, GMV strengthens its leadership in high-performance aerial navigation in Spain. Together with its ***SENDA*** naval systems and ***ISNAV*** land systems, GMV consolidates its position as an undisputed benchmark in navigation solutions

SPACE

GMV leads ambitious ESA project to enhance navigation of LEO Mega-Constellations

This activity will develop cutting-edge technologies to achieve unprecedented orbital precision, strengthening space security

GMV has been selected by the European Space Agency (ESA) to lead the POD4LEO-MeCo project, focused on the Precise Orbit Determination (POD) of Low Earth Orbit (LEO) mega-constellations.

This innovative project aims to develop new concepts and advanced orbit determination algorithms, optimize their distributed implementation across ground and space segments, and create a software demonstrator to evaluate the performance of these concepts. The proposal seeks to enhance the accuracy of space navigation while reducing operational costs through the integration of cutting-edge technologies.

GMV brings extensive experience in GNSS-based LEO POD through ground-based post-processing for operational missions such as the Sentinel missions under the Copernicus program. This expertise will serve as the foundation for the development of the new POD concepts and algorithms. The project also includes a comprehensive review of existing literature on current orbit determination methods to identify best practices and state-of-the-art technologies.

The use of advanced technologies such as Global Navigation Satellite Systems (GNSS), inter-satellite links (ISL), and Galileo's high-accuracy service (HAS) will significantly improve real-time and post-processed navigation precision—reaching sub-10 cm accuracy in real time and under 3 cm on the ground.

To handle the high computational load involved in processing data from up to 20,000 satellites and 1,000 GNSS sensor stations, the project will distribute processes across a cluster of computing nodes. This strategy will enable efficient management of large volumes of data and the rapid execution of complex calculations.

The most relevant use cases for the project span several fields, including space safety, navigation, and science. In the area of space safety, the new concepts will enable more accurate monitoring of satellite orbits, significantly reducing the risk of collisions and improving space traffic management. Regarding user navigation systems, the project envisions the development of advanced LEO-based systems that deliver stronger signals and faster convergence times, optimizing the accuracy and efficiency of satellite operations. Additionally, the project's scientific applications include altimetry, radio occultation, synthetic aperture radar (SAR), ionospheric studies, and geodesy, providing critical data to support various research efforts and contribute to the advancement of knowledge in these fields.

GMV is contributing to the new RethinkAction platform for climate change adaptation

In June, the European project RethinkAction officially launched its Integrated Assessment Platform, an innovative digital tool designed to help citizens, policymakers, and local stakeholders mitigate and adapt to climate change through smarter land-use decisions.

Funded by Horizon 2020 and developed by a consortium of 13 partners from nine countries, the platform represents a milestone in participatory climate action. Its capabilities allow users to simulate scenarios, assess risks, and test territorial policies at the local level, dynamically integrating data and models.

GMV plays a key role thanks to its expertise in spatial analysis. The company leads the production of high-resolution land-use maps derived from Sentinel-2 satellite imagery (10 x 10 meters) for six case studies selected for their territorial, climatic, and socioeconomic diversity.

These maps provide accurate insights into how land use is distributed and evolving, serving as the foundation for both global and local models within the platform, as well as for generating suitability maps that facilitate decision-making.

The tool offers a catalog of more than 60 land-based adaptation and mitigation solutions applicable to sectors such as agriculture, energy, forestry, water management, and urban development. It also incorporates high-resolution climate data, regional mapping, and a simulation engine that assesses risks and policies at regional and provincial scales.

One of the project's most significant features is its participatory approach, as the community of end users—citizens, institutions, and local stakeholders—takes part in the platform's co-creation, ensuring that its functionalities respond to real-world needs.

GMV Strengthens Its Position in Space Systems at the World Satellite Business Week

From September 15 to 19, GMV took part in the World Satellite Business Week (WSBW) held in Paris. This event, considered one of the most influential strategic forums on the international space calendar, brought together industry leaders, investors, innovators, and institutional representatives to address the challenges and opportunities of a rapidly evolving sector.

Enrique Fraga Moreira, General Manager of GMV's Space Systems, participated in the panel Smart Ground Systems: Adapting to an Evolving Space Landscape, where he shared GMV's vision for the future of intelligent ground systems, emphasizing their key role in automation, operational resilience, and adaptation to increasingly dynamic space environments.

In parallel with WSBW, Paris hosted the second edition of the Space Defense & Security Summit (SDSS) on September 16 and 17. Key topics included the need for new models of international cooperation, investment in technological and human capabilities, and the growing role of commercial systems in reshaping defense-related space activities.

The forum brought together government, military, and defense industry representatives, investors, and space policy experts, establishing itself as a key meeting point between the space and security sectors.

Miguel Ángel Molina Cobos, Deputy General Manager of GMV's Space Systems, joined the panel Space Surveillance Soon Facing a 50,000+ Satellites' Environment, sharing GMV's experience in space surveillance and the importance of advanced technological solutions to manage a rapidly expanding orbital environment.

GMV's presence at both events highlighted its role as a strategic player in the design and development of cutting-edge solutions for the control, operation, and protection of space infrastructures.

GMV to Develop Next-Generation Collision Avoidance Service for LEO Constellations

FOCUSOC NXTGEN will provide a scalable and accurate service for global orbital risk management

The European Space Agency (ESA) has awarded GMV a new R&D contract under its Advanced Research in Telecommunications Systems (ARTES) program, a core competitiveness initiative within ESA's Connectivity and Secure Communications area. The project aims to develop an advanced collision avoidance service tailored to the needs of large-scale telecommunications constellations.

Building on the proven success of GMV's ***Focusoc*** service, the new version (FOCUSOC NXTGEN) will deliver faster and more accurate collision risk assessments by integrating a wider range of data sources and enhancing response strategies.

One of the project's main innovations is the establishment of a new control center in the United Kingdom. This facility will support both UK and international operators, expanding current capabilities and providing services that go beyond existing solutions.

Thanks to a complete system redesign, the platform will handle significantly larger data processing volumes with a scalable and dynamic infrastructure that adapts to user demands. While the current service can process constellations of dozens of satellites, the new system is designed to support the emerging players: mega-constellations with hundreds of satellites.

FOCUSOC NXTGEN is set to assess conjunctions involving more than 1,000 satellites. Its most notable feature, however, is its horizontal scalability, enabling the system to expand as user demand grows.

This leap forward not only boosts computational capacity but also requires enhanced user interfaces to deliver real-time, global information specifically optimized for large constellation operations.

FOCUSOC NXTGEN addresses the growing challenge of managing massive orbital datasets—currently exceeding 7 GB per day—by filtering out false positives and detecting real threats with greater precision. The system will provide timely, accurate maneuver recommendations, helping operators avoid unnecessary mission interruptions.

Among its standout features, the service will include a dedicated conjunction database to support long-term trend analysis, a maneuver-testing environment leveraging GMV's recognized expertise in flight dynamics systems, and seamless API integration for operational efficiency. The system's redundant architecture will ensure uninterrupted 24/7 availability.

GMV strengthens its commitment with COVE and the Spanish Space Command during the international exercise Global Sentinel

GMV has once again provided technical support to the Space Surveillance and Operations Center (COVE) of the Spanish Space Command (MESPA), part of the Spanish Air and Space Force (EA), during the Real-World Event (RWE) held from August 3 to 7 as part of the Global Sentinel international military initiative.

The event was coordinated and led internationally by COVE and was focused on the operational tracking of the Spanish satellite Spainsat NG1 and its relocation maneuvers toward its final geostationary orbit. The scenario involved international cooperation in space defense, with contributions from the space commands of France, Italy, Japan, Romania, and Ukraine.

Over the course of the five-day event, GMV experts were physically present at the COVE facility, working closely with military personnel on key tasks such as orbit determination, collision risk analysis, and orbital environment assessment. This real-world participation enabled the validation of operational capabilities in a live scenario, enhancing both joint readiness and international collaboration in the field of Space Domain Awareness (SDA).

The Real-World Event promoted by COVE is part of Global Sentinel, an international initiative coordinated by U.S. Space Command (USSPACECOM), aimed at strengthening international cooperation in space security. Its cornerstone is the annual Global Sentinel Capstone, which brings together hundreds of civilian and military experts from dozens of countries.

GMV has been collaborating with COVE in this exercise since 2018, contributing advanced Space Surveillance solutions and operational expertise in both simulated and live scenarios. In line with this commitment, GMV also joined COVE at the Capstone 2025 event, held from April 28 to May 9 at Vandenberg Space Force Base in California, which brought together more than 250 specialists from 29 countries and NATO.

This ongoing collaboration underscores the strategic role of Spanish industry in developing critical defense capabilities in the space domain. Within this framework, GMV continues to consolidate its leadership in the field of Space Surveillance, reaffirming its commitment to global security, international cooperation, and technological advancement.

Successful launch of MicroCarb, the pioneering European mission to monitor CO_2 from space

The MicroCarb satellite was successfully launched on July 25 at 02:03 am UTC from the European Spaceport in Kourou, French Guiana, aboard a Vega-C rocket. This is the first European mission dedicated exclusively to tracking carbon dioxide (CO_2) in the atmosphere from space, a key step in the fight against climate change.

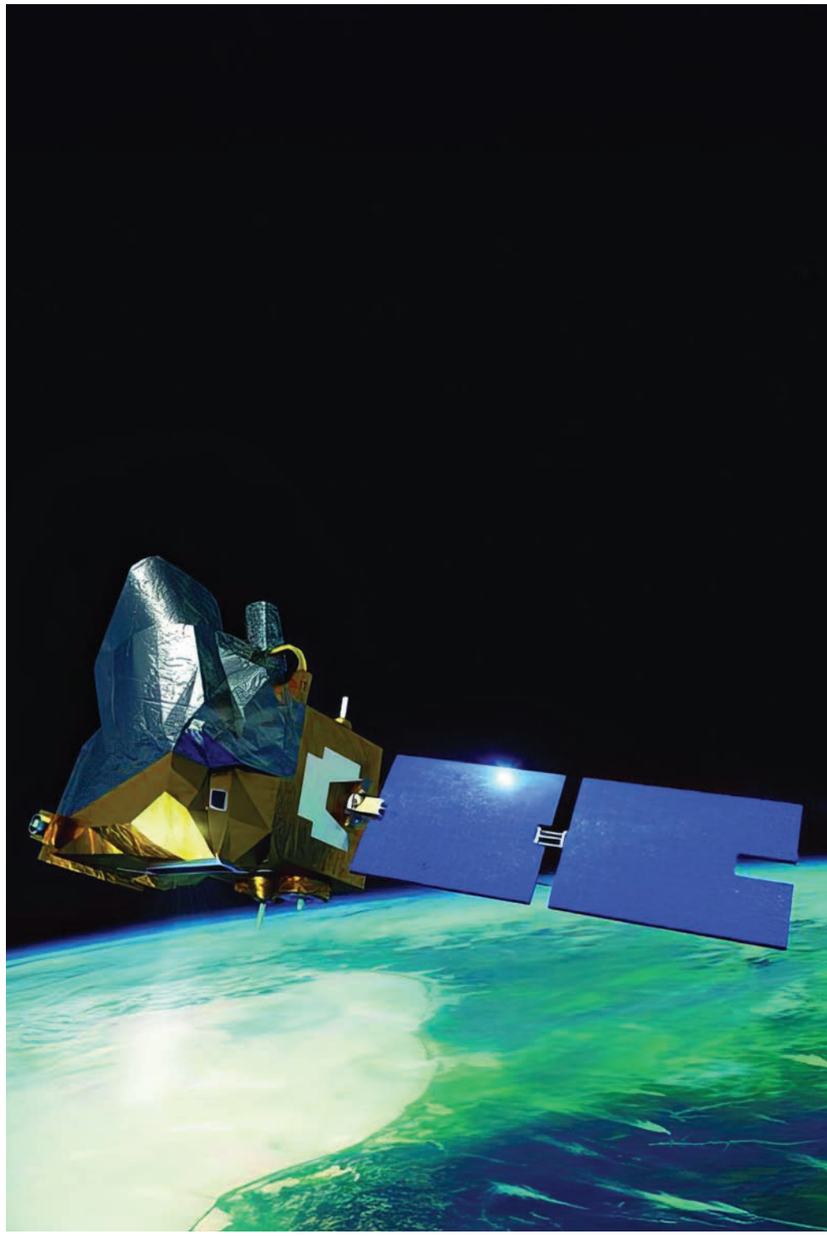
MicroCarb is designed to accurately map the global distribution of CO_2, identifying both emissions generated by human activities and their absorption in natural sinks such as oceans and forests. Equipped with an infrared spectrometer, the satellite can measure gas concentrations with an accuracy of up to one part per million, providing key data for understanding and combating global warming.

GMV has participated in the development of data processing algorithms that transform the signals captured by the satellite into climate intelligence for CNES and EUMETSAT. This technology is essential for converting information into knowledge that enables effective decisions to be made to meet objectives such as Net Zero 2050 and the Paris Agreement.

MicroCarb is a joint project co-financed by the UK Space Agency (UKSA), the French Space Agency (CNES), the European Commission, and the French government, under the Investment Program for the Future (PIA) managed by the National Research Agency (ANR).

This satellite also serves as a precursor to the Copernicus Anthropogenic Carbon Dioxide Monitoring (CO2M) mission, with which Europe will strengthen its capacity to monitor the emissions that drive global warming.

With MicroCarb now in orbit, a new era begins in environmental observation and decision-making based on accurate and reliable data, contributing to the development of technological solutions for a sustainable future.



CRISTAL Mission, key to Monitoring Ice and Global Climate

GMV has been awarded a major contract to design and develop the operational data processors for the CRISTAL mission (Copernicus Polar Ice and Snow Topography Altimeter), as well as to provide their maintenance through the completion of the mission's in-orbit commissioning phase.

The CRISTAL mission is a cornerstone of the European Union's Copernicus Expansion program, dedicated to monitoring the cryosphere with a focus on sea and land ice. By advancing the understanding of ice dynamics and their impact on global climate, CRISTAL will play a vital role in supporting the EU's climate strategy and its commitments under the Paris Agreement.

To undertake this critical effort, GMV has formed a consortium with isardSAT and CS Group, bringing together a team with complementary expertise and a strong track record in altimetry and signal data processing for Earth observation programs.

The CRISTAL data processors will be the first Copernicus Expansion mission to use the generic processing platform developed by ESA for Earth Observation Missions, Data Management, and Operations (EOF – Earth Observation Framework). This system governs the full cycle of Sentinel missions, from observation planning and data acquisition to processing and open distribution, in line with Copernicus' open data policy. It also ensures the sustainable management of industrial services that support the development of applications and user services. The work led by GMV will guarantee the availability of complete, open, and validated information for CRISTAL's Level 0 and Level 1 data.

This approach provides full transparency to the scientific and user community regarding data transformations, while enabling the development of higher-level data products and customized applications.

It is important to highlight the significance of this mission, which represents both a major responsibility and a considerable challenge for GMV, as well as the honor of contributing to a project with such a substantial environmental impact. This commitment underscores GMV's dedication to advancing climate science and supporting global efforts to combat climate change.

GMV promotes sustainability and space cooperation at IAC 2025

From September 29 to October 3, GMV took part in the 76th International Astronautical Congress (IAC), held in Sydney, Australia, under the theme "Sustainable Space: Resilient Earth."

The event brought together thousands of space industry professionals to share the latest technological advances, discuss sustainability challenges, and strengthen international cooperation. Over the course of nearly 200 sessions, the congress addressed key topics such as space applications for Earth, sustainable space operations, space traffic management, planetary defense, solar system exploration, and technologies for future missions.

GMV had a prominent presence both in the organization and exhibition areas of the event, with a booth located in the ICEX Pavilion.

Among the company's key contributions, Mariella Graziano, GMV's Director of Flight Segment Strategy, participated in sessions on Solar System and human exploration, and presented the Position Paper of the Industry Relations Committee.

GMV's solid track record in fields such as robotic exploration, Guidance, Navigation and Control (GNC), planetary defense, space debris management and removal, data processing, and ground segment systems reinforces its role as a global reference in the space industry. The company's participation in IAC 2025 further strengthened its influence on the key decisions and outcomes of the congress, reaffirming its commitment to a safer, more efficient, and sustainable space environment.

GMV leads mission control for the MetOp SG A1 satellite, now successfully launched

The mission marks a milestone in Earth observation and climate monitoring, with a control architecture developed by GMV that ensures critical operations and high-precision data

The MetOp-SG A1 meteorological satellite, the first of the second generation of the MetOp program jointly developed by the European Space Agency (ESA) and EUMETSAT, was successfully launched in August from the European Spaceport in Kourou, French Guiana. This mission represents an important step towards improving meteorological forecasting and climate monitoring capabilities from polar orbit, and it puts GMV in a leading position for constellation control operations.

The Meteorological Operational – Second Generation (MetOp-SG) program is designed to produce the successors of the first generation of MetOp satellites, with a constellation of six satellites organized in two series, A and B. To ensure data continuity, each pair (A and B) will be launched at staggered intervals. While the series A satellites, such as the MetOp-SG A1, are equipped with optical and infrared instruments to observe the atmosphere and the surface of the Earth, the series B satellites are incorporating microwave sensors that can produce additional observations by penetrating cloud cover. The overall aim is to improve the accuracy of weather forecasting, atmospheric monitoring, and climate change analysis. In addition, the satellite houses the Copernicus Sentinel-5 advanced imaging spectrometer.

GMV has played a key role in developing the MetOp second generation. For example, GMV is the leader for mission control and operations (MCO), which includes the Mission Operations Center (MOC) and the telemetry, tracking, and control (TTC) systems. This is essential work for monitoring, planning, and sending of commands to the program's six satellites. For this purpose, GMV has developed and integrated critical architecture that includes the systems for mission control (MCS), mission planning (MPS), flight dynamics (FDS), operations automation (OAS) and local monitoring (LMCS).

As part of the TTC systems, GMV has for the first time implemented an S-band ground station, which is located in Norway's Svalbard archipelago, to providing enhanced capabilities for data linking with polar-orbiting satellites. In addition, GMV has developed an end-to-end simulator featuring hardware-in-the-loop, known as the General Satellite Simulator (GSatS). This makes it possible to validate the entire system under realistic conditions prior to launching.

GMV has also been responsible for the ground processor prototype (GPP) and the instrument data simulator (IDS) for the scatterometer (SCA), including a performance assessment tool (PAT) that helps ensure the quality of the data generated. Finally, it has provided the application software for the meteorological imager (METimage) instrument and for the Copernicus Sentinel-5 spectrometer.

With this successful launching, GMV has once again demonstrated its expertise in complex ground segments and critical mission operations, while further solidifying its role as a key player in the areas of Earth observation and climate security, by providing cutting-edge solutions for control and operation of next-generation weather satellites.

CyberCube completes Phase B2, laying the foundation for a flagship mission in space cybersecurity

CYBERCUBE, a flagship initiative led by GMV under ESA's Cybersecurity Operations Centre (CSOC) Cyber Evolutions program, completed its second phase (B2) in February 2025, following the Preliminary Design Review (PDR) held at the European Space Research Institute (ESRIN) in Italy. This milestone laid the foundation for the development of a pioneering mission, key to strengthening the cybersecurity of space assets.

The project is currently in the Critical Design Review phase, with the team focused on finalizing the detailed design across all involved segments.

A successful CDR will pave the way for satellite integration, qualification, and validation, with the launch of the 3U CubeSat targeted for summer 2026.

The mission is being carried out by a consortium led by GMV teams in Romania (as prime contractor) and Spain, in collaboration with GMV's company Alén Space. GMV is managing the full mission lifecycle, from early specifications and design through procurement, integration, testing, launch, and LEOP, covering all activities from Phase B2 to operations for LEOP and Comissioning.

Within the framework of the CyberCube initiative, GMV is responsible for overseeing all mission phases, including development, launch, and in-orbit operations (LEOP and Comissioning). The flight segment features a 3U CubeSat developed by Alén Space, equipped with advanced reprogrammable processing capabilities and a dedicated payload for cybersecurity monitoring.

The satellite is expected to remain operational in orbit for at least one year, collecting vital data on space asset vulnerabilities and cyber resilience. This data will support ESA in assessing and improving the robustness of future space missions against cyber threats.

The consortium is also contributing to the ground segment by integrating Alén Space's Mission Control Center with GMV's ***FocusSuite*** and delivering a representative flatsat for testing and validation. These efforts aim to enhance ESA's cybersecurity capabilities in space, ensuring stronger protection for future missions and infrastructure against evolving threats.

With CyberCube, GMV and its partners are strengthening Europe's leadership in protecting critical space infrastructure against cyber threats.

GMV Drives the New Generation of *Sextans*® GNSS Receivers for Satellites and Space Launchers

GMV's Polish subsidiary has accumulated more than a decade of experience in the development of GNSS receivers and onboard navigation systems specifically for space applications, characterized by hostile environments and rapidly changing dynamics. Recognizing the growing demand for resilient, high-precision navigation, GMV is now moving toward the commercialization of two distinct versions of its advanced ***Sextans***®, receiver technology: one for satellites and another for rockets.

Starting with the initial development of single-band, single-constellation receivers, GMV's advances have progressively evolved into more sophisticated multi-band, multi-constellation solutions, while maintaining its original focus on software-based receivers. The transition from early single-frequency designs to dual- and ultimately triple-band receivers marks a decisive step forward for space navigation.

Multi-band receivers enhance accuracy and enable precise orbital determination in LEO using Galileo's High Accuracy Service (HAS) on the E6 band. To further increase the precision and reliability of navigation solutions for launchers, GMV has also explored the integration of external sensors, particularly Inertial Measurement Units (IMUs) and altimeters, along with the deployment of advanced sensor-fusion algorithms. By combining IMU data with satellite-based PNT (Positioning, Navigation, and Timing) information, these fusion strategies compensate for potential signal losses and strengthen overall system robustness, increasing resilience against external threats to GNSS signals. These innovations pave the way for next-generation high-precision PNT capabilities, enabling accurate operations from launch through in-orbit phases.

In August 2025, GMV delivered its first flight model of the dual-frequency E1/L1 and E5a/L5 satellite receiver for integration into the CASSINI demonstrator satellite, within the European Horizon Europe

In-Orbit Demonstration and Validation (IOD-IOV) program. That same year, GMV also delivered two flight models of the launcher receiver integrated with IMU to ORBEX for its first two PRIME launchers, as well as a receiver for a horizontal launch demonstration (from an aircraft).

GMV's ***Sextans***® receiver is a software-based system that allows adaptation to different applications and signals, thus forming the foundation for further developments aimed at services such as Lunar Communications and Navigation Services (LCNS), Earth-return navigation for reusable launchers, and autonomous flight termination systems.

The Future of Space in Debate at the European Space Forum 2025

Brussels once again became the key stage for discussions on Europe's space future with the celebration of the fifth edition of the European Space Forum, held on July 2–3, 2025.

This year's edition focused on how to build a resilient, competitive, and innovative European space industry, capable of meeting the continent's strategic needs while also taking a leading role on the global stage. The sessions were marked by a highly participatory format, encouraging open exchanges of ideas between speakers and attendees.

As a platinum sponsor, GMV was represented in several panels. Néstor Zarraoa, Director of Procurement in the Navigation area at GMV, highlighted the strategic role of Copernicus and Galileo as drivers of innovation and Europe's international outreach. For his part, Alberto Águeda, Director of Space Surveillance and Traffic Management, underlined the challenges of sustainability and space traffic management in an increasingly competitive and congested environment.

GMV's presence at this edition reinforces its active role in the main European forums of the space sector, contributing its expertise to the development of solutions that ensure Europe's sustainability and strategic autonomy in space.

GMV at the forefront of space defense against cyber threats

In today's digitally interconnected world, safeguarding data privacy has become a top priority—particularly in the space domain, where satellite communications are increasingly vulnerable to cyberattacks.

Not only are communications between satellites, or between satellites and control centers, at risk, but also the systems and subsystems that make up the satellites themselves. In this context, cybersecurity measures promote the confidentiality, integrity, and availability of data that are considered mission-critical in such environments.

Within the framework of the MSARA project, GMV has carried out a risk analysis for the Space Avionics Open Interface Architecture (SAVOIR). Based on the EBIOS methodology, this analysis has made it possible to define a reference modular security architecture to be integrated into the current SAVOIR reference architecture. The goal is to design and implement a set of security extensions to the existing SAVOIR framework, helping protect satellite communications and satellite systems and subsystems against cyberattacks.

This reference security architecture will make it possible to adapt the necessary security measures to each type of mission, ensuring the integrity, confidentiality, and availability of mission data. To verify and assess the security extensions defined for SAVOIR, GMV will develop a prototype emulating a complete system representative of ESA institutional missions, consisting of a control center and two operational satellites. This setup will undergo penetration testing to evaluate whether the established security extensions need to be modified or further enhanced with additional measures.

With the award of this project and the successful completion of its first phase, GMV reaffirms its position at the technological forefront of the space sector in the field of cybersecurity.

TRUSTMOD: A New Step Toward the Democratization of Space Security

Space security is becoming increasingly relevant due to the proliferation of satellites, especially SmallSats. Driven by the New Space movement, placing satellites into orbit is now more accessible and frequent.

However, greater accessibility also brings a growing number of cyber threats, making it essential to develop new solutions that ensure the protection of deployed space systems. TRUSTMOD (Trusted Platform Module for SmallSat Platforms) is a project developed by GMV, in collaboration with SANCTUARY, for the European Space Agency (ESA). It focuses on creating a security subsystem designed for SmallSats that operates as a service for other satellite subsystems.

This subsystem uses a commercial TPM (Trusted Platform Module), a cryptographic chip with multiple built-in algorithms and functions. With this project, GMV continues to demonstrate that COTS (commercial off-the-shelf) components can be applied to space systems, accelerating development timelines while reinforcing its commitment to satellite security.

Too often, security takes a back seat during satellite development and is not considered from the earliest design stages, resulting in vulnerabilities that are difficult to address later on. TRUSTMOD was created to reverse this trend by embedding security as an effective, easy-to-implement service from the start.

The project aims to simplify the adoption of security measures for clients by enabling straightforward integration through COTS technologies, such as TPMs. This approach reduces both development time and costs without compromising system robustness. TRUSTMOD represents an important step toward the democratization of space security, adapting to the real needs of the sector while promoting a culture of protection from the very beginning.

Through this initiative, GMV will contribute to enhancing the security and resilience of space systems, supporting a more reliable environment that is prepared to face the challenges of the future.

GMV drives SpaceKeepers-1 as part of its commitment to a sustainable space

GMV is leading the SpaceKeepers-1, project within the framework of ESA's Zero Debris initiatives, developing technological solutions and new practices aimed at preserving Earth's orbital environment. The consortium is made up of three Spanish companies — GMV, Alén Space, and IENAI Space— and is coordinated by GMV.

The mission's goal is to propose procedures and solutions to mitigate the visibility of satellites in Low Earth Orbit (LEO) through HAR (High-Aspect Ratio) platforms, a rising trend in near-future space operations.

In addition, a new propulsion system for CubeSats will be tested: the ATHENA NANO, developed by IENAI Space, capable of ensuring the controlled reentry of small satellites. Finally, the project includes the provision of a system for determining the position of space objects by evaluating autonomous space locator beacons. These objectives respond to the call for proposals within the CleanCube: Zero Debris for CubeSat platforms campaign, whose goals are being addressed through the experiments proposed in SpaceKeepers-1, Highlights include reducing reentry altitude, improving maneuverability and traceability of satellites, as well as assessing the impact of orbital objects on visibility— boosting ESA's current methodology to a whole new level.

As mission prime, GMV played a central role in the project's development, coordinating the different work packages, managing communications with ESA, and leading several key analyses: from mission-related studies (orbit, environment, delta-V, visibility, space locator beacon, etc.) to cost assessments, risk evaluations, and implementation planning for future phases.

Meanwhile, Alén Space led the preliminary design of the innovative HAR platform, while IENAI was responsible for integrating the ATHENA NANO propulsion system into the mission. Together, these contributions lay the foundation for a pioneering mission that advances the sustainability of the space environment and strengthens Europe's leadership in responsible space management.

SPACE

GMV develops key technologies for navigation in the solar system

Projects such as Moonlight, MARCONI, and MARVEL consolidate the company's position as a European leader in positioning and communication solutions for future missions

Human and robotic exploration is advancing rapidly and is set to become a regular activity in the coming years, with flights and landings becoming routine rather than exceptional. In this context, advanced navigation and communication systems are essential to guarantee the success of missions throughout the solar system. Accurate and reliable navigation enables spacecraft, rovers, and astronauts to travel across unfamiliar and often hostile terrain, identify scientific targets, avoid obstacles, and safely return to their starting point.

Communication, on the other hand, ensures the constant flow of data, commands, and critical information between explorers and mission control, linking distant worlds with Earth's resources and expertise. The European Space Agency (ESA) is driving missions and satellites to provide local navigation and communication services, such as Moonlight for the Moon and Marconi for Mars. GMV plays a decisive role in this effort, contributing to the development of advanced navigation technologies that will support exploration across the solar system.

Among the most recent contracts is MARVEL, in which GMV is working on defining navigation systems for Mars and the Moon. This includes designing signals, positioning methods, deep space orbit determination, and analyzing expected user-level performance.

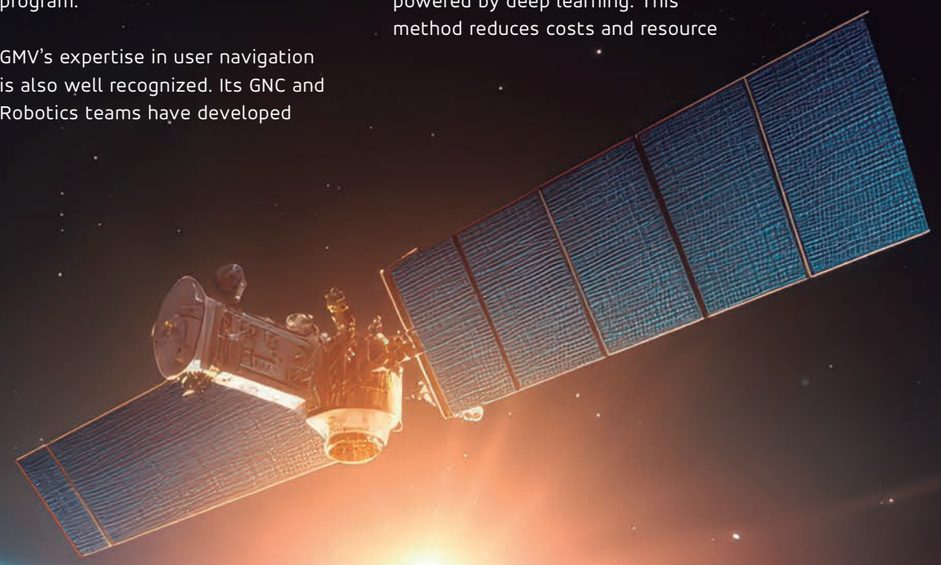
In parallel, initiatives such as MARCONI (Mars Communication and Navigation Infrastructure) will deliver local navigation capabilities similar to GPS and Galileo on Earth.

Another milestone is the NOVAMOON initiative, currently in Phase A within a consortium led by Airbus. Its goal is to develop a European lunar navigation station capable of monitoring the Moonlight constellation from the lunar surface, ensuring precise time transfer with Earth, and providing augmentation data to optimize system performance. In September 2025, Phase B1 will begin to refine the design, prepare procurement, and move forward with component integration. The station will be hosted on ArgoNet, the first lunar mission of ESA's Argonaut program.

GMV's expertise in user navigation is also well recognized. Its GNC and Robotics teams have developed key technologies for deep space navigation, consolidating the company as a European leader in onboard navigation for complex missions. A prime example is LUPIN, a prototype tested in Fuerteventura that simulates lunar navigation signals. This system will provide rovers with a GPS-like solution for the Moon, essentially a "Google Maps" for future lunar users.

In planetary landing operations, GMV contributed to the LHDAC project, which developed a camera-based hazard detection solution powered by deep learning. This method reduces costs and resource requirements compared to traditional LiDAR systems while ensuring safe landing awareness. The project was successfully completed in August 2025.

With this track record, GMV reaffirms its commitment to solar system navigation and will continue developing technologies designed to deliver reliable positioning and timing solutions for satellites, rovers, landers, and ascent vehicles in future missions.



GMV leads R&D project to assess compliance with space debris mitigation measures in interplanetary return trajectories

■ Most artificial objects in space orbit around Earth, and this situation is unlikely to change in the short term. However, in recent years, interest in missions beyond Earth's orbit has grown significantly. The cislunar environment—the region of space influenced by Earth and/or the Moon—has become a particularly attractive area for future missions. This means that in the coming years, the number of human-made objects beyond Earth's orbit will increase.

In this context, and with the goal of ensuring a safe and sustainable space environment, the European Space Agency (ESA) seeks to develop a tool capable of evaluating compliance with international requirements on space debris mitigation for missions beyond Earth's vicinity. To this end, ESA has awarded a contract to a consortium led by GMV, in collaboration with MAITY Space and HTG. The project began in mid-December 2024 and is expected to last a total of one and a half years.

Orbital dynamics beyond Earth are highly non-linear and chaotic, which means that linearization and other assumptions valid in near-Earth space are no longer feasible. This poses challenges for common calculations in the field of Space Situational Awareness (SSA) and requires approaches different from those applied closer to Earth.

The primary objective of this project is to study the different aspects of interplanetary return trajectories and, based on that knowledge, develop an integrated set of analysis tools to evaluate compliance with mitigation measures associated with these trajectories.

This tool will provide various analyses related to space safety, including the probability of collisions in protected regions—namely Earth orbits of special interest: Low Earth Orbit (LEO) and Geostationary Earth Orbit (GEO)—as well as high-speed reentry events and fragmentation.

As prime contractor, GMV is leading the activity, coordinating tasks among the consortium partners. GMV's role includes studying the dynamics of these complex trajectories, tracking capabilities, and the uncertainties associated with their quantification and propagation, as well as implementing these components into the tool being developed for ESA.

GMV strengthens its leadership in space surveillance with a prominent role at AMOS 2025

In September, GMV took part in the 26th edition of AMOS (Advanced Maui Optical and Space Surveillance Conference), the annual conference on advanced optical and space surveillance technologies held in Maui, Hawaii.

As one of the event sponsors, GMV played a key role in the technical program, with contributions from José Miguel Lozano, President of GMV's Space Systems in North America, and Alberto Águeda, GMV's Director of Space Surveillance and Traffic Management. GMV's presentations at AMOS addressed the challenges and opportunities posed by emerging space activities such as proximity operations, cislunar missions, satellite servicing, and active debris removal.

GMV's participation in AMOS 2025 reaffirms its technological leadership in the field of space surveillance and helps strengthen its position within the international SDA ecosystem. It also enables the company to forge key collaborations with institutional and commercial players while continuing to actively contribute to building a safer and more sustainable space environment.

The SDA selects GMV to supply the next generation of space operations security systems

■ The Space Data Association (SDA) has awarded GMV the contract for the development of its next-generation flight safety system, the Space Safety Portal (SSP), to support the critical space operations of the association's member satellite operators.

The new next-generation system will be agile and will incorporate advanced capabilities. SDA and GMV will partner with satellite operators, SSA data providers, and other SSA agencies to enhance collaboration and strengthen their commitment to serving as a hub for the integration of global Space Traffic Coordination (STC) services.

SDA is an international organization that brings together satellite operators to enable the controlled, reliable, secure, and efficient exchange of critical flight safety data and to ensure the integrity of the space environment.

Building on sixteen years of operational experience, the SSP will leverage new and emerging technologies, space situational awareness (SSA) data, and Space Traffic Coordination (STC) concepts to effectively address the challenges posed by the rapid growth of satellites in orbit and the upcoming planned launches.

SDA selected GMV through a competitive process involving multiple proposals. GMV demonstrated the technical, operational, customer-focused, and cybersecurity leadership credentials required by SDA and is fully aligned with the association's non-profit model and commitment to space sustainability.

GMV's involvement and expertise in developing and supporting critical public STC initiatives — including the European Union Space Surveillance and Tracking (EU SST) and the U.S. Department of Commerce's Traffic Coordination System for Space (TraCSS) — will help maintain SDA's position at the forefront of space safety capabilities.

GMV Reaffirms Its Commitment to Innovation at the UK Space Conference 2025

Manchester became the epicenter of debate and innovation in the space sector on July 16–17 during the UK Space Conference 2025, a strategic event that brought together government, industry, and academic representatives from the United Kingdom and abroad.

GMV participated in the exhibition area, where it showcased its capabilities and innovative space solutions. Among them was a demonstration of REALM: Virtual Reality Aided Spacecraft Refuelling for IOSM Verification & Validation, an advanced virtual reality tool designed to validate spacecraft refueling operations within the scope of in-orbit services. This immersive solution enables highly accurate simulation of complex scenarios, facilitating the verification of systems and operations in safe, controlled environments. The proposal reinforces GMV's commitment to advanced technologies for critical missions and its leadership in developing key capabilities for the future of the space sector.

The company's presence at this year's edition highlights its dedication to innovation and international collaboration, strengthening its position as a strategic partner in the UK space ecosystem.

GMV consolidates its role as main operator of the Spanish Space Surveillance and Tracking Center

On May 1st this year, GMV began activities under the sixth contract for the maintenance and operations of the Spanish Space Surveillance and Tracking Center (S3TOC), consolidating its position as the main operator of this strategic infrastructure for in-orbit safety and the sustainability of the orbital environment. The contract, awarded by the Spanish Space Agency through open competition, involves several companies from the sector and guarantees the provision of space surveillance services from Spain until February 15, 2026, with the possibility of extension.

S3TOC is the central node of the Spanish national Space Surveillance and Tracking (SST) system. Its operations ensure the proper performance of three essential functions. First, the provision of SST services, which includes processing data to produce collision warning analyses between satellites or space debris, and supporting satellite operators with recommendations for collision avoidance maneuvers (CAM)
.
At present, this conjunction analysis and maneuver support service is already provided, in cooperation with the French counterpart center, to more than 90 users and nearly 600 satellites. Second, the center is responsible for the processing of SST data, using both national sensors and external sources to carry out orbit determination, maintain and update the object catalog, and ensure the quality of the information.

Finally, S3TOC hosts the systems required for the coordinated planning of European sensors —a unique capability in Europe— and for the calibration of sensor measurements, thereby ensuring the harmonization and reliability of the data used within the system.

In addition, GMV will implement new automation processes at the operations center to further improve its capabilities and efficiency. In this way, the company reinforces its leading role in the operation of critical space surveillance infrastructures in Europe and reaffirms its commitment to the safety of satellite operations, contributing to the development of a safer, more sustainable, and cooperative orbital environment.

GMV will monitor the performance of the EU SST database

Under the European Union Space Surveillance and Tracking (EU SST) partnership, Germany oversees the space object catalogue and database, which are central to the programme's core public services: Collision Avoidance, Fragmentation, and Re-entry.

Since 2021, GMV has played a significant role in Germany's contribution to this initiative by developing and maintaining the cataloguing system. Additionally, GMV collaborates with CGI to improve and restructure the database.

GMV's involvement in this initiative has recently expanded. The German space agency (DLR) has recently awarded a contract to a consortium led by GMV, with CGI as the main subcontractor, to develop a performance monitoring tool for the EU SST database.

The main goal of this activity is the development of a tool that allows the operators to easily monitor the performance status of several key elements of the EU SST partnership, like the already mentioned database and catalogue systems, but also the coordinated sensor scheduler (COPLA) and other systems to come like the continuous calibration tool.

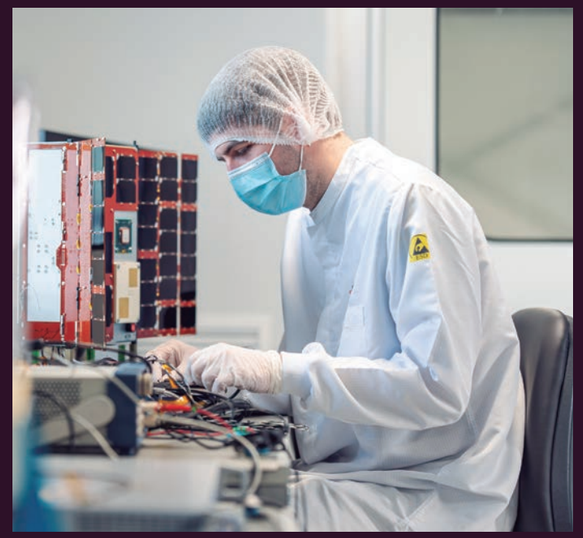
GMV participation in the activity is fundamental. We are responsible for leading the consortium with CGI, who will take care of designing and developing the front-end part of the tool mainly based on Grafana. GMV will define the requirements, including the selection of KPIs from the EU SST database that will be monitored.

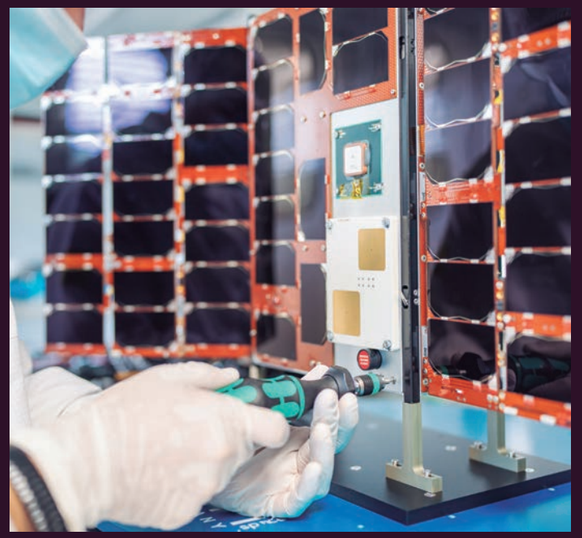
Moreover, GMV is also responsible for the design and implementation of the monitoring tool backend. The tool design includes different notification services (email, alert events, etc) and management of different user roles. The core data analysis service will retrieve the data from the EU SST database and perform all the necessary computation for the KPI calculations.

This project is funded by the EU Space Programme under the EUSST2023-26GA grant agreement and directed by the DLR Space Agency.

Sateliot trusts Alén Space to manufacture five new satellites for its 5G constellation

The new satellites, which will be ready in 2026, will strengthen Europe's strategic autonomy in 5G connectivity and expand Sateliot's global coverage





Sateliot has taken another major step forward in deploying its satellite constellation by commissioning Alén Space to manufacture five new units. These satellites, which will be part of its low Earth orbit (LEO) network, are scheduled for launch in 2026. The initiative strengthens Sateliot's role as a dual-use (civil and defence) 5G satellite connectivity provider, aligned with Europe's commitment to achieving strategic autonomy in space.

With this move, Sateliot continues to execute its roadmap to deploy a constellation of more than 100 satellites, built with proprietary technology developed in Barcelona and validated by 3GPP — the international body that governs telecommunications standards — to ensure secure and interoperable global coverage.

The new satellites, to be manufactured at Alén Space's facilities, include significant improvements over the previously deployed models. Enhancements include increased payload capacity for optimised performance in orbit. This architecture is designed to deliver advanced communications services not only in civil environments but also for critical security operations, territorial protection, and emergency response. It further reinforces Sateliot and Alén Space's position as key players in the European space ecosystem.

Long-time partnership

The partnership between Sateliot and Alén Space is not new. Both companies already collaborated closely in the development of the first four commercial satellites in Sateliot's constellation, which were successfully launched in August 2024 aboard a SpaceX rocket.

Sateliot currently has committed contracts worth around €270 million with more than 400 clients across 50 countries.

SPACE

SouthPAN successfully achieves critical design review milestone

GMV plays a key role in supplying several critical subsystems of SouthPAN, which will benefit civil aviation and multiple sectors across the Australasian region

The Southern Positioning Augmentation Network (SouthPAN) is a joint project of the governments of Australia and New Zealand, led by Lockheed Martin Australia with GMV as a key strategic partner. The purpose of the project is to provide groundbreaking satellite navigation and precise positioning services for the entire Australasia region.

Critical design review (CDR) represents an important control point in the lifecycle of a critical system like SouthPAN, because the main objective of the process is to validate the proposed design's compliance with the strict performance and safety standards required by the civil aviation authorities. As part of this milestone, the SouthPAN project team has delivered to the client a complete package of certification documents, prepared in accordance with international civil aviation standards. These include the ARP4754A guidelines for development of systems, the RTCA/DO 254 standard for development of hardware, and the RTCA/DO 278A standard for development of software. Satisfactory completion of the critical design review confirms that the proposed system architecture and development plan will meet the strict levels of requirements and demands that apply when use of a system could put human lives at risk.

Achievement of this milestone confirms that the design of the SouthPAN system has reached the level of maturity necessary to deploy the system, and it represents a decisive step towards future certification of the system by the civil aviation authorities.

SouthPAN is the world's first satellite-based augmentation system (SBAS) designed from the very beginning as a service, rather than as a conventional turnkey system. This is an innovative approach focused on provision of the service, which facilitates scalability and future expansion of the system into other regions. At the same time, it establishes a clear framework for interaction between the client and supplier, governed by a service level agreement (SLA) that incorporates various key performance indicators (KPIs). Provision of the first open services began in September 2022, producing immediate benefits for users throughout the entire Australasia region. Once the system's deployment and certification have been completed, SouthPAN will provide an SBAS L1 service that is valid for precision runway approaches during landings, which will contribute to improved efficiency for flight operations in the region.

SouthPAN will also provide the latest generation of a dual-frequency multi-constellation (DFMC) SBAS service, as well as a precise point positioning (PPP) service. These will be available for open use by users in a broad range of industries, such as agriculture, geomatics, and maritime, rail, and road transportation. The design of the SBAS-DFMC service has taken into account the future need for a transition from an initial service (open service) to a critical service (safety of life service). This will be performed via software upgrading, with no need to deploy additional hardware.

The central role that GMV is playing in the SouthPAN project is a reflection of the company's extensive experience with developing safety-critical satellite navigation systems. GMV is responsible for two of the key subsystems for SouthPAN: the corrections processing facility (CPF) and the ground control center (GCC). Both of these subsystems make it possible for SouthPAN to meet the strict performance standards, by generating precise corrections for the navigation signals transmitted by the GPS and Galileo satellites, and by allowing identification of potential anomalies and reporting of these to the users. GMV is also leading the engineering and monitoring activities for the navigation services, to ensure that the system remains in compliance with the specified key performance indicators (KPIs).

Use of multiple antennas marks a new era for GNSS resilience

■ In addition to errors such as those caused by multipath signals, global navigation satellite system (GNSS) applications are facing an increasing number of threats related to signal jamming and spoofing. In this context, the use of multiple antennas for processing the received signals has become an essential aspect for achieving robust navigation.

In depth studies performed by GMV as part of the recently expanded HARSHTAG project show that the use of these technologies provides clear advantages, such as by improving detection, mitigation, and positioning precision throughout the entire signal processing chain. As part of this project, GMV has studied beamforming techniques, which make it possible to combine the signals provided by multiple antennas to amplify the signals received in the desired directions, while eliminating signals in undesired directions. This approach is particularly effective for mitigating jamming and spoofing attacks, and it will now be validated under real-world conditions, using a campaign of specific field testing in a range of environments.

This multi-antenna processing is benefiting from the recent advances made in developing compact and high-performance GNSS antennas. As the sensitivity of these antennas continues to improve, along with their efficiency and levels of miniaturization, it is becoming increasingly practical to integrate them into small-sized devices such as smartphones, tablets, and other portable equipment. This miniaturization is also making it possible to accelerate use of these antennas in other markets, such as those for autonomous systems and critical infrastructure protection systems.

The HARSHTAG project is an evolution from the earlier DIVAL project, which played an important role in terms of assessing the feasibility and benefits of multi-antenna processing for GNSS.

The DIVAL project was focused on validating six multi-antenna detection and mitigation techniques, in a variety of environments and against different types of threats. These techniques included the use of hybrid power-based beamformers, and spoofing detection based on phase differences among the antennas.

The project's results anticipated significant performance improvements when configurations of four antennas were used, especially under difficult conditions involving multipath signals and interferences.

By combining the innovations developed during the different projects e.g. (HARSHTAG and RANA) GMV is solidifying its leadership role in developing intelligent GNSS solutions based on multiple antennas. These initiatives will now make it possible to develop robust, scalable navigation systems that are designed to manage the increasing complexity existing in real-world environments.

NAVISP program provides opportunities for the Portuguese space ecosystem

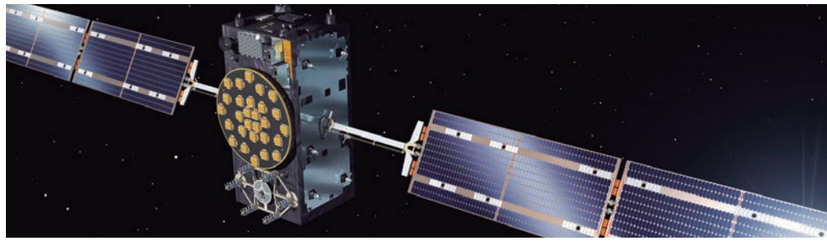
The Portuguese Space Agency and European Space Agency (ESA) recently held a joint workshop in Lisbon, with the aim of drawing attention to the opportunities that ESA's Navigation Innovation and Support Program (NAVISP) can offer for encouraging innovation and industrial capabilities in the Portuguese space ecosystem.

This event presented a high-value forum for exploring new technological approaches, and for analyzing alternative funding mechanisms and holding bilateral meetings with ESA representatives. The workshop featured participation by representatives from universities, industry, and public-sector institutions, which allowed for an in depth discussion of the strategic role that NAVISP is now playing in relation to developing European positioning, navigation, and timing (PNT) capabilities.

During the session dedicated to "NAVISP Success Stories", Teresa Ferreira, Manager of the Navigation Area at GMV's Portuguese subsidiary, gave a presentation on GMV's track record and achievements in the context of that program. She used the SDXPAND project as a specific case study, where a key industry alliance was created, making it possible for GMV to lead the development of the radiofrequency constellation simulator for the Galileo second generation (G2RFCS). This tool has proven to be essential for allowing ESA to test and validate user receivers and Galileo's second-generation signals and satellites. It is also being used to perform simulations and experimental activities to support the design, development, operation, and maintenance of the Galileo system. The event was also attended by Pedro Boto and Pedro Fernandes.

GMV expands its role in the Galileo program with a major new contract for PRS-IOC

■ GMV strengthens its leadership in the Galileo program with a new high-impact contract that will mark a milestone in the system's evolution and enable the integration of new functionalities across all Galileo segments (GCS, GMS, and GSMC). These enhancements are essential to achieving the initial operational capability (IOC) declaration of the Public Regulated Service (PRS).



The contract includes the incremental development and deployment of a set of tools within the system's different segments, allowing progressive achievement of the defined technical objectives while ensuring a robust and transparent security baseline at all times—an essential aspect within the framework of the Galileo program.

These new tools will strengthen system security management and maintenance processes. Among the most notable are the Asset Management Tool (AMT) and the Vulnerability Management Tool (VMT). The AMT is capable of gathering Network Map (NM) data from various infrastructures and generating an aggregated NM.

This tool builds on the evolution of the Cyber Management and Assets Monitoring tool (CMAM from GCSv3.1) and the Gaudit scripts, ensuring comprehensive and efficient coverage. The VMT, meanwhile, will allow the import of NM data, the management and configuration-controlled tracking of detected vulnerabilities, and their corresponding patching. This solution is based on the evolution of GMV's ***Gestvul*** and Realvul tools and enables a proactive cybersecurity approach.

The new contract is part of the development activities for the second generation of Galileo (G2G) and results from close technical collaboration with ESA and EUSPA, further reinforcing GMV's position as a trusted partner in the field of European critical systems.

Beyond its technical impact, this contract represents a strategic step forward for GMV, consolidating its role as a key player in the evolution of the Galileo system and in ensuring the program's security.

GMV's technology is a key aspect of the new Galileo authentication service

■ On July 24th, the European Union Agency for the Space Programme (EUSPA) announced that the new Open Service Navigation Message Authentication (OSNMA) service for Galileo had become operational.

The European GNSS Service Centre (GSC), which is located at the facilities of Spain's National Institute of Aerospace Technology in the city of Torrejón de Ardoz near Madrid, is responsible for generating the authentication messages and sending them to the ground segment of the Galileo mission. Together with the Galileo High-Accuracy Service (Galileo HAS), OSNMA is one of the key value-added services for the Galileo constellation, and it provides a significant advantage compared to other satellite navigation systems such as GPS and GLONASS.

For several years, GMV has been working together with the EUSPA on developing the GSC infrastructure, including the software updates needed for provision of the OSNMA service. GMV has also been responsible for developing the infrastructure for generating the Galileo High-Accuracy Service (Galileo HAS), which has been in operation since January 2023.

Satellite-based positioning systems often perform open transmission of their signals and positioning data, without any mechanisms that allow verification of their authenticity. This makes it possible to produce illegitimate replicas of the signals, with the aim of deceiving users in applications such as the time stamping used for financial transactions, or calculation and logging of positions and times in digital tachographs.

The new OSNMA service allows the use of cryptography to protect the data transmitted by Galileo, to ensure secure use of the system in applications of this type. The service lets its users confirm that the navigation data they are receiving has actually been transmitted by the Galileo system, and that it has not been falsified or manipulated. This increases the overall value of the system for its users.

Design phase completed for new Galileo HAS data generator

As part of Phase 2 of the development of the Galileo high-accuracy service (HAS), 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).

This is the world's first service to offer real-time precise positioning corrections to all users of the service, at no cost. The first version of the HADG, also developed by GMV as part of the HAS Initial Service (Phase 1), is now operational and is providing service to the system's users.

The contract now in progress has a duration of 45 months and a budget of €12 million. It began in November 2024, and after eight months of intensive work, the design phase has now been completed.

The new version of the HADG is incorporating all of the experience that GMV acquired when developing the first version, while also benefiting from the company's experience with other projects involving precise point positioning (PPP) and the numerous contributions made by experts representing the EUSPA, European Space Agency (ESA), and European Commission.

The next step will consist of materializing the proposed design, by completing development, verification, and deployment of the infrastructure. The aim is to achieve the system qualification milestone during the first half of 2026. However, in order to do this, there will be a need to overcome some significant technical and planning challenges.

GMV is leading the industry consortium and contract performance, with direct responsibility for development, deployment, and commissioning support for this new version of the data generator for the Galileo high-accuracy service (HAS), with potential responsibility for its maintenance as well.

GMV strengthens its role in preparation for ESA Ministerial Council 2025

On July 21st, an event that was seen as decisive for the future of European space activities took place in Lisbon, Portugal: the European Space Agency (ESA) Ministerial Council 2025 Preparatory Workshop. Organized by the Portuguese Aeronautics, Space and Defence Cluster (AED Cluster Portugal), with support from the Portuguese Space Agency, this workshop marked a turning point in terms of the country's preparation for the upcoming ESA Ministerial Council 2025 meeting, which will take place at the end of the year.

The event was kicked off by institutional presentations by the Portuguese Space Agency and by AED Cluster Portugal, which was followed by a strategic discussion of national priorities in view of the ESA road map for 2025. Throughout the day, thematic sessions were dedicated to the programs that will be presented at the Ministerial Council meeting, and there were also spaces for sharing ideas and generating alliances among some of the industry's key players.

GMV was represented by two of the sector managers at GMV's Portuguese subsidiary, Teresa Ferreira and João Branco, who actively participated in the roundtable discussions. They contributed the company's perspectives and emphasized the need to prepare Portugal's space industry for full engagement with the major European initiatives being designed as part of the multi year financial framework for 2028 2035.

The company's representatives also stressed the strategic importance of this year's Ministerial Council meeting, which is taking place at a decisive moment for solidifying Portugal's role within the European space ecosystem. With its participation at this event, GMV has once again demonstrated its commitment to supporting Portugal, as Europe continues to build a more ambitious and competitive space industry.

First cryptographic testing completed for second-generation Galileo satellite: key progress towards orbital security

The Galileo Second Generation (G2G) program has achieved a new milestone, with performance of the first onboard cryptographic test on a satellite developed by Thales Alenia Space Italy (TAS I). The aim of this testing, which was coordinated by the European Space Agency (ESA) and carried out jointly with GMV, the manufacturer (TAS I), and the final operator (SpaceOpal), was to validate the latest generation of new cryptographic algorithms that will give the Galileo system unprecedented robustness.

The recent completion of this testing in Rome also represents a fundamental step within the campaigns for integrating the ground control segment (GCS) with the new G2G satellites, prior to the first launching scheduled for 2027. The purpose of these compatibility test campaigns is to ensure that the satellite is correctly interpreting the commands, and that the ground segment is able to process the telemetry being received.

This most recent testing was part of a series of integration campaigns that already achieved another key milestone in September, when testing was successfully completed for compatibility between the G2SB1 satellite produced by Thales Alenia Space and the ground control segment developed by GMV, with validation of the inter-system interfaces and communications.

The G2G program continues to incorporate significant technological advances. For example, the new satellites have a fully digital payload with in orbit reconfiguration, electric propulsion, more powerful navigation antennas, inter-satellite links, and onboard authentication functions. Advances like these will make it possible to offer more precise, secure, and robust services, establishing Galileo as a worldwide leader in satellite navigation.

This first cryptographic test allows validation of important security-related components, and it is also aligned with the integration campaigns that are essential for ensuring that launching of the first G2G satellite will take place in 2027 as planned, with all required technical guarantees. These activities are a further demonstration of GMV's strategic and technical commitment as part of the G2G program, and they are solidifying the company's role as a leading technological partner for evolution of the Galileo system.

GMV successfully completes Early Access milestone for GCS 3.1

GMV is continuing to make progress within the Galileo program, by successfully completing the Early Access milestone for version 3.1 of the ground control segment (GCS). This version represents the last major updating planned for the first generation of the system, and at the same time, it acts as a precursor for the first version for the second-generation GCS.

Deployment of GCS version 3.1 took place at the Fucino Control Centre in Italy, where the operators will be initiating an exhaustive operational validation process during the upcoming months. Completing these tests will be an essential step prior to incorporation of the ground control segment into the operational chain, by ensuring that the new version complies with the highest standards for reliability, safety, and security.

GCS version 3.1 incorporates a series of key improvements and new features, such as operational enhancements, anomaly correction, system efficiency optimization, resolution of technological obsolescence in the Fucino Control Centre's infrastructure, a full renovation of the cryptographic components, reinforcement of the segment's security, and new monitoring and safety functionalities that will strengthen comprehensive oversight of the system.

GCS 3.1 will exist in parallel with the first version of the second-generation GCS, also developed by GMV, with its operational deployment scheduled for 2026. This coexistence will allow for a gradual and secure transition between the two generations, to ensure service continuity and robustness. In parallel, GMV is continuing to make progress on evolution of the Galileo first generation under the GCS-FOC2 contract, through updating and deployment of new versions at the remote stations. These activities are all strengthening GMV's role as a key partner for modernization and maintenance of one of Europe's most ambitious space programs.

With successful completion of the Early Access milestone for GCS 3.1, GMV has once again demonstrated its technological leadership and its commitment to the future of Galileo, while further solidifying the company's position as a leading developer of critical satellite navigation infrastructure.

GMV Showcases Its Most Innovative GNSS Capabilities at ION GNSS+ 2025

GMV participated as an exhibitor at the 2025 edition of ION GNSS+, the leading international technical event dedicated to Global Navigation Satellite Systems (GNSS), held September 8–12 in Baltimore, USA.

GMV had its own exhibition space where it presented its most advanced GNSS solutions. These included high-precision satellite navigation technologies and critical applications for sectors such as transportation, defense, and smart infrastructure.

The company also took part in five technical panels, where it shared cutting-edge developments in interference detection using artificial intelligence, hybrid positioning algorithms with 5G networks, real-time solutions for demanding GNSS environments, and advanced onboard navigation capabilities for low-Earth orbit satellites. In parallel, the program featured the ION GNSS+ Special Events, including the "Young Navigators Gathering," a networking event designed to foster young talent.

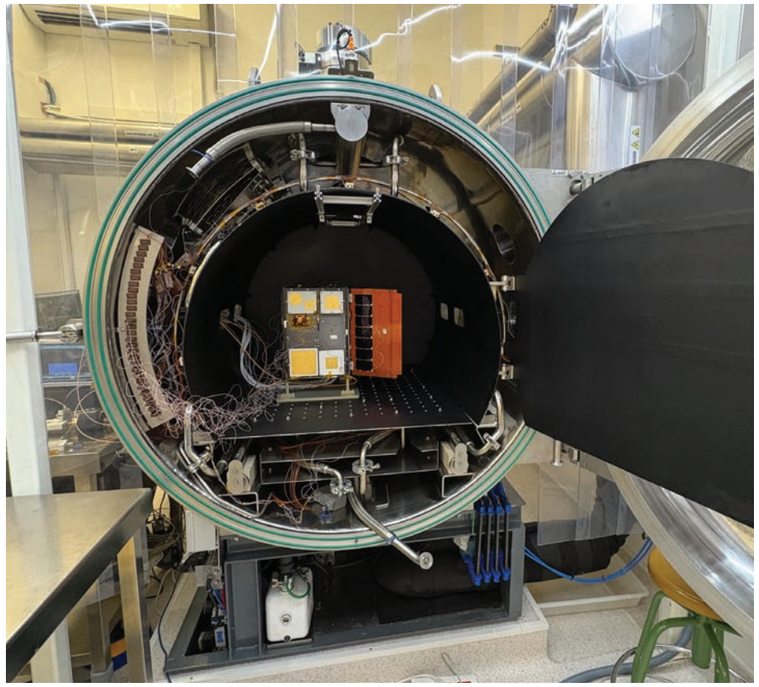
The quiz competition held during the gathering saw GMV professionals secure the top three places, highlighting the outstanding preparation of the company's next generation.

With its participation in ION GNSS+ 2025, GMV strengthens its position as a key player in PNT (Positioning, Navigation, and Timing) technologies and demonstrates its commitment to technical excellence in developing GNSS solutions that advance sustainability and operational safety.

GMV's Pathfinder-A successfully passes end-to-end compatibility and radiofrequency tests ahead of first launch

In 2024, the European Space Agency (ESA) awarded GMV the development of a complete demonstration mission showcasing the capabilities of low-Earth orbit (LEO) satellites for Positioning, Navigation, and Timing (PNT). Initially known as LEO-PNT, ESA has recently renamed the program Celeste, in honor of Galileo's daughter. Together with its partners, GMV is developing six satellites for the program's demonstration constellation. The first in the series, named Pathfinder-A and jointly developed by GMV and Alén Space, is based on a 12U CubeSat platform.

The launch of Pathfinder-A marks a key milestone in the program and will take place from New Zealand aboard a Rocket Lab Electron rocket. The planned launch window runs from mid-December through the end of March 2026. Recently, as part of the pre-launch preparation activities, Pathfinder-A successfully completed both an end-to-end compatibility test and a radiofrequency compatibility test. The end-to-end test confirmed the satellite's ability to receive signals from Galileo and other GNSS systems, process them onboard to precisely determine its own orbit and synchronize its internal clock, generate and transmit LEO-PNT navigation signals and messages, and finally, to ensure those signals can be received by a user receiver. The receiver used in these tests was also developed by GMV.



Meanwhile, the radiofrequency compatibility test validated that Pathfinder-A's signals are generated in accordance with the defined LEO-PNT space signal specifications. All tests were carried out at one of Alter's anechoic chambers in Tres Cantos, Spain. This milestone confirms that the transmitted signal complies with system specifications and can be processed by user receivers—an essential step in demonstrating the mission's feasibility.

The project plan foresees the full Celeste demonstration constellation in orbit by 2027. Among its objectives, the mission will also explore the interoperability of LEO-PNT signals with 5G networks, paving the way for adoption in autonomous mobility applications and critical infrastructure.

GMV's Contribution to Galileo and EGNOS Recognized at the 30th Anniversary of European Navigation

■ Thirty years ago, the Ministerial Council of the European Space Agency (ESA) approved the ARTES-9 program, launching a pioneering collaboration between ESA, the European Commission, Eurocontrol, and European industry to develop satellite navigation in Europe.

To mark this anniversary, a celebration took place on September 2, 2025, at ESA's European Space Research and Technology Centre (ESTEC) in Noordwijk, where GMV was recognized as one of the most outstanding industrial partners for its technological contributions to the Galileo and EGNOS programs. The event brought together leading ESA representatives, European authorities, and industrial partners, highlighting the collaboration and joint work achieved in this field.

Miguel Romay, General Manager of GMV's Satellite Navigation Systems, accepted the award on behalf of the company, emphasizing the collaboration and dedication that have made this milestone possible.

GMV plays a fundamental role in the development, evolution, and operation of the Galileo program, being responsible for the design, maintenance, and continuous improvement of the mission and control ground segment, as well as several of the system's service centers. The company is also actively involved in system operations and in the development of user terminals for Galileo's Public Regulated Service (PRS), further reinforcing its commitment to innovation and security in satellite navigation.

Through its constant focus on innovation, GMV has introduced numerous technological improvements that have increased Galileo's reliability and accuracy, consolidating the system as the global benchmark in satellite navigation. Today, Galileo serves more than 5 billion users worldwide, providing a wide range of positioning, navigation, and timing services.

GMV has also played a key role since the early stages of EGNOS (European Geostationary Navigation Overlay Service). Among its most significant contributions is the development of the Central Processing Facility Processing Set (CPFPS), the heart of the system responsible for calculating all corrections and integrity messages broadcast to users. GMV has also actively contributed to the creation of testbeds, simulators, and analysis and monitoring tools. Since 2006, the company has been responsible for developing and maintaining EDAS (EGNOS Data Access Service), which provides access to EGNOS data across Europe.

EGNOS enhances the accuracy, reliability, and integrity of GPS signals in Europe, benefiting air, maritime, and land navigation.

This recognition reinforces GMV's role as a leader in positioning technologies and as a key strategic partner in the development of Europe's satellite navigation systems.

GMV Debuts at INTERGEO 2025 with Its Most Innovative Navigation Solutions

INTERGEO 2025, the world's leading trade fair for geodesy, geoinformation, and land management, organized by the German Association for Geodesy (DVW), brought together professionals, companies, and institutions from across the globe in its latest edition.

GMV participated for the first time with its own stand, where it showcased its latest developments in the field of navigation. The company highlighted its technological capabilities and strong commitment to innovation through solutions that drive infrastructure management, smart mobility, and land-use planning.

In addition to the exhibition, INTERGEO 2025 featured a comprehensive program of conferences and specialized forums addressing key topics such as Digital Twins, 3D Reality Capturing, unmanned systems, geospatial data management, as well as spatial data infrastructures and open data.

These discussions underscored the strategic role of geospatial technology in areas such as engineering, sustainability, and digital transformation.

GMV's participation in INTERGEO 2025 marks a milestone in its international projection, consolidating the company as a key player in the development of navigation solutions.

GMV's GNSS Cryptographic Module is the first product to obtain EUCC certification at the "substantial" level

■ GMV has achieved a significant cybersecurity milestone, with its GNSS Cryptographic Module becoming the first product to receive certification under the EU Cybersecurity Certification Scheme on Common Criteria (EUCC) at the "substantial" assurance level. This achievement represents a major step forward, not just for GMV, but also for the entire European cybersecurity certification system.

GMV's GNSS Cryptographic Module is a software library designed for Linux platforms, which provides advanced cryptographic services for global navigation satellite system (GNSS) client applications. Its functionalities are especially important for secure positioning and timing services, such as those permitted by the use of Galileo Open Service Navigation Message Authentication (OSNMA).

The certification for this GMV product has been issued by DEKRA, a private certification body that has been accredited by the Spanish National Accreditation Agency (ENAC), both as a conformity assessment body (CAB) and as an information technology security evaluation facility (ITSEF), with support from Spain's National Cryptologic Center (CCN).

This certification draws attention to the opening of the certification ecosystem to private-sector entities, to go beyond the historically public-sector framework of the SOG-IS agreement. Obtaining EUCC certification at this level provides multiple benefits. For example, it validates the robustness of the product's cybersecurity, provides support for regulatory compliance (including alignment with the EU's upcoming Cyber Resilience Act), increases trust across the entire supply chain, and enhances GMV's competitiveness in the public-sector and commercial markets. This certification is a further demonstration of GMV's commitment to solutions that are secure by design, as well as the company's leadership role in developing trustworthy technologies for strategic European industries, especially in relation to space and navigation.

About the EUCC Certification Scheme

The EUCC Certification Scheme was developed by virtue of the European Union's Cybersecurity Act. It provides a harmonized framework for certifying information and communication technology (ICT) products with regard to their cybersecurity properties.

The scheme defines three levels of assurance: basic, substantial, and high, although currently the EUCC only applies to the last two levels.

The substantial assurance level makes it possible for conformity assessment bodies (CABs) that have been accredited by a national accreditation body (NAB) to act as information technology security evaluation facilities (ITSEFs) when assessing and certifying products.

For certifications at the high level of assurance, additional authorization by a National Cybersecurity Certification Authority (NCCA) is required.

DEFENSE & SECURITY

GMV achieves milestones on Data Intelligence project for Spain's National Security System

The official validation of the first three milestones consolidates the project's technical soundness and paves the way for its operational deployment

GMV has made significant progress on its development of the Data Intelligence Platform for Spain's National Security System (PI-SSN). The Spanish central government's Department of National Security (DSN) and Office of the Comptroller General have officially approved all deliverables corresponding to Milestones 1, 2, and 3 of the contract.

At the acceptance event held on July 22nd, the technical documentation, software, and hardware supplied all received a favorable assessment and validation. In this way, the government's institutions have confirmed that these materials comply with the requirements established in the contract specifications.

This approval represents a decisive step in terms of solidifying the first phase of the project, and it also marks the beginning of the guarantee period for the items supplied, as an additional display of the confidence being shown in the solidity of GMV's solution. Some of the most notable deliverables approved include the platform's design and architecture work, which lays the foundations for the platform's operational, security, and data management capabilities. Delivery of the software licenses required for the platform's operation has also been validated, along with hardware that is essential for protecting the communications and allowing secure interconnection of networks with various classifications.

This approval is a further endorsement of the work performed by GMV since the start of the contract, and it reflects the confidence that the Department of National Security continues to place in the company's technical and management capabilities.

The PI-SSN project is part of Spain's national strategy for modernizing its critical infrastructure. The aim of the project is to supply the Department of National Security with an advanced platform for data analysis, visualization, and exploitation, with incorporation of the latest generation of big data, artificial intelligence, and cybersecurity technologies. Approval of these initial milestones is another demonstration of Spain's ongoing support for GMV's proposal to offer innovative, secure solutions to assist with strategic decision-making.

With Milestones 1, 2, and 3 now completed, GMV will be spending the upcoming months performing the test phase, deployment, and security accreditation. This will ensure that solid, ongoing progress is being made towards full operability of the Data Intelligence Platform for the National Security System.

GMV Successfully Upgrades the CSD SIERRA Node of the BICES Network in Brussels

GMV, a leading provider of ISR (Intelligence, Surveillance, and Reconnaissance) services for the military intelligence community, has successfully completed the upgrade of the CSD SIERRA node of the BICES network (Battlefield Information Collection & Exploitation System), located in Brussels.

This operation reinforces GMV's key role in the delivery and ongoing evolution of the CSD SIERRA system (Coalition Shared Database), a vital tool for intelligence information sharing and execution of TCPED processes (Task, Collect, Process, Exploit, and Disseminate).

The CSD system, based on the NATO STANAG 4559 standard, is designed as a distributed architecture composed of interoperable nodes developed by different countries. This structure maximizes the efficiency of ISR resource use across the coalition.

Since 2014, the CSD SIERRA node has operated as the central data exchange node within the BICES Group Executive (BGX), the headquarters of the BICES network's central body in Brussels. This node serves as a critical link between the multinational BICES intelligence community and the NATO Command Structure (NCS).

The recent upgrade to version 2.2 of the system, developed under a national project, was preceded by a successful security audit conducted by Spain's Joint Cyberspace Command (MCCE) and accredited by the National Cryptologic Center (CCN).

This new version brings significant enhancements in both functionality and performance, including new client applications that improve interaction with system data and services, enabling faster and more efficient execution of ISR processes—while maintaining full interoperability with other network nodes.

As part of the upgrade, a controlled data migration was also carried out to ensure the consistency of distributed information across the coalition and compliance with secure data exchange protocols.

With this milestone, GMV strengthens its commitment to the continuity and advancement of ISR developments and services within BICES, laying the groundwork for the integration of new capabilities in the years to come.

GMV Contributes to EDA White Paper on Trustworthy and Ethical AI in Defense

GMV has taken part in drafting the European Defence Agency (EDA) white paper, "Trustworthiness for AI in Defence – Developing Responsible, Ethical, and Trustworthy AI Systems for European Defence."

Published by the TAID (Trustworthiness for AI in Defence) working group, the document reflects the collaborative effort of experts from EU Member States' Ministries of Defence, industry, and academia.

The white paper addresses one of the most pressing challenges for the future of military capabilities: ensuring that artificial intelligence systems are reliable, lawful, and ethically aligned. To this end, it establishes a structured framework covering regulatory standards, engineering methodologies, human–machine collaboration, and the ethical management of risks throughout the AI lifecycle.

GMV's contribution focused on defining the technical foundations for risk-based evaluation, trustworthy AI architectures, and practical recommendations for AI assurance strategies in defense systems.

This work reinforces the EU's vision of developing AI technologies that are not only operational but also guided by principles of safety, accountability, and European sovereignty.

The document is expected to serve as a key reference for future research and regulatory developments on AI in the field of European defense.

GMV Hosts the Third General Assembly of the EDF STORE Project

The meetings held at GMV strengthened consortium cooperation and showcased key progress in the development of the shared database designed to train and validate AI models with optronic sensors

In June, GMV hosted the third Consortium General Assembly (CGA3) and the sixth meeting of the Technical Management Board (TMB6) of the EDF STORE project.

The STORE project, officially titled "Shared daTabase for Optronics image Recognition and Evaluation," is a 36-month Research Action funded by the European Commision. Its aim is to facilitate the development, training, validation, and sharing of Artificial Intelligence (AI) models using data from optronic sensors.

The main goal of these meetings was to foster team spirit, strengthen collaboration within the consortium, and exchange updates on recent progress and upcoming steps.

The presence of the European Commission's Project Officer underscored the strategic importance of the gathering.

Both meetings yielded highly positive outcomes, with the project gaining strong momentum and outstanding collaboration recognized by the European Commission. Promising initial results were presented, including the demonstration of key milestones achieved. Updates were also shared on the progress of the different Work Packages (WPs) and the design of the project's final demonstration architecture, scheduled for 2026.

As leader of Work Package WP4 (Database Framework, DBF), GMV showcased significant progress by presenting the first prototype of a distributed database platform designed to support the sharing of datasets for training and validating AI models. These models can also be shared through the same platform. Notably, a DBF node is already available and fully operational within GMV's infrastructure, accessible externally with appropriate credentials. Future project phases will aim to interconnect this node with others deployed by consortium partners. GMV also presented a detailed roadmap for the remaining tasks in the WP4 to meet the project's committed milestones and KPIs.

The project has now reached a critical point, at its halfway mark (M18), with large volumes of data already acquired under diverse weather conditions and substantial progress made across all work packages. The next phase will require intensive production efforts to meet the project's ambitions, with a strong emphasis on using STORE data for AI model training and inference. The success of these meetings at GMV reinforces the consortium's commitment and lays a solid foundation for the project's next steps.

Co-funded by the European Union

This project is co-funded by the European Union. The views and opinions expressed in this article do not necessarily reflect those of the European Union or the European Commission. Neither the European Union nor the European Commission can be held responsible for them.

GMV Showcases Its Innovative Border Surveillance Capabilities in Finland

In September, GMV took part in the Joint Demonstration Event held in Turku, Finland. The event was co-organized by the European Commission, the Finnish Border Guard, the University of Turku (UTU), and the Turku University of Applied Sciences (TUAS), within the framework of the CERIS (Community for European Research and Innovation for Security) program.

During the event, GMV presented its maritime surveillance capabilities through the ***Sócrates*** system, an advanced solution designed to enhance situational awareness in coastal and maritime environments.

GMV also shared progress on its work developing a digital model for Frontex, aimed at optimizing decision-making in border control operations through simulation and complex scenario analysis.

The event brought together a total of 19 prototype solutions from 14 EU Member States, in a joint demonstration of innovation applied to border security. The day concluded with a visit to the regional Coast Guard control center and the Aboa Mare simulation center, where participants were able to see how new technologies are integrated into real operational environments.

Spanish Navy Launches F-111 “Bonifaz” Frigate Featuring GMV’s Advanced Solutions

On September 11, the Spanish Navy celebrated the launch of the frigate F-111 “Bonifaz” at Navantia’s shipyard in Ferrol. The F-111 is the first unit of the new F-110 series, designed to replace the veteran Santa María-class frigates. With this milestone, Spain makes a qualitative leap in naval capabilities thanks to a vessel equipped with the latest technology for defense and maritime security operations.

GMV plays a key role in the program by providing strategic solutions that enhance navigation, tactical management, interoperability, and onboard intelligence exploitation. Among these, the ***SENDA*** navigation system stands out, delivering accurate data on position, speed, attitude, and time through the integration of multi-constellation GNSS, military receivers, and inertial sensors. The system ensures robust navigation even in degraded or denied signal environments and incorporates a high-precision, redundant time server, essential for synchronizing all onboard systems.

The F-111 also integrates with its SCOMBA combat system the ***SAPIIEM JISR*** suite, developed by GMV in compliance with NATO Stanag 4559 standards. This technology enables the planning and real-time exchange of intelligence, surveillance, and reconnaissance information between the ship’s sensors and other units, decisively boosting situational awareness.

In the field of command and control, the frigate incorporates ***TALOS***, GMV’s C4I system, which facilitates the planning, execution, and coordination of naval fire support. ***TALOS*** also integrates with SCOMBA, optimizing the ship’s operational effectiveness in naval fire missions.

GMV is also involved in one of the ship’s next-generation sensors, the IRST, contributing a high-fidelity sensor modeling and scenario simulator, as well as the onboard system maintenance console.

Finally, interoperability between onboard systems is ensured through AUTEK gateways, developed by a GMV Group company. These cross-domain solutions act as controlled bridges between networks and systems of different classifications, ensuring secure information transmission and compliance with NATO cybersecurity standards.

The launch of the F-111 “Bonifaz” marks the beginning of a new era for the Spanish Navy, which will now rely on a class of frigates equipped with state-of-the-art systems and a strong national technological component—consolidating GMV’s role as a key strategic partner.

DGAM awards Autek the supply of a cross-domain gateway for the New C295 maritime patrol aircraft

The Spanish Directorate General of Armament and Material (DGAM) has awarded Autek the supply of a cross-domain gateway under the Maritime Patrol Aircraft (MPA) program. The program includes the acquisition of new aircraft in two different configurations: the C295W MPA, dedicated to maritime patrol missions, and the C295W MSA, designed for maritime surveillance. All aircraft will be manufactured at Airbus’ facility in San Pablo, Seville.

From a technical perspective, the new MPA fleet represents a significant leap forward for the Spanish Air Force, particularly in communications and data-link capabilities. The C295 in its maritime patrol version is equipped with advanced avionics, including a digital flight instrument panel and a flight management system that supports mission planning and the integration of sensor data, as well as tactical navigation through the FITS system, which provides operators with real-time information.

The cross-domain gateway is a perimeter protection system designed to control the exchange of information between systems with different security classifications (security domains) and to prevent unauthorized data flows.

The MPA version of the aircraft requires this device to separate the NATIONAL RESERVADO and NATO SECRET domains, as missions will involve handling information classified under both categories.

Autek will supply the system to DGAM, which in turn will provide it to Airbus as Government Furnished Equipment (GFE) for integration into the MPA configuration.This contract represents a key step in modernizing the intelligence and security capabilities of the Spanish Armed Forces, ensuring an interoperable and secure operational environment for multinational missions. The integration of the cross-domain gateway into the C295 MPA not only strengthens national technological sovereignty in classified information protection but also reinforces Autek’s position as a strategic supplier in high-value defense programs.

Castilla y León entrusts GMV with the management of its SOC to boost regional cybersecurity

■ GMV has been awarded the contract for the new Security Operations Center (SOC) of the Regional Government of Castilla y León, consolidating its position as a national leader in cybersecurity services. The contract will allow GMV to monitor, analyze, and respond to incidents affecting both the corporate network and the educational network of the region.

This award reflects the commitment of the Regional Ministry of Mobility and Digital Transformation to protecting public systems against the growing volume of cybersecurity alerts and incidents, significantly increasing its annual investment in this area.

GMV will implement a comprehensive solution that ensures continuous monitoring, rapid threat response, and a progressive improvement in the cyber resilience of the managed systems. The project will draw on the expertise of GMV's Computer Emergency Response Team (GMV-CERT), which already operates the Red.es CyberSOC at the national level.

GMV-CERT has a team of highly qualified experts dedicated to developing and implementing both preventive and reactive measures, employing advanced tools for threat detection and analysis. All efforts are aligned with the objectives established by Spain's National Cybersecurity Plan.

With this contract, GMV reaffirms its commitment to innovation, technological excellence, and strengthening cybersecurity capabilities at both the regional and national levels.

Opinion

Resilience as culture: Organizations leading in uncertain environments

Organizational resilience has emerged as a fundamental pillar to ensure business sustainability in an environment defined by geopolitical volatility, accelerating technology, and a constantly evolving landscape of cyber threats. In 2025, this context has intensified: the prolonged conflict in Ukraine, tensions in the Middle East and Asia-Pacific, cyberattacks targeting critical infrastructure, energy blackouts across Europe, and supply chain attacks have transformed risk perception at every level. In response, the European Union and countries such as Spain have increased their defense and cyberdefense budgets, recognizing that digital and operational resilience is no longer optional, but essential.

For our companies, this resilience is not a mere exercise in regulatory or technical compliance, but a structural strategy that combines adaptability, operational continuity, and corporate culture. Organizations that embrace this challenge with vision and coherence will be better prepared to anticipate, adapt, and thrive in an environment marked by uncertainty and rapid change.

In 2025, organizations face growing risks stemming from ransomware, supply chain attacks, IoT vulnerabilities, and the sophisticated evolution of social engineering and artificial intelligence as offensive weapons. At the same time, regulatory frameworks such as DORA, NIS2, CER, or Spain's ENS have raised the bar of scrutiny and requirements regarding organizations' real ability to withstand and recover from disruptions:

- Cybersecurity: integrating active defense, detection, automation, and recovery against new attack vectors.
- IoT/OT Convergence: deploying segmented architectures, managing hybrid environments, and protecting critical cyber-physical systems.

Resilience as culture is not a mere slogan, but a profound evolution in how organizations confront uncertainty, manage risk, and protect operational continuity. It requires consolidating a long-term vision that integrates cybersecurity, regulatory compliance, technological transformation, and organizational culture into a unified ecosystem. To achieve this, it will be necessary to:

- Awareness: develop tailored awareness programs, sector-specific cyber exercises, and technical training at all levels.

Javier Zubieta
Director of Marketing and Communication - GMV Secure e-Solutions

- Cloud adoption: redesign protection architectures in multicloud environments, applying Zero Trust, intelligent backup, and recovery as a service.
- Supply chain: manage third-party risk through continuous auditing, technical validation, joint exercises, and secure exit mechanisms.
- Regulation and compliance: address alignment with DORA, NIS2, ENS, and other frameworks with an integrated vision, traceability, and support for auditing and certification.

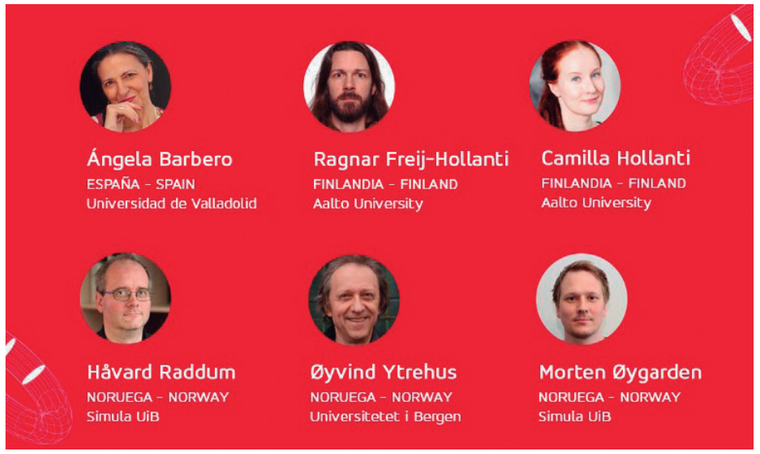
Adopting a resilient culture enables organizations to anticipate risks, maintain business continuity in critical scenarios, and ensure long-term sustainability in highly regulated and demanding environments.

GMV rewards mathematical innovation with the resolution of an international cryptographic challenge

■ GMV has announced the winners of its international mathematics challenge, launched in collaboration with Trampoline Network. The proposed challenge involved solving a complex mathematical problem with significant applications in the field of cybersecurity, particularly in the development of stronger protection systems against emerging threats such as quantum computing.

The challenge was designed around three main objectives: to stimulate new ideas for addressing these types of problems from innovative perspectives; to find effective, large-scale solutions that can be implemented in real-world contexts; and to drive innovation in cryptography by leveraging the potential of advanced mathematics as a driver of technological development. The call attracted more than 100 experts worldwide in mathematics, theoretical computer science, and cryptography, highlighting the international and collaborative nature of the initiative. The challenge served as an open platform to channel talent toward a cutting-edge technological problem with direct applications in cybersecurity and post-quantum encryption.

Trampoline Network played a key role in the conceptualization and management of the challenge, acting as a bridge between industry and the global scientific community. Its blockchain-based platform enabled the launch of the challenge in an agile and traceable manner, connecting GMV with highly specialized international talent and ensuring transparency throughout the entire open innovation process. The technical jury, made up of GMV specialists in cryptography and computational algebra, recognized the winning proposal, which received a prize of €15,000 for the originality and potential of its approach. The winning solution combines algebraic techniques with advanced structural analysis over finite fields. Furthermore, the winners will continue collaborating with GMV on the evaluation and projection of the case for practical application in future cryptographic developments, setting a precedent for co-creation between academia and the technology sector.



Opinion

GMV Intelligence Agency

GMV's Threat Monitoring and Intelligence team is made up of a diverse, multidisciplinary group of cybersecurity specialists. Among its members are telecommunications engineers, computer science and cybersecurity experts, as well as professionals from less common fields in this domain, such as criminologists, documentalists, linguists, and lawyers. They all share the same mission: to identify threats that could affect our clients, analyze them, and alert them before cybercriminals strike. The unit is structured into two main areas: digital monitoring and threat intelligence.

The digital monitoring team is responsible for observing cybercrime, stepping into the attacker's shoes to track where criminals operate, the campaigns they carry out against our clients' interests, potential economic, reputational, and business damage, as well as data breaches that could provide initial access to criminal groups. This team continuously monitors the criminal landscape using specialized platforms and tools—both from leading providers and developed in-house—to detect possible exposures or third-party breaches that could pose a risk to our clients' security. This proactive approach makes it possible to anticipate high-impact attacks such as ransomware, unauthorized access, cyber espionage, or sabotage, thus protecting clients' assets and integrity and enabling them to detect, prevent, or mitigate potential business impacts while avoiding financial loss, reputational damage, and legal consequences.

The threat intelligence team focuses on studying cyber threats. Its role is to analyze the events detected by the digital monitoring team, interpret, evaluate, and contextualize them to provide clients—particularly decision-makers—with processed, actionable information (intelligence) that supports strategic decisions. The team also understands how criminal groups operate: their methods, movements within systems, objectives, origins, infrastructures, and commonly used malware. It also analyzes trends, threats, and geopolitical factors shaping clients' risk environments. For example, a shift in the global trade paradigm may trigger state-sponsored cyber espionage campaigns, against which preparedness is essential.

Daniel Juanes Fernández
Threat Intelligence Analyst at GMV

"A team of experts anticipates and analyzes cyber threats to alert clients before they are attacked".

The goal is to produce operational and strategic intelligence reports that enable clients' cybersecurity departments to make more effective decisions—prioritizing vulnerabilities, guiding offensive security exercises, monitoring exploited technologies, or creating tailored detection rules, among others.

Ultimately, GMV's Threat Monitoring and Intelligence team combines advanced technology with deep, multidisciplinary human expertise to give clients a critical edge against cybercrime. Their work not only helps anticipate attacks and minimize risks but also strengthens organizations' resilience and response capabilities in an increasingly uncertain and challenging digital landscape.

GMV reaffirms its commitment to technological innovation at the digital cconomy and telecommunications meeting

GMV has renewed its commitment to innovation by taking part in a new edition of the Digital Economy and Telecommunications Meeting, organized by AMETIC, the leading forum for the digital sector in Spain. The event, held in Santander from September 1 to 3 under the theme “Digitalization, Competitiveness, and Social Impact. The Great Equation”, brought together representatives from public administrations, industry, academia, and civil society to discuss the challenges and opportunities of digital transformation.

Representing GMV, Javier Zubieta, Director of Marketing and Communications for Secure e-Solutions, participated in the panel discussion “The Defense Industry and Technology.” In his remarks, Zubieta addressed the concept of dual-use technology, highlighting how technological developments in the military field find applications in the civilian sphere, and vice versa, underscoring the bidirectionality that GMV has observed throughout its more than 40 years of history.

During his presentation, he cited examples such as cryptography and computing developed during the space race, and how GMV has pioneered the transfer of innovations like satellite navigation to the transport sector. He also emphasized that reusing technological solutions across sectors is key to optimizing resources and accelerating innovation, particularly in established fields such as AI and cloud. Zubieta presented three concrete cases of dual-use technology developed by GMV:

- Cybersecurity in 5G communications: Experience with SOCs in the civilian sphere has enabled the extension of this capability to critical environments such as 5G infrastructures and emergency management.
- Resilience as culture: In the context of critical infrastructure protection, GMV is ready to apply cyber resilience methodologies developed in the civilian sphere to national security, aligning with European directives such as NIS2 and upcoming CERT legislation.
- Remote assistance in defense: Remote assistance solutions developed by GMV for the civilian sector, deployed in hard-to-reach environments, are ideally suited for military and humanitarian missions. The planned €72 million investment under the Ministry of Defense’s extraordinary 2025 investment plan highlights the importance of these services.

In terms of strategic capabilities, Zubieta highlighted GMV’s global presence in key sectors such as navigation (Galileo), communications (IRIS2), and Earth observation (Copernicus), always with a European vision. He also mentioned the company’s work in emerging technologies such as quantum computing applied to cybersecurity and artificial intelligence.

GMV Warns at the University of Málaga About Cybersecurity Risks in the Space Sector

At the 23rd edition of the University of Málaga’s Summer Courses, organized by the General Foundation of the University of Málaga, GMV took center stage in the seminar “New Scenarios of Specialization in Cybersecurity and Cybercrime.”

Ana Romero, Head of Cybersecurity for Galileo GCS at GMV, delivered a lecture and joined the subsequent panel discussion, focusing on cybersecurity risks in the space sector—from space to Earth—including control centers, data networks, and antennas. In a clear and accessible way, Romero explained the structure of the Galileo system and examined how both physical and digital vulnerabilities—such as the decryption of algorithms over time—can compromise these critical infrastructures.

In her remarks, she emphasized the importance of cybersecurity in the supply chain and the use of encrypted communications, which remain vulnerable in the face of future quantum computing capabilities. She also highlighted the practical case of the Viasat attack, which disrupted satellite network access, to illustrate the potential role of states in cyberattacks and stressed that the response cannot be reactive, but rather strategic and proactive.

From a regulatory and political perspective, Romero analyzed the legal challenges: each government regulates its space sector independently, creating national silos. However, initiatives such as the NIS 2 Directive, in force since 2023, and the EU’s proposed Cyber Solidarity Act are beginning to establish common frameworks that also encompass the space sector.

GMV takes center stage at the second edition of ECSO Days in Brussels

The European Cyber Security Organisation (ECSO) held the second edition of “ECSO Days” in late June in the Belgian capital, bringing together Europe’s leading cybersecurity experts to discuss the sector’s challenges and opportunities.

GMV played a prominent role in the event, participating as a sponsor and with a booth in the exhibition area, where its professionals showcased the technological solutions that have established the company as a benchmark in cybersecurity.

In addition, the company took part in the roundtable “Space and Dual-Use Technologies: Roadmap and Industrial Policy to Create a Competitive Advantage for European Industry,” represented by Ana Romero, who emphasized how the space and cybersecurity domains are closely connected in building European sovereignty, innovation, and resilience.

GMV reaffirmed its commitment to developing secure, cutting-edge space technologies that strengthen Europe’s strategic capabilities and help maintain its leadership on the global stage.

Simplifying supply chain security to strengthen trust and optimize resources

On September 23, Mariano J. Benito, GMV’s Cybersecurity and Privacy Ambassador, took part in the panel “Supply Chain Security: What Can CISOs Do to Solve the Problem?” at the 4th ECSO CISO MeetUp, held in Valencia. In his remarks, he provided a strategic and business-oriented perspective on the risks that arise in supplier–client relationships throughout the supply chain.

Benito emphasized that too many resources are currently being allocated for limited returns, and that many Chief Information Security Officers (CISOs) approach the issue only from the consumer’s perspective. “All organizations are also providers at some point and should assume that dual role along with its corresponding responsibilities,” he noted. He also reminded the audience that in today’s interconnected ecosystem, “all companies are part of a global supplier network,” and that in some cases, organizations are part of their own supply chain, creating paradoxes between practice and the theoretical models applied.

The expert warned that this partial view often leads to heavy investments without achieving the desired levels of security—neither within the organization itself nor across its suppliers.

As an alternative, he presented GMV’s experience and solutions, designed to simplify management processes, reduce effort, and ensure greater trust in the supply chain, while maintaining and even enhancing protection levels.

HEALTHCARE

VHTeDades: from clinical data to shared knowledge, with technical support from GMV

The VHTeDades platform transforms clinical data into useful and ethical knowledge, driving innovation and anticipating the European Health Data Space

The Vall d'Hebron University Hospital in Valencia, Spain has taken a decisive step forward in the digital transformation of healthcare, thanks to VHTeDades, its innovative data platform powered by GMV's technology. During the 3rd edition of the workshop entitled "Combining our data, multiplying our knowledge", which was held in Barcelona under the theme "Data and its journey: the European challenge from the Vall d'Hebron perspective", several use cases were presented to demonstrate the real value of clinical data for improving public health.

The VHTeDades platform, which is now in use at the Vall d'Hebron Hospital, uses ethical, secure, and interoperable information processing to turn clinical data into usable knowledge. This event was attended by researchers, patients, and representatives from industry and regulatory bodies, as well as by members of GMV's team, who demonstrated how advanced data management can translate into biomedical innovation and tangible improvements in healthcare practices.

USE CASES WITH A PUBLIC HEALTH IMPACT

Some highlights of the projects discussed involved identification of acute renal failure predictors in the Vall d'Hebron Hospital's intensive care unit (ICU); a study performed by Merck on prevalence and hospitalization for oncology patients, with the aim of optimizing clinical trials; an analysis of the platform of patients' organizations regarding the impact of chronic diseases on mental health; and an observational trial by Pfizer on the subject of non-muscle-invasive bladder cancer.

All of these developments were carried out using actual patient data, but only after it had been duly anonymized, with full assurance of regulatory compliance. These experiences represent a practical simulation of the European Health Data Space (EHDS), and they are providing an initial view of the enormous potential that this shared infrastructure can have for health research, disease prevention, and healthcare management in Europe.

GMV, A DRIVER OF TECHNOLOGICAL CHANGE

GMV led the project to implement the VHTeDades platform, which it achieved by applying its expertise in artificial intelligence, data governance, and secure processing environments, while also integrating advanced solutions from IBM. The platform is now being used not only by the hospital, but also by the Vall d'Hebron Research Institute (VHIR) and Vall d'Hebron Institute of Oncology (VHIO), where scientists and researchers are now able to perform their work by using anonymized data in a trustworthy environment.

With this initiative, GMV is further demonstrating its commitment to a secure, ethical, and interoperable healthcare model, where data can be used as a driver of healthcare knowledge and disease prevention. This work has been performed based on GMV's track record as a key technological partner for digital transformation projects in Spain and throughout Europe.

GMV technology driving the medicine of the future

With technology developed by GMV, the OmicSpace project is now set to transform the world of biomedical research by creating a federated platform for multimodal data. This platform is emerging as a secure federated data space, where research centers, hospitals, public administrations, and private-sector organizations can share and reuse clinical, genomic, and omics information in a secure and voluntary manner, with the aim of advancing health-related research and innovation. Development of the platform was led by the La Fe Healthcare Research Institute, using technology from GMV, and based on a shared governance model that protects the sovereignty of the data while prioritizing trust, interoperability, and respect for all participants.

The project has benefited from €4.5 million in investment, with support from the Valencian Community's regional Ministry of Health, and from the Spanish Ministry for Digital Transformation and Public Services, using EU funds from the country's Recovery and Resilience Plan. OmicSpace operates using a federated architecture, without the information being centralized. Each of the nodes, which may correspond to a hospital, biobank, or research center, keeps its own data in its original location, which allows for secure viewing without any need to compromise privacy or control.

To ensure maximum quality and compatibility, the platform applies international standards such as OMOP for standardized data structuring, and it also follows the FAIR principles (Findable, Accessible, Interoperable, Reusable) and protocols such as HL7, OAuth2, and OpenID.

One of GMV's most important contributions to OmicSpace is the platform's robust technological integration. The company is providing the required infrastructure through modular, interoperable, and scalable solutions, which are able to ensure efficient processing of clinical and omics data within an independent technological framework, while remaining in compliance with European standards such as those from the European Health Data Space (EHDS) and EU Data Governance Act, as well as other FAIR standards. This approach also guarantees solid national coverage, by allowing fluid collaborations among up to eight strategic nodes located in seven regions of Spain, while also offering connectivity to the rest of Europe.

OmicSpace is also creating opportunities for developing predictive models, personalized therapies, and advances in 5P medicine (predictive, preventive, personalized, participatory, and precise), by providing collaborative access to high-quality data, with robust ethical controls and in full compliance with the European Union's General Data Protection Regulation (GDPR).

International collaboration for respiratory health: GMV joins the Open Source Imaging Consortium

The fourth edition of the Open Source Imaging Consortium (OSIC) Member Meeting has established itself as a key forum for innovation in the field of artificial intelligence applied to respiratory health.

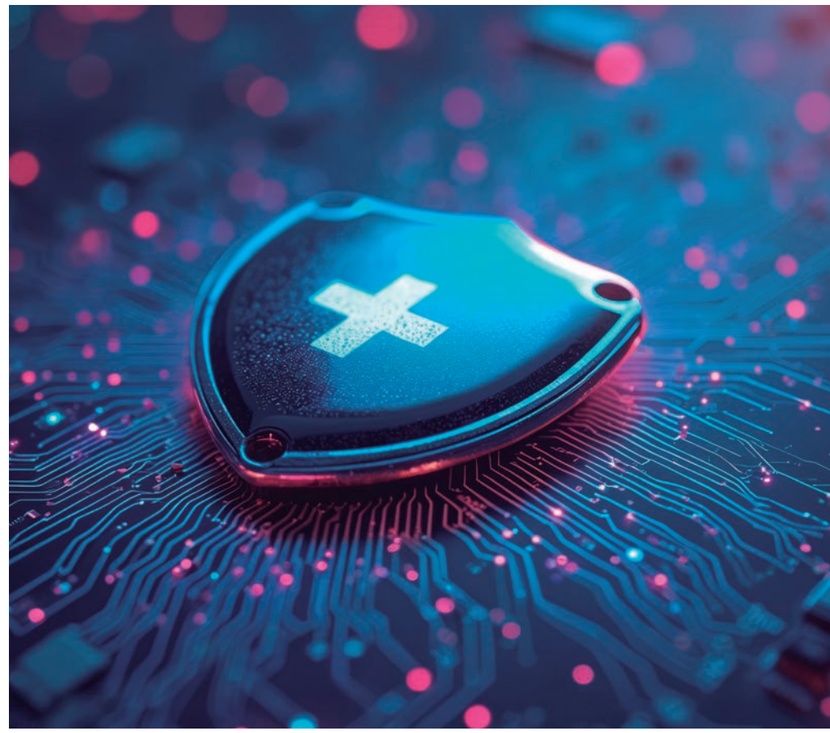
On this occasion, GMV was introduced as a new member of the consortium, marking its inclusion in this international initiative that brings together representatives from academia, industry, and patient organizations with the goal of accelerating progress in the diagnosis and treatment of idiopathic pulmonary fibrosis (IPF) and other interstitial lung diseases (ILDs) through the use of machine learning.

During the meeting, held on Saturday, September 27, 2025, the AI/Biomarker Innovation Showcase took place—a session featuring the latest developments in artificial intelligence applied to medical imaging and digital biomarkers.

Representing GMV, Carlos Illana and Alejandro, Head of Advanced Health Products, delivered the presentation "SEPI-IA: A Spanish, Publicly Funded Research Initiative." This project, funded with public Spanish resources, aims to boost research on pulmonary diseases through artificial intelligence and advanced data analysis solutions.

GMV's participation in OSIC reinforces its commitment to technological innovation in healthcare, strengthening its role as a key player in international collaboration to develop tools that enhance the diagnosis, prediction, and monitoring of complex respiratory diseases.

Strengthening cybersecurity in the healthcare industry: threats, impacts, and strategies for 2025



The healthcare industry has now entered a very important phase in terms of cybersecurity, because health systems have become a prioritized target for cybercriminals. An unprecedented increase in cyberattacks has been seen recently, with 47% more attacks reported in 2024 than in the previous year. Every week, hospitals and other healthcare facilities in Spain and Portugal are subjected to an average of 2,361 intrusion attempts, especially incidents involving ransomware, phishing, and configuration errors. The consequences can be serious: interruptions in patient care, millions of euros in financial losses, and a direct impact on public trust.

NIS 2: A NEW REGULATORY FRAMEWORK

In response to this situation, the European Union has enacted new legislation known as the NIS 2 Directive, which went into effect in 2023, becoming fully enforceable in 2024 2025. This legislation represents a paradigm shift, because its scope covers all critical actors in the healthcare ecosystem: hospitals, laboratories, medical device manufacturers, and technology providers.

Some of its main requirements are focused on strengthening risk management, mandatory reporting of incidents, direct accountability of management bodies, and application of substantial penalties in cases of non-compliance. This Directive has also introduced the need to perform periodic risk assessments, and to implement specific technical and organizational measures to ensure a high level of protection.

NIS360: A PRACTICAL METHODOLOGY FOR THE HEALTHCARE INDUSTRY

In this context, GMV is proposing adoption of the NIS360 methodology, which has been produced by the European Union Agency for Cybersecurity (ENISA) as a practical roadmap for measuring and improving cybersecurity maturity. This is a comprehensive approach that is articulated as four levels of action. At the organizational level, it includes measures such as multi-factor authentication, patch management, and collaboration through information-sharing networks such as Health ISAC. At the technical level, the focus is on network segmentation, protection of legacy systems, and deployment of network and endpoint detection and response (NDR/EDR) tools. At the strategic level, there is an emphasis on performing cyber crisis simulations, and on alignment with regulatory frameworks such as the European Union's AI Act and Medical Devices Regulation. Finally, at the individual level, the emphasis is on the need for continual training for personnel, on establishing "bring your own device" (BYOD) protocols, and on promoting an active reporting culture.

ANOTHER STEP TOWARDS CYBER RESILIENCE

The need to apply the NIS 2 framework should not be seen as just a regulatory obligation. It also represents a strategic opportunity to strengthen cyber resilience in the healthcare industry, because in the end, protecting healthcare data and systems is about protecting lives and ensuring continuity of care. By applying a comprehensive approach, with support from GMV's technological expertise and from frameworks such as NIS360, European health systems can transform a regulatory challenge into a driver of innovation and trust.

ITS

Talgo awards contract to GMV for supplying video-surveillance systems on Flixtrain's new fleet in Germany

This system has already been installed on other trains manufactured by Talgo, such as those recently delivered in Egypt and those currently being built for DSB in Denmark

Talgo has awarded GMV a new contract for supplying intelligent transport systems (ITS) on the trains it is now building for Flixtrain, which will be operating in Germany.

The contract includes the supply of onboard equipment for a total of 65 newly constructed trains, with the scope focused on the onboard video-surveillance (CCTV) system. This will be a system that has already been installed on other trains manufactured by Talgo, such as those recently delivered in Egypt and those currently being built for DSB in Denmark.

The system provided by GMV includes a network video recorder (NVR), along with various types of IP cameras that are strategically distributed throughout the train cars to maximize coverage. In addition to being installed in the passenger areas, these cameras will also cover the spaces between cars, to ensure nearly complete coverage of the entire train.

In addition, the video-surveillance system will have a train control and monitoring system (TCMS), which will record and transmit essential data. This will be a fundamental aspect of the preventive maintenance procedures and will also allow for more efficient operation.

In addition, the contract includes specific video viewing applications for the control centers, which will be managing the images captured by the systems installed on each train. These tools will facilitate more effective, centralized management of onboard safety and security, to improve the experience of the fleet's operators and passengers alike.

This new contract will further solidify the collaborative relationship developed between the two companies, which has been based on their joint work on various projects involving construction of new trains and modernization of existing ones. It is also confirming GMV's position as a leading technological supplier for the rail industry, and as an active contributor to digitalization and safety for rail transportation in Europe.

GMV showcases its public transport solutions at TRAKO 2025

GMV took part in TRAKO 2025, Poland's largest and Europe's second-largest rail transport industry event, held from September 23 to 26 at AMBEREXPO in Gdańsk. The trade fair once again confirmed its position as a leading European platform for innovation in rail transport systems and infrastructure.

The 16th edition of the event gathered over 600 exhibitors and more than 23,000 attendees from more than 50 countries, bringing together management boards, rail operators, rolling stock manufacturers, innovative technology providers, energy and telecom companies, engineering firms, academia, and consultants.

GMV showcased its comprehensive portfolio of public transportation solutions, attracting interest from industry professionals and stakeholders. The company highlighted its capabilities in advanced ticketing systems, fleet management, real-time passenger information, and cybersecurity, reinforcing its role as a trusted partner in digital transformation for the mobility sector.

Beyond the exhibition, TRAKO 2025 featured a rich program of expert seminars, debates, and technical sessions, including Education & Career Day and innovation competitions, offering GMV further opportunities to exchange knowledge and explore collaborations with key players across the rail ecosystem.

GMV sponsors the 31st National Urban and Metropolitan Transportation Congress

On September 25th and 26th, 2025, the 31st National Urban and Metropolitan Transportation Congress took place in Seville, organized by Spain's Association of Urban and Metropolitan Public Transportation (ATUC). Held at the Seville Conference and Exhibition Centre, known as FIBES, the event brought together representatives from transportation operators, public-sector agencies, and companies in the industry, under the theme of "Innovation and Sustainability in Public Transportation".

With a full schedule of sessions and activities offered over the course of two days, the event was designed to address the main challenges and opportunities related to urban and metropolitan mobility. The first day included technical sessions on bus, rail, and mixed-mode transportation, as well as an ATUC General Assembly meeting. On the second day, the scheduled presentations were focused on innovation and sustainability, with a concluding roundtable discussion dedicated to Human teams for the upcoming decade.

GMV was a sponsor for the event, and it also had its own prominent space to present its latest intelligent transportation system (ITS) solutions. In addition, Javier Gómez, head of GMV's Smart Rail and Metro Systems Division, participated in the session entitled "Railway Modes: Thinking about tomorrow – lifecycles, scalability, and open systems". In his presentation, he shared the company's experience and perspectives regarding the future of rail transportation and the importance of digitalization, scalability, and open systems.

With this double form of participation, GMV reaffirmed its commitment to modernizing urban and metropolitan transportation, while promoting its technological solutions that can help improve service quality as well as the user experience.

GMV successfully deploys its EMV payment system on the Madrid region's intercity bus network

In July, GMV successfully completed deployment of its contactless bank card (EMV) payment system on the interurban bus network managed by the Madrid Regional Transportation Consortium (CRTM). The new solution, which became fully operational on July 1, represents a significant milestone for digitalization of the Madrid region's public transportation systems, while also making a contribution to more accessible, connected, and efficient forms of mobility.

Thanks to these technologies, users will now be able to pay directly on the bus with physical or virtual bank cards, or by using compatible mobile devices. There is no need for passengers to buy paper tickets or register in advance, which speeds up access, reduces boarding times, and improves the user experience for tourists and occasional bus riders. It also does away with cognitive barriers by eliminating the need to understand fare schedules or travel zones, making it possible for these buses to provide more intuitive, user-centered services.

The ***TV100*** validators, designed and manufactured entirely by GMV, play a key role in the system. These robust and versatile devices can validate payments even under adverse conditions, such as in tunnels or in remote rural locations, thanks to their onboard logic and ability to operate even when offline. In fact, during the widespread power failure that recently affected the Iberian Peninsula, the system maintained 98.6% of its usual number of validations, as a demonstration of its high level of operational reliability.

This is a solution with a modular, scalable design, and it is ready to be integrated with advanced fare models such as account-based ticketing (ABT). In addition, the system can associate validations with virtual accounts, apply centralized fare rules, and manage accumulated fare capping. All of this is giving the system an important role in the CRTM's strategy for the future, while also opening up possibilities for expansion into other regions and use by additional operators.

With completion of this project, GMV's system now covers almost 70% of the CRTM's intercity bus fleet, further solidifying the company's position as a strategic technological partner for ticketing solutions. With regard to cybersecurity, the system complies with the international PCI DSS standards and EMVCo specifications. The validators do not store any sensitive information, and all transactions are fully encrypted. The system can also perform auditing, risk management, and back-office validation functions.

This deployment is clearly demonstrating GMV's ability to take the lead on projects that require complex technologies, integration of advanced solutions into existing infrastructure, adaptation to operational diversity, and the need for high-quality services from day one.

GMV successfully finalizes its participation in the ASCENDER project

GMV has successfully completed its participation in the ASCENDER project, which took place in close collaboration with the Barcelona Supercomputing Center (BSC). GMV's contribution was focused on providing the BSC with data based on V2X technologies, along with information and communication standards, with the aim of supporting research on real-time computing applied to smart, connected, and safe urban mobility. By processing information derived from multiple sources, such as cameras, GPS, radar, and lidar, the BSC has designed data analysis flows with support from GMV that can perform real-time identification of risk situations in complex urban environments.

One of the most important milestones was deployment of the first V2X infrastructure prototype, at a critical high-traffic intersection in Barcelona. Specifically, a roadside unit (RSU) was installed, which together with the onboard units (OBUs), provides essential data for the BSC's computation system. These units make use of the ITS G5 standards and 802.11p and C V2X (5G) technologies.

Thanks to these developments, risks can be detected in scenarios of intermodal mobility, with special attention given to interactions among pedestrians, cyclists, vehicles, trams, and buses. By using edge computing resources strategically distributed at various locations in the city, it will be possible in the future to process the data gathered and generate immediate alerts, which can then be transmitted to end users connected via the V2X network.

Finally, the data analyses performed by the BSC will make it possible to demonstrate the feasibility of generating traffic statistics (congestion, infractions, situations with risk, etc.) based on V2X technologies, which can help public-sector agencies design more effective mobility policies. With this finalization of the ASCENDER project, GMV has reaffirmed its commitment to technological innovation and digital transformation for urban mobility, in the context of groundbreaking European projects.

GMV's demonstrates its commitment to autonomous and safe mobility at IAA Mobility 2025

GMV recently attended the IAA Mobility 2025 event, which took place from September 9th to 14th in Munich, Germany. This is one of the largest international gatherings dedicated to the mobility of the future. Taking place under the theme "It's All About Mobility", this year's event brought together industry leaders, public institutions, technology startups, and sustainability experts, to discuss new forms of connected, automated, and environmentally friendly transportation.

GMV participated in the scheduled program with a talk entitled "From GNSS to Cybersecurity: Enabling the Next Generation of Autonomous Mobility", which was presented by Sara Gutiérrez, head of GMV's Automotive business unit. Her presentation was part of a thematic session on self-driving vehicles, and it addressed the role of key technologies such as global navigation satellite systems (GNSS), sensor fusion, and cybersecurity, which have all emerged as essential elements for safe, reliable, and robust autonomous driving.

With a strong reputation and track record in developing advanced solutions for connected autonomous vehicles, GMV shared its vision regarding the ways in which these technologies are shaping the future of smart mobility, with a special emphasis on their applications for public transportation systems and urban environments.

GMV successfully renews its TISAX certification

The company has maintained this important automotive industry certification since 2019

GMV has demonstrated its commitment to information security by successfully renewing its Trusted Information Security Assessment Exchange (TISAX) certification for another three years, after passing a new assessment in accordance with the industry's highest standards.

This is an essential certification for the automotive industry, which ensures effective protection of sensitive and confidential information, and this renewal further demonstrates GMV's ongoing dedication to good security practices.

Since the time when it first obtained this certification in 2019, GMV has incorporated TISAX as a strategic tool, to promote continual improvement of its information management and protection procedures, especially for its Automotive business area. The most recent audit was again performed by an accredited certification company at GMV's facilities in Tres Cantos, Valladolid, and Lisbon, in accordance with the strict criteria established by the German Association of the Automotive Industry (VDA) on the basis of the ISO/IEC 27001 standard.

For GMV, the scope of this certification includes achieving the objective of "Connection to 3rd Parties with Very High Protection Level" at its facilities mentioned above.

Operated by the European ENX network, TISAX has been a leading model applied in the European and global automotive industry since 2017. Its main objective is to ensure that all parties throughout the entire supply chain, from original equipment manufacturers (OEMs) to suppliers, can comply with rigorous requirements on the subjects of information confidentiality, integrity, and availability. Nearly 4,000 companies in more than 70 countries use TISAX as a shared mechanism for auditing and exchanging security-related information, and it now has a well-established role as an essential standard for guaranteeing trust across the supply chain.

GMV's renewal of this certification represents a new milestone for the company, and it further solidifies its position as a trusted technological partner for major manufacturers in the auto industry, while also strengthening the company's commitment to managing information in a way that is fully aligned with the market's most demanding requirements.

ICT

GMV and Scoobic are rewriting the rules for urban delivery with a new 5G connected autonomous vehicle

The collaboration between both companies makes possible an urban solution that combines logistics efficiency, artificial intelligence, and zero emissions

Urban mobility has reached a turning point with the launching of Scoobic MED, which is the first 100% electric, autonomous, 5G connected vehicle designed for last-mile delivery in urban environments. Here, last-mile refers to the final phase of a product's distribution process, between the distribution center, warehouse, or store and delivery at the final destination, such as a customer's home or business, a pickup point, etc.

This innovative development is already operating in our cities, as a real solution that is redefining urban logistics. It is the result of an alliance between GMV and Passion Motorbike Factory Scoobic, a leading company in the production of urban electric vehicles.

With a design that allows driverless, emission free operation, Scoobic MED represents a high impact technological and environmental breakthrough. Its mission: to offer a sustainable, efficient, and automated alternative that can address the growing challenges of last-mile delivery in urban areas.

The project is also introducing an innovative pay-per-use model, which makes it easy to implement this technology with no need for large upfront investments. Thanks to this approach, organizations of all sizes can integrate easily scalable, autonomous, electric, and connected mobility solutions, for their use in urban and industrial environments.

These are silent, fully electric vehicles with zero emissions, which can address the increasing demand for a logistics infrastructure that is compatible with the development of more livable and sustainable cities. Compared to the congestion, noise, and pollution created by conventional distribution methods, Scoobic MED offers an alternative that fits perfectly with the smart city model.

STATE-OF-THE-ART TECHNOLOGY FOR EFFICIENT LOGISTICS

Scoobic MED is equipped with the latest generation of technologies: 5G connectivity, perception sensors, artificial intelligence, autonomous navigation systems, and GMV's ***uPathWay*** platform. This technological ecosystem gives Scoobic MED the ability to detect obstacles, make decisions in real time, and optimize each route with no need for human intervention.

A REPLICABLE MODEL WITH AN INTERNATIONAL FUTURE

Although this project has been focused on last-mile delivery, the Scoobic MED vehicle can also be adapted to a wide range of use cases, from transporting medical supplies to distributing materials in industrial settings.

Its versatility, scalability, and low environmental footprint all make this an ideal platform, for making progress towards a model of autonomous urban mobility that can be replicated in other cities and countries.

The Scoobic MED project: 5G Autonomous Electric Logistics Vehicle with smart pay-as-you-go capabilities has been funded by the Ministry for Digital Transformation and Public Service through the 5G 2022 SINGLE SECTOR Program, as part of the Recovery, Transformation, and Resilience Plan.

Data and digital intelligence serving tourism: GMV and the Gremi d'Hotels de Barcelona launch PREVEO

The Barcelona Hotel Industry Association (Gremi d'Hotels de Barcelona) is relying upon GMV to help improve tourism management, by making use of data managed with the innovative PREVEO digital platform.

This system has the ability to analyze all pertinent events taking place in the city of Barcelona, in order to optimize planning based on the corresponding levels of tourism demand.

This gives the city's managers high-quality information, which they can use to anticipate and manage the impact of these events. This tool was created with support from the Next Generation EU funds, with the aim of optimizing demand planning for a variety of economic industries, as a way of making progress towards a more sustainable and effective tourism model.

PREVEO has now become the first digital solution in Barcelona that can integrate, into a single technological environment, all relevant events that will have an impact on tourism and the local economy, whether those events are cultural, sports-related, corporate, or of any other type. The intuitive, user-friendly platform offers much more than just a calendar, because it also incorporates geolocation data, attendance forecasts, impact analysis, and market indicators, to provide its users with a comprehensive, strategic perspective.

One of its groundbreaking elements is the ability to integrate anonymized data from mobile phone signals, provided by the big data platform of the Spanish telecom company Telefónica. Thanks to this innovation, PREVEO can provide historical information about the movements and concentrations of people during past events, which makes it possible to anticipate mobility patterns, develop more precise planning, and encourage tourism flows into less concentrated areas. With this development, GMV is using its technological expertise to help transform urban tourism, while further strengthening its position as a leading provider of digital solutions for intelligent planning.

Based on this support from GMV, Barcelona is taking a decisive step towards a more balanced, efficient, and future-oriented model for tourism.

Opinion

Transformative technology for tourism with a future: innovation that protects, connects, and humanizes travel destinations

Tourism has traditionally been a resilient industry, having demonstrated a remarkable ability to adapt to various types of crises, whether economic, health-related, or societal. However, the challenges that now exist in relation to digitalization require a deeper evolution: one that combines technological intelligence, efficient data management, and a perspective focused on the wellbeing of travelers and residents alike.

As a leading Spanish company for technological innovation, GMV is already supporting the tourism industry during this process of transformation. These days, it takes more than just a good commercial offer to remain competitive: it requires anticipation, protection, collaboration, and sustainable creation of value. It also means bringing together technology and strategy, and transforming that strategy to ensure that it will have a real impact.

What we're talking about here is building more intelligent tourism ecosystems, through the ethical use of artificial intelligence. This will make it possible to design personalized experiences, optimize the physical flows of visitors, automate critical processes, and anticipate patterns of behavior. We're also talking about secure data sharing, by using sovereign platforms such as data spaces, which allow each organization to maintain control over its own information, while also taking advantage of the opportunities presented by the collaborative economy.

And above all, we're talking about security. In our increasingly digitalized environment, cyber risks have already become tangible cyber threats: attacks on critical infrastructure, personal data breaches, identity theft, and service interruptions. Cybersecurity is no longer just a cost, it has become a strategic investment.

GMV offers solutions that cover the entire cycle of protection: from technical audits and security master plans (SMPs), to security operations centers (SOCs), incident response teams (CERTs), and specialized training programs to raise awareness among personnel.

Finally, we're also talking about the future: about how emerging technologies such as quantum computing, edge computing, and 6G connectivity will redefine the way we plan travel, manage destinations, and protect our natural environments, and about how we can make progress towards a more digital form of tourism, without losing the essence of what makes it human.

Joan Antoni Malonda
Tourism Business Developer - GMV Secure e-Solutions

"The National Artificial Intelligence Strategy has been pioneering and has committed to a significant investment in digitalization"

At GMV, we're always ready to make our knowledge, our teams, and our dedication to service available to hotels, travel agencies, tourism destinations, and public administrations, so we can work together to build a tourism model that is not only smarter and safer, but also more fair and more resilient. Because the real value of technology is not just found in the data, but also in how we are able to use that data to improve people's lives.

GMV promotes sustainable artificial intelligence at "GenAI Solutions for Biodiversity" hackathon

On June 25, 2025, the final in-person phase of the GenAI Solutions for Biodiversity hackathon took place in Madrid. This event was organized by Spain's State Secretariat for Digitalization and Artificial Intelligence (SEDIA), as part of the country's National Green Algorithms Program (PNAV). The initiative was developed as part of Spain's National Artificial Intelligence Strategy, and funded through the country's Recovery, Transformation, and Resilience Plan, with the aim of promoting energy-efficient algorithms, and assessing their environmental impact by applying future European specifications.

In her opening address, María González Veracruz, State Secretary for Digitalization and Artificial Intelligence, emphasized that "the National Artificial Intelligence Strategy was a pioneering program when it was launched in 2021, and it has promoted strong investment in digitalization. However, above all its aim has been to give Spain, and therefore Europe as well, an early start for achieving a position on the cutting edge of this digital revolution."

During the first roundtable discussion, which was dedicated to the subject of AI and Sustainability, José Carlos Baquero, Manager of GMV's Artificial Intelligence and Big Data Division, gave a presentation on the progress being made with the project known as AgrarIA, as an example of an initiative funded by SEDIA's AI R&D Missions 2021 program.

Initiatives like the AgrarIA project are now able to demonstrate that when AI is properly designed and monitored, it can help optimize the use of natural resources such as water and energy, while reducing CO_2 emissions in critical supply chains and enhancing competitiveness in the agri food industry through the use of advanced analytics and automation.

GMV strengthens its commitment to Colombia at ANDICOM 2025

From September 3 to 5, GMV took part in ANDICOM 2025, Latin America's leading international Information and Communication Technologies (ICT) conference, held in Cartagena de Indias.

The company participated as part of the official Spanish delegation, organized by ICEX Spain and the Embassy of Spain in Colombia, in a rapidly expanding market that offers opportunities in cybersecurity, artificial intelligence, and 5G deployment.

In its 40th edition, under the motto "Unlocking a Digital Future," ANDICOM brought together 24 Spanish companies to showcase their latest technological solutions. GMV highlighted its expertise in cybersecurity, AI, digital infrastructures, and technological transformation, led by its Country Manager in Colombia, Òscar Gaspar.

The event featured the presence of Óscar López, Spain's Minister for Digital Transformation and Public Function, who emphasized the strategic advantage of a shared language in the technological field and invited Latin American countries to join the ALIA project—an EU initiative aimed at promoting Spanish and co-official languages in the development of artificial intelligence.

During the conference, the Minister met with companies from the Spanish delegation, including GMV, fostering a space for dialogue on short- and medium-term technological strategies.

GreenBot successfully completes field testing for sustainable protection of woody crops

The GreenBot project has now taken a decisive step forward towards sustainable agriculture, with successful field validation of a high-precision autonomous vehicle designed for localized, intelligent weed control for woody crops such as almond, citrus, and olive trees. This initiative is the result of a public-private collaboration, and it brings together artificial intelligence (AI), robotics, and machine vision in order to optimize the use of phytosanitary products, reduce costs, and minimize the environmental impact of intensive agriculture.

AN AGRICULTURAL CHALLENGE WITH A TECHNOLOGICAL SOLUTION

Weeds represent a constant threat for agricultural production, because they can result in crop yield losses of up to 40%. Traditional weed control methods, based on generalized application of herbicides, are not only expensive (up to 30% of the cost of production), they can also be harmful for the environment because of factors such as drift and runoff.

GreenBot has now responded to this challenge with a precision approach adapted to woody crops. This method can be applied under the canopies of trees, in places where conventional machinery cannot operate without the risk of damaging irrigation systems or the crops themselves.

RESULTS AND FIELD VALIDATION

During the tests performed in real environments, the autonomous system demonstrated its effectiveness under various conditions of light, soil, and vegetation cover. There were still some challenges involving detection of seedlings in the shade, but training of the model has been reinforced using additional data. With an inference time of one image per second, the system is able to operate in real time without external servers, and it has achieved a full integration of perception, navigation, and localized application.

This 21-month project ended on June 30, 2025, after being carried out by a consortium led by the AGR 278 Smart Biosystems Laboratory group at the University of Seville, with participation by GMV, TEPRO, Pioneer HiBred Spain, and the Andalusia Agri Food Cooperatives organization.

ADVANCED TECHNOLOGY FOR LOCALIZED APPLICATION

GMV developed the autonomous robotics platform based on its own ***uPathWay*** solution, which brings together machine vision, intelligent navigation, and targeted application of phytosanitary products. The innovative autonomous navigation system is based on ROS 2, GNSS RTK, and IMU, with the use of LiDAR as an additional option. The vehicle also has a semicircular robotic arm that surrounds the trunks of the trees, and it has spray nozzles that are activated only in the areas affected by weeds. The ZED 2i stereo vision system and 64 GB Jetson AGX Orin processor make it possible to identify the species, position, and dimensions of each weed with a precision of ±2 cm, thanks to use of a customized YOLO model trained at the University of Seville. Each weed detection is converted into structured data (image, type, confidence level, and 3D coordinates), which is then integrated into the robot's control system via a REST API with the FastAPI framework.

The GreenBot project has received funding from the European Innovation Partnership's 2022 grant competition for Operational Groups, as part of the Andalusia Rural Development Program 2014 2022.

GMV attends Digitalization Observatory for the agri food industry

In June, GMV participated in a new session of the Digitalization Observatory for the Spanish Agri Food Industry. This is an initiative promoted by Spain's Ministry of Agriculture, Fisheries and Food (MAPA), in collaboration with the Cajamar Group. The focus of these events is on monitoring digital transformation in the food and agriculture industries, by compiling information about the use and implementation of new technologies.

Ángel C. Lázaro, head of Robotics and Automation for GMV's Industry sector, attended the event to share the company's technological perspectives on agroindustrial robotization, with a particular focus on the sub-industry for fruits and vegetables. During the discussions held, he emphasized the fact that for fruits and vegetables, robotization has entered an intermediate phase of adoption, with progressive movement beyond the pilot stage towards integration into actual operating environments. This progress is being supported by technologies such as artificial intelligence, although there are still some challenges derived from the high levels of variability in the work environments involved and the unstructured nature of crop growing practices.

GMV is actively working to overcome these barriers, however, through the use of solutions such as ***uPathWay***. This is a scalable, AI powered platform for managing robotic fleets, regardless of the manufacturers of the hardware being used. In this case, the robots are able to operate on irregular land surfaces while performing tasks such as inspecting crops and applying phytosanitary treatments. These solutions are now being implemented for industry operations with high levels of repetitiveness and low complexity, such as visual inspection and packaging, especially for high-value crops such as berries.

GMV is also implementing various measures to accelerate this technological transition, such as by applying innovative business models like Robotics as a Service (RaaS), and by promoting public-private collaborations and effective technology transfers from innovation centers to small-and-medium agroindustrial enterprises. He also explained the strategic role of public administrations in promoting this transformation, which they are doing by funding new technologies and creating policies that facilitate specialized training and experimentation in real environments.

GMV participates in symposium on Robotics and Automation in Agriculture, organized by the Spanish Automation Committee

As part of a symposium organized by the Spanish Automation Committee (CEA), held at the University of Almería in June 2025, Mauricio Hidalgo, head of Robotics Project Implementation and Commissioning for GMV's Industry sector, participated in a roundtable discussion organized by the Spanish technology platform HispaRob.

This edition of the event put a special emphasis on the agri food industry, in recognition of the strategic role played by agriculture in the Spanish province of Almería, both in Spain and internationally. In this context, he explained some of the technological solutions that are now driving a structural transformation, through automation and robotization of agricultural processes.

Mr. Hidalgo presented a variety of GMV's current projects that are combining artificial intelligence and advanced robotics, to optimize key operations in the agri food industry. For example, he highlighted the project developed in the context of the GreenBot Operational Group (with funding from the Andalusia Rural Development Program 2014 2022), where the aim has been creation of a modular, autonomous robotic vehicle.

This solution has already successfully completed field testing, by demonstrating its ability to identify the presence of weeds using machine vision, and then eliminate them using precise, localized application of phytosanitary products. This is allowing a reduction in the use of chemicals, while at the same time increasing the effectiveness of the treatments.

He also discussed some other use cases for the ***uPathWay*** solution, which is a scalable, AI powered platform for managing robotic fleets, regardless of the manufacturers of the hardware used.

These technologies are strengthening GMV's position as a key player for digital transformation of the agri food industry, and for overcoming the current challenges related to sustainability, efficiency, and food safety.

GMV, once again among the 100 Best Companies to Work For in 2025

In this edition, it has been especially recognized for its opportunities in training, professional development, and collaborative environment

Once again, GMV has been included in the Actualidad Económica ranking of the 100 Best Companies to Work For.

This ranking, which evaluates hundreds of companies in Spain each year, takes into account factors such as compensation, work environment, training, and corporate social responsibility. In this edition, GMV has been especially recognized for its training and professional development opportunities, as well as for the collaborative environment that defines our daily work.

Beyond external indicators, this recognition is made possible thanks to the commitment and dedication of everyone who is part of the GMV family. Each project, each challenge overcome, and every effort shared contributes to making GMV a place to grow, contribute, and find the motivation to keep moving forward.

This achievement encourages us to continue fostering a culture where people are at the center, and to keep working with the same passion and enthusiasm to face future challenges, strengthening GMV's position as one of the best companies to work for in Spain.

IN MEMORY

Everyone at GMV would like to pay homage to two of our colleagues who recently passed away, but whose talent and spirit we will remember forever, and who will always be a part of our lives.

JUAN CARLOS LLORENTE

On Saturday, September 27th, our colleague Juan Carlos Llorente passed away. He started his career at GMV in 1985, and right away he stood out while working on projects that would help define the company's evolution. He stood out for his level of professional excellence, and also for his extraordinary ability to relate to the rest of the team. His commitment, human qualities, talent, and imagination always reflected the best of the principles on which GMV was founded. We continue to apply those principles today, thanks in no small part to the legacy established by our colleagues like Juan Carlos.

EMILIO MORA

On Tuesday, September 3rd, Emilio Mora, one of our former colleagues at GMV, passed away. This was the same day when the European Space Agency was celebrating 30 years of satellite navigation projects, and recognizing GMV's contribution to that milestone. We will always remember how Emilio played such a decisive role during that period, first at GMV, where he led one of the company's great qualitative leaps forward with a steady hand, good humor, and an enormous capacity for hard work, and then later throughout his career at the European Aviation Safety Agency. His professionalism was undeniable, but we will also remember Emilio as someone with a great sense of humor, who was warm, generous, and always open to dialogue.

We would like to extend our sincere condolences to their families, friends, and loved ones. May they rest in peace.

TALENT

Multidisciplinary talent, working together for innovation

At GMV, we know that innovation requires more than just technology. We also need to have the right people, who can make true innovation possible by bringing together a variety of perspectives, backgrounds, and specializations. This is what allows us to successfully take on projects of great complexity and scope.

One good example of this is the program known as EuroMALE (or Eurodrone), which is currently being carried out in Europe. It involves a remotely piloted aircraft system (RPAS) being developed in various countries, with the aim of strengthening Europe's strategic autonomy in defense. This is a challenging project that requires the convergence of a very diverse range of disciplines, such as electronics, mechanics, firmware, simulation, industrial processes, certification, and systems engineering. Above all, however, it requires people with talent, passion, and the ability to work as part of a team.

GMV's participation in initiatives like EuroMALE is not only solidifying our role in strategic international programs, it is also enhancing our own teams, by putting their experience to work and opening up new opportunities for development.

Because at the end of the day, what really sets us apart as a company is our people, who are able to bring together a diverse range of disciplines with a shared vision, so that we can achieve new horizons in the defense industry and in many others as well.

Pedro García
& Alejandro Vélez
Hardware Development / Design and Production

“Hardware is the engine that can turn a vision into solid, competitive innovation”

GMV is participating in the entire hardware consolidation process for the EuroMALE project, based on a comprehensive approach that creates the foundation for each new advancement, from the initial design up until the time of final validation. In the context of this project, the solution’s feasibility and performance have been defined by bringing together a variety of disciplines, with close collaboration to ensure optimal execution of every detail.

Thanks to simulation and prototyping, the initial concepts are now taking shape in the form of real equipment, with the ability to continue evolving rapidly depending on the needs of the system.

During the manufacturing phase, the hardware has benefited from the contributions made by specialists in mechanics, electronics, and industrial processes, to guarantee precision and quality for each unit produced.

In turn, the verification and validation processes are used to make sure that the equipment remains in compliance with the established technical standards, and will meet the user’s expectations. In addition, vibration testing and climate chamber studies are being used to confirm that the system will remain strong and reliable at all times, even under extreme environmental conditions.

Fernando González Ramos
Software Development / Systems Engineering

“Systems engineering plays an essential role, by acting as the ‘glue’ that holds together a whole range of disciplines”

As part of the EuroMALE project (also known as Eurodrone), GMV is participating in the development of several critical subsystems for this remotely piloted aircraft system (RPAS), such as the Ground Flight Control Computer (GFCC).

Every RPAS is subject to strict standards for aeronautical certification. Among the most relevant of these are the DO 254 and DO 178C standards, which apply to safety-critical hardware and software elements. In the case of the GFCC, these standards are applied at the highest level of criticality, because any system failure in this area could have catastrophic consequences.

Projects of this nature require a multidisciplinary approach that can integrate aspects such as electronics, field-programmable gate arrays (FPGAs), firmware, certification standards, and systems engineering. In this context, systems engineering plays an essential role, by acting as the “glue” that holds together this whole range of disciplines.

Working together as teams, to integrate such a diverse range of knowledge and experience, is both enriching and challenging. It promotes individual growth, while also making it possible for the company as a whole to acquire new capabilities and know how, which can then be applied during future projects.

Thanks to this combination of experience and collaboration, EuroMALE has become a leading program not just among those now in progress, but also for those of the future.

GMV, a leader in multidomain capabilities

GMV develops solutions for the defense and security sectors, providing key military capabilities and ensuring national technological sovereignty.

In defense and security, GMV is a trusted supplier to Spain’s Ministry of Defense and Ministry of the Interior, as well as to numerous international organizations and agencies in the fields of engineering, design, development, integration, testing, verification, and maintenance of defense and security systems—covering the entire system life cycle.

At GMV, we design proprietary solutions that strengthen national technological sovereignty and meet the operational needs of the Armed Forces in key areas such as command and control, intelligence, resilient navigation, military avionics, border surveillance, unmanned systems, space systems, and cyberdefense.

GMV: over 40 years working with Spain’s Armed Forces and Security Agencies to strengthen defense and protection.

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