

Spanish rail industry: pioneering companies ready for new challenges



MAFEX INFORMS

Mafex reaches 111 members and continues with its intense agenda of activities in 2023.



IN DEPTH

The railway, an attractive: an attractive industry that generates employment.



INTERVIEW

Silvia Roldán, CEO of Metro de Madrid.



SUSTAINABLE MOBILITY

In an increasingly urbanized world, Stadler's metro, light rail vehicles and trams offer great comfort to passengers and cost-effective customized solutions to operators. Our urban and suburban vehicles set trends in terms of performance, universal accessibility, reliability and safety.

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STADLER

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NEW MAFEX MEMBERS

The Association continues to grow with the addition of six new members and reaches a total of 111 members.

MAFEX ENDORSES THE "EQUAL OPPORTUNITIES MANIFESTO IN THE MOBILITY SECTOR" PROMOTED BY EJE&CON

Tilt aims to strengthen the presence of women in the mobility sector.

NEW MEETING OF THE UNITED STATES WORKING GROUP

Mafex organised a follow-up meeting of the Working Group with the Economic and Commercial Offices of Washington and Chicago.

UIC HIGH-SPEED CONGRESS

Marrakech hosted the high-speed benchmark event.

MAFEX ORGANISES A TECHNOLOGICAL MISSION TO THE NETHERLANDS

Differentiating offer and solid value chain.

FIRST SESSION OF 2023 OF THE "INTERNATIONAL MARKETS FORUM" FOCUSSED ON ITALY

A market that hosts great business opportunities for Spanish railway companies.

MIDDLE EAST RAIL: THE SPANISH RAIL STRENGTHENS ITS PRESENCE IN THE MIDDLE EAST

Mafex coordinates the joint participation of ten companies in the Middle East Rail, which will take place in Abu Dhabi between 15th and 16th May 2023.

NEW EDITION OF THE "GLOBAL PUBLIC TRANSPORT SUMMIT" ORGANISED BY UITP

Under the motto "Bright light of the city", it will also have a Spanish pavilion in which Mafex will participate in addition to the main companies in the Spanish railway sector.

RAIL INNOVATION NETWORK (RIN)

On 17th February, Mafex presented the analysis of the technological capabilities of the CAPV (Basque Autonomous Community).

NEW SUMMIT OF THE STARS PROJECT IN FRANCE

The project where Mafex is part of the consortium aims to support SMEs in the sector with the implementation of Advanced Technologies, giving a boost in terms of

productive performance and increasing their ability to innovate.

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Progress in sustainable mobility is linked to job creation in all subsectors of the railway value chain, as well as the need for new specialised profiles. Railway companies present multiple and attractive opportunities given the need to attract and retain talent.

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Infraestructuras sostenibles en un entorno cambiante

Equipos multidisciplinares conscientes de la importancia de la seguridad, integración y evolución tecnológica en los sistemas ferroviarios.

IDOM.com



The railway, key in the new urban model of sustainable mobility



We are also at a crucial moment for an industry that faces great challenges and opportunities associated with key aspects such as digital transformation and sustainability. We are part of an innovative sector, with great prospects and employment generator, but which also faces other challenges, from the point of view of human capital, such as attracting, incorporating and retaining the best talent. It is necessary to have professionals who help to implement the new developments, to strengthen innovation and to move towards the digitalisation of the industry.

The evolution towards a new green economy requires a profound transformation of the current mobility model. The railway is destined to be the main protagonist, since it is the most sustainable, efficient and safe means of collective land transport.

In addition, according to the World Bank, and when the world population is close to 8 billion people, 56% live in the cities, and it is expected that this number will increase gradually to reach 6 billion in 2045. In the latest UN-HABITAT report, it is estimated that by 2050 it will be higher than 68%.

For this reason, public transport networks are increasingly committing to the railway as a centre of mobility. In this evolution, administrations and operators wish to rely on the advice from the best experts to implement modern, sustainable and highly efficient systems. The Spanish industry, pioneer in the search for solutions, has become with its knowledge and experience the main ally of these projects in countries of the five continents.

All these topics are analysed in issue 35 of the Mafex magazine, which also includes current news, innovative solutions and sustainability initiatives of more than 40 members and the Asociation itself.

Finally, I wish to take this opportunity to welcome the more than 60 international guests from 35 railway entities that we host, with the support of ICEX – Spain Trade and Investment in the 8th edition of the International Railway Convention that this year we celebrate in Toledo from 8th to 10th May. Three intense days of congress agenda and bilateral meetings with a broad representation of the Spanish railway sector. A framework to present the current and future railway investment and development plans of their respective countries and organisations, and at the same time to know first-hand the different technological solutions developed in our industry and that can best respond to their current needs.

MANAGEMENT: MAFEX.
MAFEX COMMUNICATION COMMITTEE: Alstom Transporte, ArcelorMittal, Caf, Global Quality Engineering (Grupo Trigo), Icon Multimedia, Idom, Indra Sistemas, Ingeteam, La Farga Yourcoopersolutions, Patentes Talgo, Sice, Siemens Rail Automation, Stadler Rail Valencia, Teltronic, Thales España, TPF Getinsa Euroestudios y Zitron. **ADMINISTRATION:** mafex@mafex.es **ADVERTISING:** mafex@mafex.es **SUBSCRIPTIONS:** mafex@mafex.es. Mafex magazine is not responsible for the opinions, images, texts and works of authors and readers that will be legally responsible for their content. It is understood that the signing authors have given their consent to be included, for which he or she will be responsible. Also, the magazine is not responsible for typographical errors contained in the original documents submitted by the authors.

New Mafex members

The number of companies joining Mafex continues to increase. There are the 5 new members:

MAFEX CONTINUES TO GROW WITH THE RECENT ADDITION OF ELEVEN NEW MEMBERS. MAFEX HAS WITH THESE ADDITIONS A TOTAL OF 111 COMPANIES AND ENTITIES REPRESENTING ALL THE SUBSECTORS OF A LEADING INDUSTRY THAT IS MAKING ITS WAY AROUND THE WORLD.



BUREAU VERITAS INSPECCIÓN Y TESTING PDTE

BUREAU VERITAS INSPECCIÓN Y TESTING is a world leader in conformity assessment services as Notified Body (NoBo) and Designated Body (DeBo), as well as Inspection Body to perform Independent Safety Assessment (ISA) and Risk Assessment (AsBo).

Bureau Veritas has an extensive experience in the rail sector, with presence in more than 140 countries, more than 75,000 employees worldwide, and a network of 1400 offices and laboratories. Bureau Veritas is in a unique position to offer a global solution to its customers in the railway sector.



CAUCHO INDUSTRIAL VERDU pdte

Caucho Industrial Verdú is a company with more than 50 years of experience in the rubber market. They produce a wide range of products in rubber and rubber-metal, and we are focused in the infrastructure sector. We design and manufacture elastomeric bearings, pot bearings and expansion joints for bridges and other structures.

In addition, they manufacture resilient elements for railway applications, as underballast mats (UBM), slab track mats (STM) and undersleeper pads (USP). All these products are manufactured using recycled rubber (90%) from used tyres.

Their technical staff can design and advise about the best solution for the client's needs, always based on the standards EN, DIN, ASSHT



HEXIS GRAPHICS ESPAÑA

They have been manufacturing adhesive films since 1989. More than 30 years dedicated to the manufacture of adhesive films for cutting or large format digital printing.

Hexis Graphics has specialized in the manufacture of high performance cast films, both PVC and latex.

It is also constantly developing new solutions for professionals in the graphics industry, signage, vehicle wrapping and textile personalization. Hexis is not only a manufacturer of self-adhesive films, but also a distributor in 8 countries, thanks to their own branches located in France, Spain, Italy, Sweden, Germany, Switzerland, FWI and Australia.



SCREENSOR TECH

Screenor Tech is a startup committed to innovating conventional media in the field of signage and broadcasting advertising and information content.

They provide tailor-made solutions to our clients, from public transport to retail, enabling them to place transparent T-OLED screens in strategic locations.

With the latest display technology, they offer users a unique experience, providing them with relevant content and real-time information, while creating a new space for effective communication between brands and their audiences.

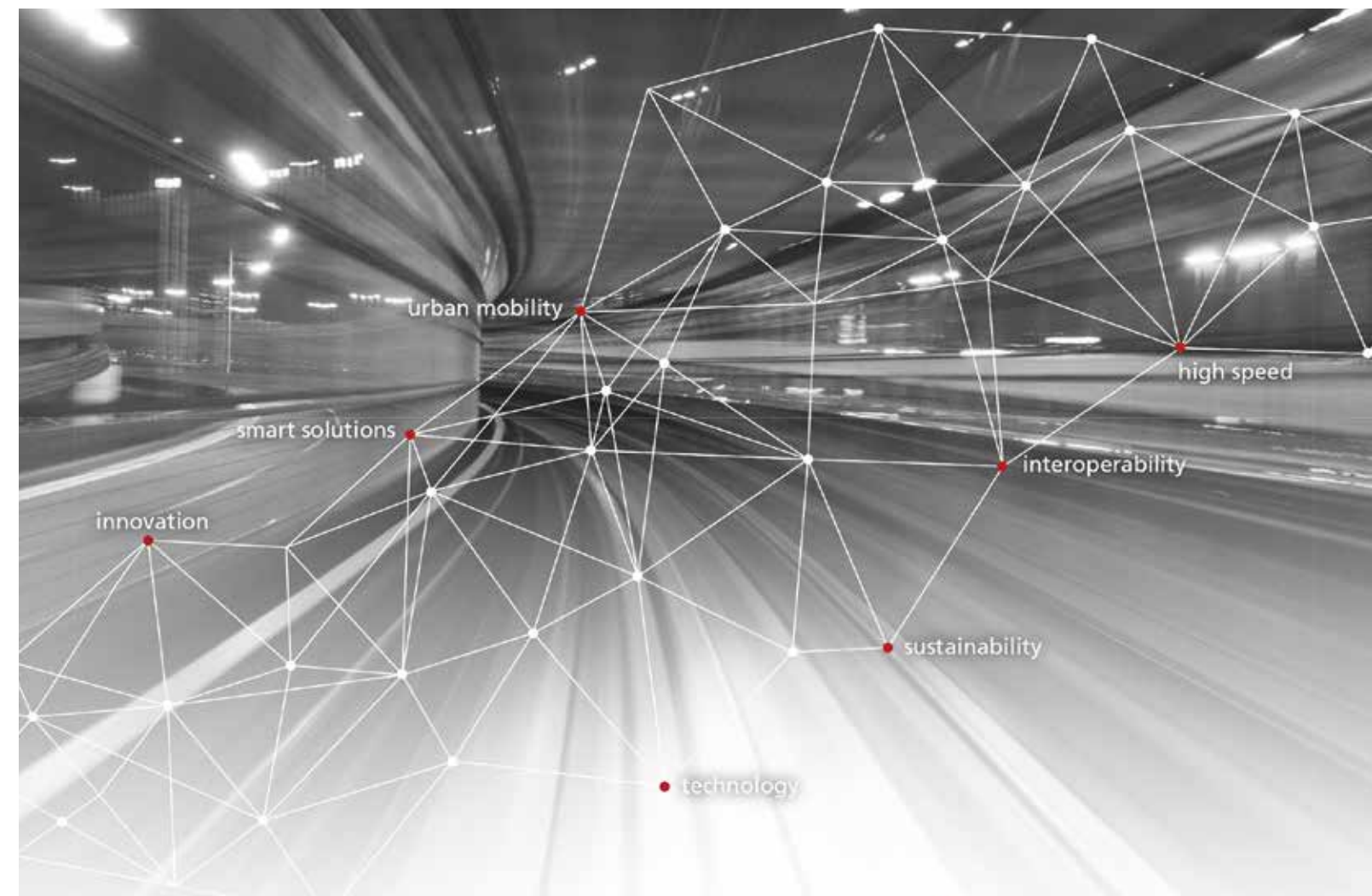


ULMA FORJA S.COOP.

Ulma Forja S.Coop is a cooperative company, part of Ulma Group and specialized in the manufacturing of Forged Components. With more than 50 years of experience and with two production plants (Oñati and Lazkao), they offer forged and machined components of high quality. They produce their pieces forged from a wide variety of materials to meet the different requirements and needs of their customers in many industries.

materials to meet the different requirements and needs of their customers in many industries.

In the railway sector, Ulma collaborates with companies in the value chain to which supplies forged components in different materials such as carbon steel, aluminium or low alloy, among others.



Find out more about all the activities and services we have prepared for 2022 to promote Internationalization, Competitiveness and Innovation.

mafex@mafex.es | 00 34 944 706 504

Mafex endorses the "Equal Opportunities Manifesto in the Mobility Sector"

MAFEX ENCOMPASSES 112 COMPANIES THAT COVER THE ENTIRE VALUE CHAIN OF THE SECTOR. THEY CURRENTLY REPRESENT 8% OF THE INDUSTRIAL GDP AND DIRECTLY EMPLOY MORE THAN 30,000 PEOPLE IN SPAIN.

Mafex - the association that represents the Spanish railway industry with currently 111 companies including the main manufacturers of rolling stock and companies providing railway solutions and services - has endorsed the "Equal Opportunities Manifesto in the Mobility Sector" promoted by EJE&CON | Asociación Española de Ejecutivos y Consejeros (EJE&CON) (Spanish Association of Executives and Consultants) during the event held today at the headquarters of the Engineering College of Roads, Canals and Ports of Madrid.

The aforementioned document aims to strengthen the presence of women in the mobility sector. It currently represents only 22% and is instead the largest user in mobility. Therefore, it is essential to promo-

te equality with the application of good practices generating greater talent, diversity and therefore greater richness and added value to mobility.

In the words of Víctor Ruiz, President of Mafex "the Spanish railway industry, in tune with the advances in employment, is firmly committed to diversity and equal opportunities. A diverse workforce, made up of multidisciplinary teams that helps strengthen productivity and business results, as it brings together the best talent in the same direction."

The event has had the participation in the closing ceremony of Raquel Sánchez Jiménez, Minister of Transport, Mobility and Urban Agenda, as well as the interventions of Cristina Sancho, President of EJE&CON and María Dolores Esteban Pérez,

Dean of the Engineering College of Roads, Canals and Ports of Madrid. To complete the conference and prior to the signing of the manifesto, a panel of experts from the mobility sector formed by Maria Luisa Domínguez, President of Adif, Isaac Centellas, Head of Facilities and Information Systems of Madrid Metro, Ana Rodríguez Aranegui, President of mINerva red de mujeres IN (mINerva Engineering women network), Rosalía Gonzalo, Executive Director of Madrid Calle 30, Javier Conde, P&O County Head of Siemens Mobility, Gema Orduñez del Pino, Head of Diversity at Renfe, and Ángel Luis Arias Serrano, Managing Director of Enaire.

This initiative has been very well received by railway companies and institutions that are members of Mafex such as Alstom, ArceIorMittal, Caf, Comsa, Elecnor Deimos, Indra, Ingerop, Inse Rail, Revenga, Segula, Sener, Sice, Siemens, Tecnival, Thales, Wabtec and Zeleros who have also signed the manifesto. 📄



New meeting of the US working group

At the beginning of the session, ICEX-Spain Trade and Investment presented its strategy in the railway sector and the different activities planned for this year.

Subsequently, representatives of the Economic and Trade Office of the Embassy of Spain in Washington presented a summary of the Infrastructure Investment and Jobs Act and its impact on the US railway sector. The Act included an analysis of the operation of Public-Private Partnerships (PPPs) in the US and the limitations of "Buy America" for Spanish companies.

A presentation was made on the development of high-speed corridors in the country from Chicago's Economic and Trade Office.

ON 13TH MARCH, MAFEX ORGANISED A FOLLOW-UP MEETING OF THE UNITED STATES-CANADA WORKING GROUP THAT THE PARTNERSHIP HOSTS WITH REPRESENTATIVES OF ICEX-SPAIN TRADE AND INVESTMENT, AND THE ECONOMIC AND TRADE OFFICES OF WASHINGTON AND CHICAGO.

ALTA VELOCIDAD EN EE.UU

Principales Corredores

In the end, the Working Group participants were able to share doubts and concerns with the re-

presentatives of ICEX-Spain Trade and Investment and the Economic and Trade Offices. 📄

UIC High-Speed Congress

In its eleventh edition, the Congress took place in Marrakech and was attended by government officials, transport authorities, railway operators, infrastructure managers and world-leading suppliers.

The event was attended by approximately 1,500 participants from more than 40 countries and a total of 35 exhibitors.

Within the programme of plenary sessions and round tables, topics such as the latest technologies for the development of high speed and developments in planning, construction, operation and safety, among others, were addressed.

Under the motto "High-Speed Rail: the right speed for our planet", the Congress highlighted the contribution of high-speed railway in the fight

FROM 7TH-10TH MARCH, MAFEX ATTENDED THE UIC HIGH-SPEED CONGRESS, THE WORLD'S LEADING EVENT ON HIGH-SPEED TRAINS HELD IN MARRAKECH.



against climate change and its role in territorial development. The need to integrate high-speed with the conventional railway to accelerate the

modal shift, and with other modes of transport to boost multimodality was also noted, as well as the need to incorporate new financing modalities. 📄

Mafex organises a technological mission to the Netherlands

With the participation of 12 Spanish companies, Mafex prepared an agenda with different agents that could contribute their vision on the railway ecosystem.

On the one hand, the delegation met with Prorail and Nederlandse Spoorwegen (NS), administrator and main infrastructure operator in the country. Prorail provided information on infrastructure, on the network organisation, and on the investments and priorities of the country. We had the opportunity to visit Railcenter, a place for testing and analysis, innovation, and knowledge exchange where all the agents of the railway industry in the country meet.

In addition, we visited the modernisation plant in Nederlandse Spoorwegen (NS). This factory allows to adapt trains purchased 20 years ago to the regulatory requirements and the demands of today's passengers. A modern factory that also has its own "lean academy".

On the other hand, the delegation met with TUDelft University at the Delft University of Technology, where it provided us with the academic vision of the sector.

The presentation of its current studies and projects, as well as the visit to its laboratory gave us the opportunity to know the areas of innovation in which they are currently working.

Finally, the visit to STRUKTON, the country's leading maintenance company, helped us to learn about their work as members of Europe's Rail Joint Undertaking. Several teams presented the innovation projects developed in-house, as well as their projects related to the ambitious decarbonisation strategy that the firm has.

BETWEEN 6TH AND 8TH MARCH, MAFEX ORGANISED A TECHNOLOGICAL MISSION TO THE NETHERLANDS. THE MAIN OBJECTIVE OF THE MISSION WAS TO FIND OUT ABOUT THE TECHNOLOGICAL INVESTMENTS AND PRIORITIES, AS WELL AS THE OPPORTUNITIES AND CHALLENGES EXISTING IN THE NEIGHBOURING COUNTRY.



First session of the year of the international markets forum

In the first part of the conference, Joan Gasol, collaborator of Mafex, presented the study carried out on Italy and the opportunities it offers for Mafex members.

Subsequently, Andrea Giuricin (TRA Consulting) presented the liberalisation process that the railway market is experiencing in Italy, while Massimo Martinelly and Federico

MAFEX HELD ON 18TH APRIL THE FIRST SESSION OF 2023 OF THE "INTERNATIONAL MARKETS FORUM", WHICH FOCUSED ON ITALY, A MARKET THAT HOSTS GREAT BUSINESS OPPORTUNITIES FOR SPANISH RAILWAY COMPANIES THANKS TO THE TRANSFORMATION PROCESS IT IS EXPERIENCING WITH THE REFORMS AND INVESTMENTS ASSOCIATED WITH EUROPEAN UNION FUNDS.

Carpita (M.A.I. Consulting) focused on the planned investments in railway matters and the tenders

expected over the next three years. Then, Marina Ruiz de Ojeda (Promotions and Investment Office of ICE - Italian Trade Agency - at the Italian Embassy), presented the mechanisms to support investments in Italy and the services of the Promotions and Investment Office for companies interested in addressing the market.

Finally, Claudio Zamponi (CAF) and Giovanni Monni (Stadler), shared their experience and the trajectory of their companies in Italy, emphasising the importance of developing a long-term strategy to obtain a good result in the country.



Middle East Rail: The Spanish railway strengthens its presence in the Middle East

The Spanish rail industry will return to the Middle East, where it seeks to expand commercial relations and to participate in new infrastructure investments.

MIDDLE EAST RAIL REPRESENTS FOR MAFEX AN IDEAL PLATFORM TO PUBLICISE THE NEW SPANISH TECHNOLOGIES.

The Association of the Spanish Railway Industry (Mafex) coordinates again with the support of ICEX – Spain Trade and Investment, the joined participation of ten companies in the Middle East Rail fair – congress, which will take place in Abu Dhabi

between 15th and 16th May 2023. Companies such as Caf, Acygs, Aquafirsch, Danobat, Renfe, Talgo, Typsa, Sener Indra, Ineco, Sgs and Imathia will be present in this edition. Positioning themselves and seeking new opportunities are two of the

main objectives of the Spanish companies, which already appear as a technological benchmark in the Middle East region and where they have already contributed their solutions in the main projects of recent years.

For this reason, for Mafex, the attendance to Middle East Rail represents an ideal platform to raise awareness about new Spanish technologies and to establish contacts with the main players that shape the future of transport in this market.



New edition of the "Global Public Transport Summit" organised by UITP

Under the motto "Bright light of the city", it will also have a Spanish pavilion in which Mafex will participate in addition to the main companies in the Spanish railway sector.

The last Global Public Transport Summit was held in June 2019 in Stockholm, with a balance of 2,718 participants in the Congress from 81 countries, with 474 exhibitors from 46 countries and more than 15,000 visitors to the exhibition.

THE MOST IMPORTANT INTERNATIONAL FAIR OF PUBLIC TRANSPORT AND URBAN MOBILITY ORGANISED BY THE INTERNATIONAL ASSOCIATION OF PUBLIC TRANSPORT (UITP) WILL BE HELD IN BARCELONA FROM 4TH TO 7TH JUNE.



Mafex participates in a new summit of the stars project in France

Last February, the STARS project held its 4th face-to-face meeting in Valenciennes (France). Between 28th February and 1st March, work was carried out on the technical and business support services that the project will provide to the participating SMEs under the guidance of the Technology Centres and Clusters that make up the project consortium.

The support is built into the activities included in the project that aim to help SMEs in the railway sector in the implementation of Advanced Technologies, giving them a boost

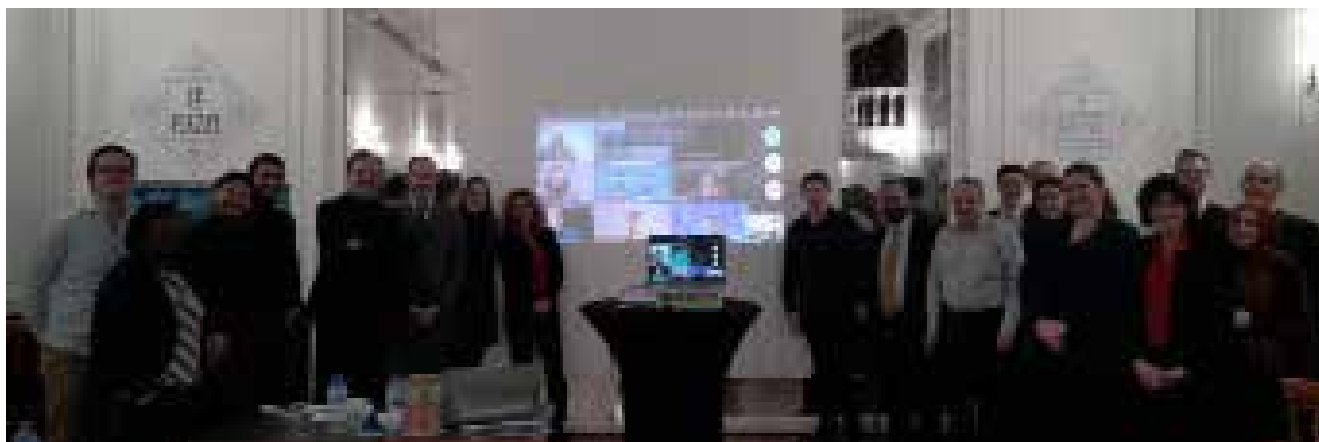
THE STARS PROJECT, WHERE MAFEX IS PART OF THE CONSORTIUM, AIMS TO SUPPORT SMES IN THE SECTOR WITH THE IMPLEMENTATION OF ADVANCED TECHNOLOGIES, GIVING A BOOST IN ISSUES OF PRODUCTIVE PERFORMANCE AND INCREASING THE ABILITY OF SMES TO INNOVATE.

in terms of productive performance and increasing the ability of SMEs to innovate.

The awards ceremony of the second edition of the Hack & Match organised by the project, which was focused on the theme "Big data for railway processes, products and services" also took place during these

days. An edition that had the participation of 4 member companies of Mafex and that had as winner the Italian company TE.SI. FER.

Finally, the facilities of the Railegium and Transallay Technology Centre, and the Sustainable Mobility and Transport Technological Park of Valenciennes were visited.



Rail Innovation Network (RIN)

ON 17TH FEBRUARY MAFEX PRESENTED THE ANALYSIS OF THE TECHNOLOGICAL CAPABILITIES OF THE CAPV (BASQUE AUTONOMOUS COMMUNITY).

Within the framework of the RIN project, Rail Innovation Network (previously referred to as RVIIF-Basque Network for Railway Research and Innovation), an analysis has been carried out in which different Agents of the Basque Science, Technology and Innovation Network have participated and which has had the collaboration of the University of the Basque Country (UPV / EHU) for its development.

Rail Innovation Network (RIN) aims to create a collaboration between academia and industry, with the aim of driving a change in innovation in the

railway sector and accelerating the adoption of new technologies and products from the research phase to their subsequent application in the market.

The project aims to develop Centres of Excellence made up of Technology Centres of the Basque Science, Technology and Innovation Network (RVC-TI) and Universities based in the CAPV (Basque Autonomous Community), in collaboration with the testing facilities present in the industry.

As a general conclusion, it can be indicated that among the 4 major key blocks identified for the competitive-

ness of the railway sector applicable to the RIN project - Sustainability, Efficiency, User Experience and Freight Transport- the respondents currently have real capabilities to solve the challenges identified mostly in the area of efficiency.

This is an area in which, in addition, a greater number of challenges has been found. Simultaneously, 6 key technological areas have been identified that group 60 technologies together. Among the answers, it stands out that respondents have technologies such as Machine Learning, Artificial Intelligence, Cloud Computing or Edge Computing, among others.

In the coming months, the project will start a second phase in which all interested agents will be able to formally join RIN.





New railway line in Tanzania: Tabora - Isaka section

TYPSA

The Tanzanian Railway Corporation (TRC) has promoted the construction of a new electrified railway connection between Dar es Salaam and Mwanza, on the shores of Lake Victoria. The project has a

total length of 1,219 km and an investment of USD 6.38 billion, expanding the national transport network and connecting it with Rwanda, Burundi, Democratic Republic of the Congo, and Uganda.

The new line will accommodate passenger and freight trains, which will run at a maximum speed of

160 km/h and 120 km/h respectively, on a route that will run parallel to the current metre gauge line.

TYPSA is responsible for the detailed design of Lot 4, including civil works, buildings, stations, electrification, signalling and telecommunications systems of 130 km of single track for mixed traffic.

Refurbishment of the Vicálvaro freight terminal in Madrid

TPF GETINSA

ADIF's Logistics Services Division has awarded a contract to TPF Ingeniería and TRN Taryet to conduct the detailed design for Phase 1C of the works for the refurbishment of the Vicálvaro Freight Terminal in Madrid.

This project is part of some works undertaken by ADIF to remodel the main intermodal rail hub in Spain. The works will keep the station in service during the whole construction process.

The project develops a new intermodal area with a straight four-track yard, 710 m in length, for freight

loading/unloading operations. That length will make it possible to accommodate 750-m long trains. Moreover, the planned upgrade provides for gantry cranes to handle containers during (train to truck) loading/unloading operations.

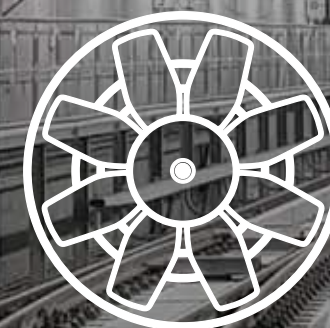
Finally, the site development works and the roadways for the new intermodal area will be designed; including a circuit for the access, loading and unloading of trucks, as well as parking areas for heavy and light vehicles.



Zitrón

SOLUTIONS FOR TUNNEL VENTILATION

Innovation and technology for underground ventilation systems



High efficiency designs



Operation and control



Turnkey solutions



SGS IR cooperates with Siemens Mobility in Mexico City Metro

SGS
SGS IR, in its activity in the railway sector, has signed a direct collaboration contract with SIEMENS MOBILITY to perform the role of Independent Safety Assessment (ISA) for the modernisation project of the CBTC signalling system - Line 1 Metro Mexico City - bet-

ween Observatorio and Pantitlán stations.

The demonstrated experience of the technical team has allowed to validate its suitability for the performance of this work, which is an important milestone on its consolidation in the foreign market.

SGS IR is currently recognised as NoBo/DeBo for Rolling Stock and



CCS subsystems and as ISA/AsBo Type A for Rolling Stock, CCS, Energy, Infrastructure, Maintenance and Safe Integration.

Sener's Respira® solution has been granted a National Utility Model

SENER
The Spanish Patent and Trademark Office recognizes Sener's Digital Innovation team for its technological capacity with the granting of a National Utility Model for the Respira Artificial Intelligence System for the next 10 years. This concession gives the right of exclusive exploitation in Spain of this advanced Ventilation Control System for metro infrastructures.



Respira is an artificial intelligence system that has been in operation since 2020 in the Barcelona Metro with ex-

traordinary results, which have had a direct impact on improving environmental conditions (thermal comfort

and air quality) for transport users and saving 1.7 million euros per year in energy consumption.

Luznor and Stadler Rail Valencia reinforce their collaboration

LUZNOR
STADLER RAIL VALENCIA and LUZNOR are collaborating on several national and international projects. The customization of the programmable features of the rechargeable LED handlamp manufactured by Luznor, allows, for example, that the new ADIF locomotives will carry a model of rechargeable LED torch with red rear signalling, and, the trains of Ferrocarrils de la Generalitat de Catalunya (FGC) will be equipped with another model that provides red-amber-green rear signalling. Another important project

at international level involves the Vesuvius railway lines managed by the Ente Autonomo Volturno (EAV), which completes LUZNOR's extensive presence in Italy, where its customers include Trenitalia,

Azienda Trasporti Milanese, Ferrotramviaria and Azienda Napoletana Mobilità.



Siemens Rail Automation and Nertus will renew the signaling of L1 and L2 of Metrovalencia

SIEMENS
Ferrocarrils de la Generalitat Valenciana (FGV) has awarded to the joint venture formed by Siemens Rail Automation and Nertus Mantenimiento Ferroviario the contract for the renewal of the signaling system and ATP (Automatic Train Protection) in the single track sections

of Lines 1 and 2 of Metrovalencia. The value of the project amounts to more than 48 million euros and the execution period will be 30 months.

The improvements will affect the Bétera-Seminari CEU and Col·legi El Vedat-Castelló sections of Line 1 and the Lliria-Paterna section of Line 2. On these routes, the work to be carried out by Siemens Rail Automation will include the installation of 15 new Westrace MK2

technology interlockings; the modification and updating of the affected interlockings and locks, all of them Siemens technology; replacement of the current Automatic Point Braking System (FAP) with an ERTMS Level 1; modification of the Valencia Sud CTC, also Siemens technology; installation of 62 new on-board equipment for S4300 series trains, LED signals, ACM250 axle counters, MD2000 drives, etc.

First accredited laboratory in the world for the evaluation of IDS components

SQS
In February 2023, Software Quality Systems became the first accredited laboratory in the world for the evaluation of IDS components. This evaluation is carried out according to the standard developed by IDSA, the International

Association of Data Spaces, and following the ISO/IEC 62443 and Common Criteria standards.

SQS is the only internationally accredited laboratory and is, therefore, evaluating the first certified connectors to hit the market.

More information:
<https://www.sqs.es/q-idsa/?lang=en>



ULMA Forged Solutions: Custom made Forgings and solutions

ULMA FORGED SOLUTIONS

ULMA Forged Solutions (Oñati-Guipuzcoa) is a forge with more than 50 years of experience in the railway sector. We have automatic closed die forging lines (mechanical and hydraulic presses for large series) as well as semi-automatic lines (Counterblow hammers for small-medium series) in which pieces from 0.5Kg to 750Kg are forged in all type of materials (including aluminium).

6 automatic heat treatment furnaces (online graphic recording) and two laboratories for destructive and non-destructive testing allow defi-

ning and certifying the characteristics of each component.

ULMA collaborates with some



machining companies, which allows offering our customers an integrated solutions for their needs.

Ingeteam technology to power 60 locomotives in Poland

INGETEAM

Ingeteam has won a new European railway traction contract for the Polish manufacturer PESA, who has once again placed its trust in the company's own technology. Specifically, Ingeteam will equip 60 loco-

tives with 120 high-power traction converters, to be supplied in 2023 and 2024.

The new locomotives will run in Poland and neighbouring countries, reaching a top speed of 160 kph.

The manufacturing process is set to be led by the company's factory in

Ortuella in Bizkaia province, which will take on the challenge of producing the largest volume of traction converters manufactured by the factory since it was opened in 2019.

Ingeteam was also awarded a similar contract last year, to equip more than 100 of PESA's locomotives, which will travel some 85,000 km a year.



Teltronic strengthens its cyber strategy with IEC62443-4-1 certification

TELTRONIC

Teltronic has received the certification that accredits compliance with the IEC62443-4-1 standard that guarantees the maturity of the secure design life cycle of its products.

The achievement of this accreditation reinforces the company's commitment to supply products that offer maximum guarantees, providing the highest levels of security to critical sectors such as public safety or mass passenger transport, with which Teltronic has been operating for almost fifty years.

The IEC62443-4-1 standard is destined to become the international reference framework for the security of industrial automation and control systems (IACS), understand-

ing these as any element that intervenes in operating environments, and aims to address any type of threat that they may suffer.



Thales reinforces safety on rail traffic between Ortigueira and Ribadeo

THALES

As part of the "Telephone Blocking System Elimination Plan" currently being developed by Adif, the Spanish

rail infrastructure authority, Thales has been awarded a contract to coordinate the construction project and carry out the works on the Ortigueira-Ribadeo section of the 740 metric gauge rail link, which connects Ferrol with Pravia. This new contract runs

for 27 months and has a budget of more than €20 million. Thales will replace the current telephone blocking system by an automated system. All interlockings will be remotely controlled from the Centralized Traffic Control Centre in El Berrón, Asturias.

Lantania and DSV to build the technical branch line for Seville Metro line 3

LANTANIA
Lantania and DSV Constructora y Ferroviaria have been awarded the contract for the construction of the technical branch of the Northern section of Line 3 of the Seville Metro for 6.4 million euros.

The works, scheduled to last 11 months, will consist of the first construction of the Northern section of Line 3 between Pino Montano and Prado de San Sebastián, connecting the planned workshops and depots with the rest of the route. This branch line will cross the future bed of the Tamarguillo stream and the Ranilla stream and has a surface crossing with the A-8005 regional road planned by means of a roundabout.

The works also include two new structures, one for the railway and



the other over the Tamarguillo stream, the installation of track in both directions, the construction of the drainage network, the provi-

sion of facilities and safety installations and the execution of the civil works to provide the track with electrification.

GEMINIS, with the support of the Basque Government and the European Union, develops a cutting-edge boring machine for the railway sector due to its high productivity

GEMINIS
GEMINIS have developed a new high-productivity boring machine for machining railway wheel hubs. This innovative project, known as GR3-W HP, has been co-financed by the Basque Government and the European Union under the Hazitek program aimed at developing new products, processes, and services.

The company have been using the latest technology for years to develop equipment specially designed for machining and reshaping wheels, axles, and wheel-axle sets. Geminis Lathes is specialized in the design and manufacture of equipment for the railway industry, supporting and providing assistance

to railway operators, maintenance workshops, manufacturers, and other players in the value chain.

The new boring machine, the GR3-W HP, has been designed to optimize the machining processes of railway wheel hubs.

It features the latest cutting tools and control systems, ensuring maximum precision and efficiency in the production process. In addition, its high productivity enables the company to increase its production capacity and improve the quality of its products.



DENEVA, Icon Multimedia's passenger information, arrives in the center of Malaga

ICON MULTIMEDIA
ICON Multimedia's Passenger Information System is now operational on the recently inaugurated extension of lines 1 and 2 of Metro Malaga. It has two new stations, Guadalmedina and Atarazanas, which reach the heart of the city. Thus, DENEVA announces, through the remote indicators located on the platforms of these lines, the destination and estimated arrival times of the next trains. A robust on-board system has also been implemented to provide information on the arrival and departure on board the train, routes and areas through which it is running.

This information channel means that Metro Malaga users can travel with



complete confidence, especially on busy dates such as Easter Week. Focused on the user experience, it promotes mobility and connectivity,

acting as a dissuasive information channel at the different exits of the stations in the center, and informing of any incident.

ICF improve efficiency and safety of railway electrical network through event recorder centralization of level crossings

ICF
ICF has been awarded the project to centralize level crossing protection system registers for the Spanish railway network together with ADIF. The objective of the contest is to improve the efficiency and safety of the railway electrical network through the centralization of these registrars.

The project will allow real-time monitoring of level crossing protection systems, which will improve early detection of possible failures and breakdowns.

In addition, the centralization of the records is expected to facilitate pre-



ventive maintenance and the identification of possible improvements in the electrical infrastructure.

For its part, ICF has expressed its satisfaction for collaborating with ADIF in this project and has indica-

ted that its experience in the field of information and communication technologies will allow the development of an innovative and efficient solution for the centralization of the records of the Level Crossing Protection.

INGEROP continues to expand in Dominican Republic

INGEROP

After the start of the contract for the conceptual design of the mass transport network and the integrated public transport system of Santiago de los Caballeros and the feasibility study of the priority mass transport corridor, awarded by INTRANT to INGEROP, which is integrated in the PMUS of Gran Santo Domingo and will mean a development for the city, INGEROP has just been awarded a new contract in the country. The contract is for the supervision, inspection and quality control of the manufacture, supply and commissioning of rolling stock for 10 units of three MC-R-MC car trains, couplable, for line 1 of the Santo Domingo Metro, managed



by OPRET. A great success for INGEROP, which continues to export

its specialisation in the railway and urban transport sector.



Stadler to supply up to 50 bi-mode locomotives to Trenitalia

STADLER

Stadler and Trenitalia have signed a framework agreement for the supply of up to 50 EUROLIGHT Dual locomotives with a first call-off order for 13 units. The agreement also includes the full service maintenance of the locomotives for a period of 10 years, extendable to a further 5 + 5 years.

The new Bo'Bo' locomotives will be deployed all over the Italian railway network for train rescue and passenger push-pull operations. They reach a maximum speed of 160 km/h, incorporate the ETCS B3R2/SCMT / SCC safety systems and combine diesel and electric traction (3kV DC).

As the newest member of the Stadler's EUROLIGHT family, the

new locomotives share with the rest of the platform the compact design and lightweight monocoque structure, as well as the latest bogie technology.

They are characterized by high performance, low weight, and reduced axle-load that will not exceed 20 tonnes/axle, making them suitable for running on both main lines and secondary lines.

Screensor Tech: Innovation in user communication through transparent OLED technology

SCREENSOR

Screensor Tech, a company focused on the development of digital communication and signage solutions, presents its innovative solutions based on transparent OLED technology to enhance the user experience in railway transport.

Transparent screen technology allows the display of information and advertising content in a non-invasive way in places like train windows and key points in stations.

Their ad-hoc solutions can be adapted to any environment, creating new spaces for content playback on previously unusable surfaces. Screensor presents itself as a cutting-edge alternative and has ge-

nerated great interest among companies in the sector.

For more information, visit: www.screensor.eu.



Ardanuy Ingeniería opens a new office in Seville

ARDANUY

Ardanuy Ingeniería has opened a new office in Seville. By moving its Sevillian office, the company intends to make a contribution to the development of new transport projects planned in Andalusia and to promote new sustainable mobility initiatives.

The company has participated in the development of the main regional transport infrastructures, including high-speed railway lines, different urban and metropolitan transport systems, etc. For example, Technical Assistance for the ERTMS implementation of Seville – Cadiz Railway line; Construction supervision of Granada Light Rail systems; Construction works supervision of Seville Metro Line 1; Alignment study and Detail Design of Jerez Tramway; and Design of the new Terminal Railway Station in Cadiz. La sede andaluza se une a las que Ardanuy Ingeniería tiene en Madrid, Barcelona y Va-



lencia. Además, cuenta con filiales y sucursales en Lituania (UAB Ardanuy Baltic), Colombia (Ardanuy Colombia SAS), India (Ardanuy India Pvt), Estados Unidos (Ardanuy Consulting Inc), Argelia (Ardanuy Algeria), Panamá (Ardanuy Panamá S.A.) y Perú (Ardanuy Sucursal Perú). The Andalusian office joins those that Ardanuy Ingeniería has

in Madrid, Barcelona and Valencia. In addition, the company has subsidiaries and branches in Lithuania (UAB Ardanuy Baltic), Colombia (Ardanuy Colombia SAS), India (Ardanuy India Pvt), United States (Ardanuy Consulting Inc), Algeria (Ardanuy Algerie), Panama (Ardanuy Panamá S.A.) and Peru (Ardanuy Sucursal Perú).

Low carbon vanadium grades for Grooved Rails: the best options for city transport network

ACERLORMITTAL

ArcelorMittal offers a complete range of Low Carbon Vanadium (LCV) grades for grooved rails which provide better performance and increased service life for Light Rail Transit operators.

At ArcelorMittal, we are actively involved in designing new rail-based solutions that meet the needs and requirements of light rail transit (LRT) operators with the support of our ArcelorMittal Global R&D rail unit.

Thanks to pilot plants and prototyping facilities, new products and rail mill processes can be developed, as well as monitor on-track real performance, wear behavior to fatigue, and weldability.



Low Carbon Vanadium (LCV) for better performance compared to conventional heat treatment grades and to increased service life: able to perform gauge corner res-

toration, easy maintenance and reduce cost, welding according EN 16771, increased wear resistance, increased fracture toughness and low brittleness.

Malaga Metro reaches the city centre thanks to Alstom's CBTC signalling technology

ALSTOM

Metro de Málaga has inaugurated the new extension of the Metro network, which now arrives to the city centre. Alstom was the chosen partner to develop the CBTC signalling technology, which equips this new section like the rest of the network. This is a strategic extension of the city's mobility. It connects the most populated districts with the historic centre and facilitates intramodality with other modes of transport. Since its inauguration in 2014, Metro de Málaga has been equipped with Alstom's CBTC Urbalis™ 400 signalling technology, an advanced train control system that enables the location of trains to be shared in real-time, improving the operability and capacity of the network system, which is constantly updated, offers a considerable range of functions that enhance interval performance and average speed.



CERTIFER, recognised as DeBo in Portugal for all subsystems

CERTIFER

Last November, CERTIFER Spain was recognised as Designated Body (DeBo) in Portugal by the IMT (Instituto da Mobilidade e dos Transportes) for all subsystems: rolling stock, infrastructure, energy and control, command and signalling.

We are currently working on a project to install GSMR radio in the passenger trains of the FERTAGUS operator. It has been one of our first jobs as Designated Body in Portugal and we are looking forward to this new business opportunity in Portugal.



RENFE renews trust in CAF and awards contract to supply 29 commuter trains

CAF

RENFE has awarded CAF the contract for the supply of new commuter units. Specifically, the project includes the manufacture of 29 commuter trains and the supply of their corresponding spare parts.

The new trains are made up of 4 cars in their base formation and have a capacity of more than 500 passengers.

In addition, they are equipped with the latest advances both in the technological field and in terms of accessibility and comfort on board for the traveller. Its design allows easy access for people with reduced mobility. The units have systems to make the trip more comfortable for passengers with visual or hearing disabilities.



COMSA Corporación invoices 886 million euros, 5% more than the forecast of its Strategic Plan for 2022

COMSA

COMSA Corporación closed 2022 with a turnover of 886 million euros, a figure that represents an increase of 17% compared to the previous year, and a contract portfolio expanded to 1,562 million. The company has exceeded by 5% the turnover of 849 million euros that it expected to achieve in 2022 according to its 2021-2025 Strategic Plan and is revising the document upwards to reach 1,000 million in 2025.

Among the most important railway projects in Spain are the extension

of Chamartín station in Madrid, the connection of the Barcelona tramway along the Diagonal and the construction of the new train access to T1 at El Prat Airport. Internatio-

nally, it is active in Mexico, Denmark and Portugal, where it is modernising the Cascais and Beira Alta lines, among other projects.



New edition of de Rail Live! from 29th November to 1st December 2023, in Madrid

The new edition of Rail Live! 2023 will be held in Madrid from 29th November to 1st December 2023 at IFEMA, Madrid. For three consecutive days, more than 250 experts from around the world will discuss the challenges and opportunities presented by the railway, as well as the planned investments to continue with its implementation and digital transformation. More than 10,000 people from 40 countries are expected to attend. Rail Live! 2023 is a highly anticipated event by the entire industry, taking place at a pivotal moment of transformation of the sector. The congress programme has a huge relevance in this edition, and under the motto: "Technology, innovation & Strategy for the entire rail supply chain" an agenda full of panels, presentations and round tables will be presented.

The programme covers all current topics for the future development of the industry, such as: Liberalisation, Goods, Megaprojects, Metro, Light Rail, Digital Control of Trains and Telecommunications, Sustainability and Energy, BIM, and Digital Transformation among others. This

MAFEX PARTICIPATES ONCE AGAIN IN THE ORGANISATION OF RAIL LIVE!, WHICH THIS YEAR IS HELD AT IFEMA, MADRID.

edition will also refer to the railway sector as an attractive sector for employment, and the initiatives that are being implemented for the attraction and retention of talent as well as the new profiles that need to be incorporated.

The event also benefits from the presence of the main national and international companies in the sector. The wide national participation stands out, as well as the participation as sponsors of companies such as Grupo CAF, NGRT, Talgo, ABB, ESRI, Stadler and Thales, among others. More than 250 companies are expected to participate and explain their latest innovations and to present their technological developments. There will also be a dedicated area to host more than 100 start-ups.

Rail Live! 2023 once again has the support of Mafex, the Association of the Spanish Railway Industry, in the organisation of the event. The Ministry of Transport, Mobility and Urban Agenda, through Adif and Renfe,

as well as ICEX Spain Trade and Investment, the Spanish Railways Foundation (FFE), and the Spanish Railway Technology Platform (PTFE) collaborate in the development of this event. In addition, this edition will have the collaboration of Comunidad de Madrid (Madrid Autonomous Community), Madrid City Council and Madrid Metro.

More details about the congress, the speakers and the participating companies on the following web page <https://www.terrapiinn.com/conference/rail-live/index.stm>

More than 200 experts from around the world will discuss the challenges facing the railway sector



RAIL LIVE!

29 November - 1 December 2023
IFEMA, Madrid

Technology, Innovation & Strategy
For the entire rail supply chain



10,000
ATTENDEES

350
SPEAKERS

250
EXHIBITORS

3 DAYS



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SPANISH RAIL INDUSTRY



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The spanish rail industry, pioneering companies ready for new challenges

THE DEVELOPMENT OF MODERN TRANSPORT INFRASTRUCTURES AROUND THE WORLD HAS A SPANISH HALLMARK. IN RECENT YEARS, THE RAILWAY INDUSTRY IN THIS COUNTRY HAS EXPORTED ITS TECHNOLOGY AND KNOWLEDGE TO MORE THAN 95 COUNTRIES ON THE FIVE CONTINENTS. ITS SUCCESS MODEL: A SOLID AND VERY COMPETITIVE VALUE CHAIN, COMMITMENT TO THE MOST AVANT-GARDE R&D, UNIQUE KNOW HOW AND EXCELLENCE IN SERVICE.

With a solid and very competitive value chain that enables to act, solving customer's demands, practically tailor-made, the Spanish railway industry has positioned itself on the world scene as one of the main providers of cutting-edge solutions to meet the demands of the XXI century's railway.

The international presence is endorsed by the experience acquired, during the last thirty years, (on 21st April 1992, the first AVE connection between Madrid and Seville was launched), in the development of the Spanish high-speed railway network, which will have at the end of 2023 a network of more than 4,000 kilometres of

UIC gauge tracks and a total investment of about 60 billion euros.

With this development, Spain has become the European country with the largest high-speed railway infrastructure, with convoys able to reach more than 300 kilometres per hour, and the second in the world only behind China.

The offer of the Spanish industry covers all the project's cycles. Such a differentiating proposal is possible thanks to a complete value chain





Differentiating offer and solid value chain

The offer of the Spanish industry covers all the project's cycles. Such a differentiating proposal is possible thanks to a complete value chain. The wide diversity of the companies that make up this industry is one of its most distinguishing features and it allows to create ideal synergies to adapt each proposal to the specific needs of the client.

This competitive advantage makes it possible to have global solutions that are present from the initial consulting phase and conception of the project to the stages of design, execution, and supervision of any infrastructure.

They also rely on large manufacturers of rolling stock and associated equipment and components. They are joined by the development of multiple technological solutions and control and signalling systems, communications, passenger information or ticketing. Furthermore, in recent years the incorporation of new services around the manu-

facture of products itself has been increasing. The objective is to respond to the "servitisation" trend associated with the product (maintenance, financing, after-sales service, operation, management, etc.). And in this value chain Mafex has a very important presence. With its more than 110 members, it brings together the main companies in the

The Spanish industry has become one of the main providers of cutting-edge technological solutions

The Spanish companies have been showing in recent years their great ability to respond to market trends

Spanish railway industry, which includes all industrial subsectors, ranging from manufacturers of rolling stock of different types of traction and propulsion, to engineering, consulting, certification, and infrastructures.

In the association there are also a large number of companies special-

ised in signalling, telecommunications, traffic control, in addition to a robust auxiliary industry in equipment and components. It consists of an integral model in which the high qualification of each of them is combined, which allows them to provide customised solutions with turnkey projects, with the guarantee of having launched the most relevant transport projects around the world, both in high-speed and in urban mobility and goods.

The railway, protagonist of a new safe and innovative sustainable era

Data from international organisations highlight the role of transport in a sustainable development economy. Therefore, they insist on the importance of committing to those mobility models that contribute to minimising the environmental footprint, increasing accessibility

among society, and guaranteeing a better quality of life.

The world is moving towards this new model of sustainable society where the environmental challenge will guide all decisions. The European Union is working along these lines, proposing a green and inclusive transition to help people's well-being and to ensure the future of the planet. This redesign is governed by concepts such as equity and prosperity based on a modern, competitive and highly resource-efficient economy. And in terms of transport, the railway is positioned to be the axis in which sustainable mobility is based.

For that purpose, Europe seeks to accelerate progress to respond to transport challenges. Among its proposals is Europe's Rail R+D programme where the Spanish



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know-how is remarkable. Spanish companies and entities are partners and supportive of this initiative. The areas of action focus on aspects that are particularly key to the railway future.

Among them, track, energy efficiency, cybersecurity, IT solutions, unified electrification systems, signalling, positioning, predictive maintenance, or development of the different technical specifications. Digitalisation, automation and new fuels, among others, are some of those that the future holds, and the Spanish railway industry has been showing in recent years the great ability to respond to the challenges presented by the sector.

Pioneering companies ready for new challenges

Undoubtedly, the transformation that the railway calls for in the coming years is based on the implementation of the new technologi-



cal developments that will allow a more efficient, safe and sustainable transport; as well as being more comfortable and attractive for the user, integrating itself into the set of mobility systems required by society.

The processes of constant research, of the development of its own technology in all fields that any railway

infrastructure requires, the Know How that the Spanish industry has been transferring for years to the whole world, is key to the development of a means of transport that is being supported by the main world entities, as a main element in the fight against climate change and in the demand from society for a better and more efficient mobility.

The railway, key for sustainable urban transport

THE TRANSFORMATION OF THE MOBILITY MODEL TOWARDS A MORE ENVIRONMENTALLY FRIENDLY, EMISSION-FREE TRANSPORT MAKES THE RAILWAY THE MAIN COMMITMENT TO SUSTAINABLE MOBILITY

The population of the large cities is undergoing an upward transformation in recent years with the creation of urban centres close to them as an extension of such cities. Currently, according to the World Bank, and when the world population figure is close to 8 billion individuals, 56 percent of them live in cities, that is, practically 4,4 billion, and it is expected that this number will increase gradually to reach 6 billion in 2045. Meanwhile, the latest UN-HABITAT report, presented at the end of last year, considers that in the horizon of the year 2050 the population that lives in the city outskirts will be greater than 68 percent, and it summarises it in the conclusion that, at the rate of arrival at these habitat points, two-thirds of the world's population (an estimated 8.5 billion by 2050) will live in the cities. In the particular case

of Spain, the forecast is that by that year it will be 88 percent of the population resident in the country that does so in any of the provincial capitals. The experience and knowledge of the Spanish industry is not only in demand for the development of high-speed networks, but countries around the world want to rely on the work of Spanish companies for public transport networks, such as commuter trains, tram or metro. The goal they pursue? To implement modern, sustainable, and highly efficient systems.

In short, the challenge facing the cities of the future is to find smart solutions that allow to take advantage of the new less polluting fuels that reduce CO2 emissions, taking advantage of the synergies between the different forms of urban transport and accelerating the intermodality with the other systems that arrive from abroad, with the interurban means of movement of people and goods.

The commitment to its guidance and execution of urban transport networks is based on the great ability they have shown in recent years. Proof of this are projects such as the Riyadh Metro, which has been characterised by its great complexity from the technical point of view; also the Lima Metro or the Toronto Subway, among a long list that goes around the world. In addition, they have been protagonists of the mobility programmes of large cities such as the Muscat Public Transport Master Plan (Oman), the Kuwait City Metro Master Plan (Kuwait), among others. On the other hand, the experience acquired in the implementation of the longest automated metro line in Europe, L9 of the Barcelona suburban metro, has also become international. Many of the contracts include self-driving systems and rolling stock sets for these lines. For example, the Singapore, Sydney or Amsterdam Metros among many others.



ECO RAILWAY PROPOSALS

- Use of renewable energies in facilities and in commercial operation.
- New manufacturing method for environmentally friendly cement
- Braking energy recovery systems
- Ferrolineras: Electric vehicle charging at the station
- Fast charging at tram stations with battery systems on board
- Catenary-free trams
- Boost to the hydrogen train

DIGITALISATION

- Infrastructure digitalisation through BIM
- Smart railway stations
- Eco-efficient traffic, monitoring and driving management systems
- Flexible automatic driving system that allows the integration of functions.
- Automatic protection and operation systems (ATP/ATO).
- Energy Management System (EMS) to reduce on-board energy consumption
- Fleet system to optimise energy consumption management and control
- AI for predictive maintenance
- IoT hardware platform to integrate all on-board equipment

COVID

- Centralised operating and planning systems
- Preventive access control system
- Real-time information on infrastructure and train occupancy
- Intelligent passenger density solutions
- Technologies for contactless electronic payment method

INTERMODALITY

- Railway connections to ports 4.0.
- Systems for the traceability of goods
- Solutions for a connected intermodal transport

TALENT ATTRACTION

- It has a wide variety of specialised railway training
- Official Master's degrees in railway engineering, BIM, and numerous other disciplines
- Spanish companies have career development plans

SOME OF THE SPANISH SOLUTIONS TO THE NEW CHALLENGES

Source: Mafex.

Metro, light rail and tram, protagonists of urban mobility

According to the International Association of Public Transport (UITP) and its latest report, corresponding to the period prior to the pandemic, (2018-2019), the metro and suburban metro systems, which are operating in 180 cities around the world, moved a total of 5,3 billion passengers per year, along more than 15,000 kilometres of tracks, in 56 countries. The UITP estimates that by 2025 the metro and suburban metro lines will multiply by five.

In the case of light rail and trams, as well as tram-trains, the combined figures offered by UITP point to a presence in 388 cities, and an annual pre-pandemic average of 296 million users. With special emphasis, as a solution in 206 populations in Europe

and a wide development, in which the Spanish companies associated with Mafex have intervened and continue to do so, in Latin American countries, fundamentally, as well as the United States or Canada and the Eurasian region.

In the case of Spain, light rail transport, trams, and Tram-Train, which moved more than 526 million passengers in 2022 operate in six urban and peripheral areas: Zaragoza, Alicante, Madrid, Barcelona, Valencia and Seville; whereas in me-

EUROPE

Karlsruhe LRV (Germany)
Berlin metro (Germany)
Colonia metro (Germany)
Jena tramway (Germany)
Erfurt tramway (Germany)
Augsburgo tramway (Germany)
Chemnitz tram train (Germany)
Gmunden Tramlink (Austria)
Viena tramway (Austria)
Brussels metro (Belgium)
Lijn-Amberes and Gante tranway (Belgium)
Lieja tramway (Belgium)
Copenhagen tramway (Denmark)
Odense tramway (Denmark)
Helsinki metro (Finland)
Besacon tramway (France)
Nantes tramway (France)
Saint Etienne tramway (France)
Tbilisi metro (Georgia)
Atenas tramway (Greece)
Utrecht tramway (Holland)
Amsterdam tramwa (Holland)
Amsterdam metro (Holland)
Bucartest metro (Hungary)
Palermo tramway (Italy)
LAN metro (Afragola-Naples line) (Italy)
Roma metro (Italy)

Milán tramway (Italy)
Tranvía Cosenza tramway (Italy)
Naples metro (Italy)
Cagliari tramway (Italy)
Dublin-Metro link (Ireland)
Cork tramway (Ireland)
Luxembourg tramway (Luxembourg)
Oslo tramway (Norway)
Warsaw tramway (Poland)
Mondego metrobus. Coimbra (Portugal)
Lisboa metro (Portugal)
Sheffield tram train (United Kingdom)
Docklands light rail. London. (United Kingdom)
London metro (United Kingdom)
Birmingham tramway (United Kingdom)
Tram train for "Wales and Borders" (United Kingdom)
Glaswo metro (United Kingdom)
Belgrade tramway (Serbia)
Stockholm metro (Sweden)
Lund tramway (Sweden)
Lugano-Ponte Tresa Tram train (Swiss)
Limmattal light rail (Swiss)
Berna tramway (Swiss)
Basilea tramway (Swiss)
Ankara metro (Turkey)
Izmir metro (Turkey)
Istanbul metro (Turkey)
Bucarest metro (Romania)

AMERICA

Buenos Aires metro (Argentina)
San Isidro tramway (Argentina)
East line Fortaleza-Metrofor metro (Brasil)
Sao Paulo metro (Brasil)
Rio de Janeiro metro (Brasil)
Salvador monorail (Brasil)
Porto Alegre metro (Brasil)
Cuiaba tramway (Brasil)
Fortaleza metro (Brasil)
Santos tramway (Brasil)
Eglinton Crosstown light rail. Toronto (Canada)
Ottawa light rail (Canada)
Santiago de Chile metro (Chile)
Valparaíso metro (Chile)
Medellín metro (Colombia)
Bogota metro (Colombia)
Ayacucho tramway (Colombia)
Medellín Metrocable (Colombia)
Quito metro (Ecuador)
Boston light rail (United States)
New York metro (United States)

Washington metro (United States)
Kansas City tramway (United States)
Cincinnati tramway (United States)
Houston tramway (United States)
Miami metro (United States)
MetroRiel (Guatemala)
Guatemala metro (Guatemala)
Guatemala electric train (Guatemala)
Ciudad de México metro (Mexico)
Tren ligero de México (Mexico)
Tren ligero de Guadalajara (Mexico)
Metro de Monterrey (Mexico)
Metro ligero de Puebla (Mexico)
Metro de Panamá (Panama)
East Side Access project (New York) (United States)
Lima metro (Peru)
Santo Domingo metro (República Dominicana)
Caracas metro (Venezuela)
Maracaibo metro (Venezuela)

AFRICA

Argel metro (Argelia)
Constantina tramway (Algeria)
Ouargla tramway (Algeria)
El Cairo metro (Egipto)
El Cairo monorail (Egipto)
Casablanca tramway (Morocco)
Mauricio tramway (Mauricio)

MIDDLE EAST

Riad metro (Saudi Arabia)
Technology for pricing control. Public Transport network of Riad. Saudi Arabia)
Ouargla tramway (Algeria)
Argel metro (Algeria)
Doha metro (Qatar)
Lusail tramway (Qatar)
Dubai tramway (The United Arab Emirates)
Abu Dabi tramway (The United Arab Emirates)
Mascate public transport master plan(Oman)
Astana tramway (Kazakhstan)
Metro master plan for Kuwait city (Kuwait)
Bangkok Gold Line monorail (Thailand)

ASIA AND OCEANIA

Parramattalight rail (Australia)
Sydney metro (Australia)
Canberra tramway (Australia)
Newcastle tramway (Australia)
Ho Chi Minh metro (China)
Shanghai metro (China)
Seul metro (Korea)
Manila metro (Philippines)
New Delhi metro (India)
Chennai metro (India)
Nagpur metro (India)
Mumbai metro (India)
Dhaka metro (India)
Kochi metro (India)
Bangalore metro (India)
Ahmedabad metro (India)
Palembang tramway (Indonesia)
Kuala Lumpur metro (Malasia)
Jurong Region Line. Singapur metro (Singapur)
Bangkok monorail (Tailandia)
Kaohsiung tramway (Taiwan)
Almaty tramway (Kazakhstan)
Hanoi light rail (Vietnam)

**METRO AND LIGHT RAIL:
MAIN SPANISH PROJECT**



tro or classic suburban metro, the traffic reached in that same year, a total of 952 million passengers in the seven cities where this type of service exists: Barcelona, Bilbao, Madrid, Malaga, Palma de Mallorca, Seville and Valencia, according to figures provided by the National Institute of Statistics (INE).

Tailor-made solutions for each city

The Spanish railway industry has become the main ally of these projects in countries on the five continents. A position endorsed by its work in the implementation of the numerous and diverse systems that have been established in the main cities of Spain.

The technological solutions and services of these companies have crossed thousands of borders and are located in urban centres on all continents. The commitment to its guidance and execution of urban

One of the keys to success has been the synergy and joint work of multinationals, Spanish manufacturers and SMEs

transport networks is based on the great ability they have shown in recent years. Proof of this are projects such as the Riyadh Metro, which has been characterised by its great complexity from the technical point of view; also the Lima Metro or the Toronto Subway, among others.

In addition, it has been present in the mobility programmes of large cities such as the Muscat Public Transport Master Plan (Oman), the Kuwait City Metro Master Plan (Kuwait), or in the use of automatic driving systems in the Sydney, Singapore or Amsterdam Metros, among others.

In fact, more than 37 percent of the metro network in South America and about 25 percent of that existing in Europe have Spanish technology. And at a national level, an extension of metro lines is being developed in certain cities, such as Madrid, where in the next three years there will be more track length and more stations to connect the new emerging neighbourhoods. There is also presence in the tram-train solutions that are increasingly in demand from the cities of different countries, which means that the Spanish industry is at the top of the list as advisor of metro and tram systems.

The model is constantly changing, sustainable mobility forces the industry to face new challenges. If

The commitment to its guidance and execution of urban transport networks is based on the great ability they have shown in recent years

until now it was the infrastructure or the vehicle, that transport companies and railway operators focused the most on, it is becoming increasingly important the design of a personalised proposal, according to the individual needs of the traveller, with real-time information, variety in the payment methods and additional service proposals that make the trip a complete experience, with a process that is pleasant, simple, intuitive and fast from

the point of departure to the final destination. And the railway has a lot to say about it, because it can manage to become in the next few years the backbone of transport in the cities due to its flexibility, efficiency and sustainability.

For that purpose, the Spanish railway industry channels all its efforts towards R+D investments, and the incorporation of the most avant-garde technology. 🚆

DID YOU KNOW?

- 1

35% of the metro networks in South America and 25% of the European ones have Spanish technology.
- 2

More than 1/4 of the metros in Europe have Spanish technology.
- 3

Spanish solutions such as the tram-train are increasingly in demand by cities around the world.
- 4

The Spanish industry is in the top positions as advisors and developers of metro and tram systems.
- 5

Smart Stations: Spanish companies have created pioneering systems and technologies to manage the stations of the future.
- 6

Our companies have implemented the most advanced "Intelligent" operational control centres.
- 7

They are also in the top positions in railway safety and maintenance, very rigorous subsectors.

SOLUTIONS FROM SOME OF THE MAFEX MEMBERS.

Sener's experience in five continents**► SENER**

Sener, as a global engineering company, is involved in the development of urban transportation system projects in the five continents.

Among its most recent experiences are the Scarborough line of the Toronto metro (Canada), the Purple Line of the Maryland LRT (USA), the modernization of line 1 of the Mexico City metro, line 3 of the Panama metro, line 1 of the Bogotá metro (Colombia), the monorail of Salvador de Bahía (Brazil), the Circular line of the Porto metro (Portugal), the extension of the Edinburgh tramway (Scotland), the Jerusalem LRT (Israel), the Abu Dhabi LRT, the Red line of the Dubai metro, the Lusail LRT (Qatar), the Cairo monorail (Egypt), line 1 of the Oran metro (Algeria), the Kaohsiung LRT (Taiwan), the Kuala Lumpur tramway (Malaysia) and the Western



Sydney Airport line of the Sydney metro (Australia). This global experience and vision allows Sener to deliver efficient, cost-

effective and sustainable solutions tailored to the needs not only of each city, but also of each client, whether public or private.

Siemens Mobility exports Spanish talent to more than 25 countries**► SIEMENS**

Meeting the growing demand for mobility in a planned, sustainable, reliable and safe manner is one of the most important challenges facing cities today. In this area, Siemens Mobility Spain,

thanks to the constant innovation of its portfolio, its experience and know-how in efficient, sustainable, reliable and safe urban transport systems, is able to provide customized and tailor-made answers to the needs of its customers..

These solutions, already present in more than 25 countries such as Germany,

Saudi Arabia, Brazil, Ecuador, Egypt, Finland, Indonesia, Mozambique, Portugal, Singapore and Turkey, among others, are aimed at optimizing costs throughout the entire life cycle of the railway infrastructure and rolling stock, 100% asset availability, maximizing network capacity and improving processes and passenger experience.

A major case of success is the installation of its technology on the Downtown Line Singapore, one of the world's longest fully automated, driverless underground subway lines.

Thanks to them, Singapore has reduced traffic congestion and offers its citizens integrated and sustainable public transport. The company will present its portfolio of products and solutions at the UITP Global Public Transport Summit 2023, which will take place June 4-7 in Barcelona (Fira Barcelona Gran Via, Booth No. 6A150).

More information:
www.siemens.com/mobility

**TRAMLINK and CITYLINK – the fully accessible LRV****► STADLER**

In an increasingly urbanised world, Stadler metros, light rail and trams offer high comfort for passengers and cost-effective customised solutions for operators. Our vehicles are trendsetting in terms of performance, universal accessibility, reliability and safety, guaranteeing comfortable and safe journeys and a pleasant travel experience, thus contributing to the increased use of public transport.

For the urban mobility, Stadler provides 100% low-floor multi-articulated TRAMLINK trams. They are fully accessible light rail vehicles with spacious multi-purpose areas next to the doors, PRM places and a barrier-free, bright and friendly interior.

The CITYLINK family has become a benchmark in the tram-train segment. Designed to connect the city centre with the metropolitan area without transshipments,

they cover from tramway applications to regional train operations at 100 km/h, providing a comfortable, quiet and safe journey.

**Lantania renovates the tramway network in the centre of Lodz and Torun in Poland****► LANTANIA**

Lantania and its subsidiary Balzola carry out the restoration of the tram line in the historic center of the city of Lodz, in Poland. Work to which they add the construction of a tram line in Torun, also in the Central European country.

The two companies are renovating a 4.2 km long line in the heart of Lodz with unpaved pavements and stone paving. They are also building the catenary and all underground networks.

In the city of Torun, a tramway line is being built together with the infrastructure accompanying the development of the Jar area.

They will demolish the road and tramway superstructure and build a double tramway line over a length of 3.5 km together with its electrification and stations. The project continues with the extension of the line to the Jar C. area where they will build a double line over a length of 1,200 metres, its electrification and stations, as well as a final junction for the change of direction of the tram units.



SOLUTIONS FROM SOME OF THE MAFEX MEMBERS



Cellnex, neutral host for mobile networks in metros
CELLNEX
Metro network passengers expect to have mobile coverage all along their journeys, both in tunnels and in stations, regardless of their mobile phone operator.

This is a real technological challenge that Cellnex is capable of solving given its extensive experience in the deployment and operation of DAS (Distributed Antenna System) multi operator in several European subways. Thus, in Italy, Cellnex is the neutral operator of the Milan, Genoa and Brescia metros. In Spain, it is the main shareholder of Metrocall, the company responsible for the coverage of the Madrid Metro.

And in France, Cellnex is working to provide mobile coverage for metro lines 16 and 17 of the Greater Paris Express - the largest infrastructure project in Europe, currently under construction -, with the first milestone set in the upcoming Paris 2024 Olympic Games.

In all these cases, Cellnex solutions allow continuous and optimal connectivity –voice and data–, through a single shared and multi-operator infrastructure.

“Me Lleva el Tren, Movilidad, Tecnología y Ciudad”
TELTRONIC
El Last October, Teltronic organised in the Mexican city of Monterrey the forum “Me Lleva el Tren, Movilidad, Tecnología y Ciudad”, an initiative aimed at seeking more sustainable mobility solutions. The event highlighted the importance of equipping transport systems with the most modern technology for a more efficient, comfortable and safe service, and in this way, to provoke a movement of passengers from private vehicles to public transport.

With more than 100 communication networks deployed for metros, trams and LRT around the world, Teltronic knows the

value of this conclusion and, in this sense, the incorporation of 4G/5G broadband technologies allows a new operating

model to be established, with new applications that raise efficiency levels and favour intermodality.



Not all trains are Renfe trains

More trains

The best punctuality commitment

More destinations

At Renfe, we serve more than 1,500 destinations and offer the highest frequency of trains in Spain. Furthermore, thanks to Renfe's commitment to punctuality, if your AVE (high-speed) train is delayed by more than 15 minutes, we offer a 50% refund of the cost of your ticket, and a 100% refund if it is delayed by more than 30 minutes.

No one gives you more

renfe *Your train.*

SOLUTIONS FROM SOME OF THE MAFEX MEMBERS

New Alstom trains for Barcelona Metro**► ALSTOM**

The new Alstom trains of the Metropolis family, developed by Alstom Spain for TMB, have entered commercial service. The 50 new metro trains will replace the Barcelona Metro lines 1 and 3 fleets. The plan is to gradually replace the current fleet over the coming months. All the trains are being manufactured at Alstom's industrial site in Santa Perpètua, Barcelona.

The new trains are based on the experience of Alstom's Metropolis™ range while incorporating new innovations and technological solutions, emphasising sustainability and accessibility. The trains feature a lightweight structure, low energy consumption and improved air



filtration. Other innovations of the new trains are the ease of access, the lighting (100% LEDs), as well as the interior

design ergonomics, and remote control and sensors to manage rolling stock maintenance.

**ArcelorMittal at the forefront of innovative rails solutions for urban transport****► ARCELMITTAL**

With a growing number of people living in urban areas, cities need various means of transport to reduce congestion. Metro, Tram and Light systems have been rapidly expanding

worldwide during recent years as they provide innovative traffic solutions, both in urban and suburban areas due to its best accessibility, user proximity and limited environmental impact when compared to other transport alternatives..

ArcelorMittal has supplied rails for urban projects in Europe and Worldwide

as the Réseau express métropolitain in Montreal, Canada; the Manila Metro Rail Transit Line 7; Kaohsiung's Light Rail System in Taiwan; Jokeri Light Rail line in Finland and metro projects as Sydney Metro; 4,5 y 6 Riyadh Metro lines; Metro Medellín; MetroValencia, the Northern Line Extension in London and many other infrastructure projects.

**CAF: comprehensive urban mobility systems****► CAF**

In its firm commitment to promoting urban mobility that is respectful of the environment, CAF offers a wide range of solutions that adapt to the characteristics of each city. Within its global offer of integrated transport systems, its Inneo

and Urbos metro and tram platforms of great international prestige stand out.

Inneo is CAF's range of metro units. These vehicles are equipped with the latest technological advances in terms of safety, performance and comfort. Its modularity allows for precise adaptability to the needs of each operator in terms of passenger capacity.

Regarding tramways, CAF has the Urbos solution, a range of low-floor state-of-the-art trams, designed with the best passenger accessibility conditions. Urbos vehicles respond to the highest eco-design requirements.

These trams can include Greentech technology for catenary-free operation.

Signaling, communications, supervision and ticketing for more than 30 cities around the world**► THALES**

Thales is specialized in technology applied to signaling, communications, supervision and ticketing for transport. Bilbao is Thales' SCADAsoft Competence Center for the whole world, where Intermodal Compensation Systems are also developed for both magnetic tickets, as well as contactless cards. As experts in control center integration, Thales team in Bilbao has participated in projects throughout the world such as the London Underground (TIMIS), Santiago de Chile (all lines), North East Line (United Kingdom), Caracas (lines 1, 3 and 4), Paris (Meteor), Santo Domingo (L1), Mexico City (all lines), El Cairo (L3). It is also important to point out the contribution to the supervision and trams control, in Bergen (Norway), as well as in suburban train networks in Mexico.



SOLUTIONS FROM SOME OF THE MAFEX MEMBERS

Urban transport solutions

GMV

The Intelligent Transport Systems (ITS) have gained in the last two decades a remarkable importance in urban transport networks. The Automatic Vehicle Location systems (SAE), the Passenger Information Systems (PIS) and the Ticketing systems could be said to be the three fundamental pillars of an ITS for urban public transport, both in bus and rail.

These systems can be deployed independently and each of them provides great value on its own, but it is when they are deployed in an integrated manner that they really increase their contribution to improving the quality of the transport service.

The Spanish railway industry offers in cities around the world the combination of rolling stock manufactured in Spain with the incorporation of ITS systems provided by Spanish integrators such as GMV.



Adjustment of Maintenance Works during Ramadam in the Haramain High Speed Line

IMATHIA

During Ramadan, our maintenance teams for the infrastructure and superstructure of 150 km of double track of HARAMAIN high-speed line (300Km/h), carry out their work during the day, thus allowing more than a million pilgrims to safely travel daily to their destination in the holy city of Mecca.

For this purpose, IMATHIA has got the latest technology on the market in terms of auscultation, grinding and track tamping; treasuring professionals with huge experience in the railway sector.

IMATHIA Construcción contributes to the success of the operation of this world reference line, whose passenger demand continues raising day after day since the start in 2018, especially on the dates of Ramadan and Hajj, assuming a benchmark for the transport of millions of pilgrims from the Muslim community.

SIEMENS MOBILITY

Moving beyond – Soluciones de transporte impulsadas por nuestra pasión por la movilidad.

El futuro de la movilidad en nuestro mundo globalmente interconectado exige soluciones de transporte fluidas, sostenibles, fiables y seguras. Aprovechamos las ventajas de la digitalización, la excelencia en ingeniería y nuestro espíritu emprendedor para superar este reto. Con la confianza de nuestros socios somos pioneros en el transporte, trasladando a las personas de manera sostenible y fluida desde la primera hasta la última milla. Y siempre vamos más allá para ayudar a los operadores de transporte de todo el mundo a superar sus expectativas.

[siemens.es/mobility](https://www.siemens.es/mobility)

SIEMENS



INTERVIEW TO Silvia Roldán, CEO of Metro de Madrid, President of Alamys (Latin American Association of Metros and Subways) and Vice-President of the Europe UITP Metros Committee

Since 2019 you have been CEO of Metro de Madrid. What objectives have you set yourself in your mandate?

There are two main goals that are closely intertwined: innovation and inclusion. These ideas are so very interdependent because Metro de Madrid is fully committed to provide the best possible service to most people. Innovation is a means for providing the best performance and for enhancing productivity. Innovation is also a bridge enabling most people to use the best mobility mode Madrid can offer. Metropolitan railways are the most efficient mass mobility solution in large cities and mass mobility is for everyone – inclusion is an end in itself.

The current transport paradigm is changing. Climate challenge and social changes also present opportunities for the creation of a new pattern of sustainable mobility aimed at reducing en-

vironmental impact and promoting the well-being of citizens. What do you consider to be the main challenges in urban mobility? What role does railway play in the future of mobility?

Urban mobility is a prerequisite of urban life. The worst the mobility, the hardest the life for millions of people – this is a vicious circle we need to break. Public transport stakeholders must be citizen-oriented – we need to think, to plan, to work bearing in mind the mobility of millions of people.

The better our performance the more people will choose public transport – the more public transport use the better for our environment. This is the virtuous circle we need to ensure if we really want to offer a better world for future generations. It is one of the leading concerns of our time and we should strive to offer the best possible public transport network – public transport links people and opportunities in an efficient way. Public transport enables people to enjoy the city surface and breathe a cleaner air.

What can I say about railways? I am a passionate advocate of railways – my professional career has been devoted to railways. Railways were the spearhead of the Industrial Revolution, they are the essential transport mode of our times – and they will be the spearhead of the future mobility. No other mode of transport is able to carry as many passengers as trains do and, besides, railways are a safe, efficient, clean and reasonably priced system. Railways are able to articulate cities and whole regions, providing great opportunities of social and economic development.

What are the specific challenges presented by Metro de Madrid in the short-medium term? And its strategic objectives?

Our strategic goals can give us a clear view of our challenges, though

I'd like to start reminding something we hardly ever say – a network more than one century old is always in need of refurbishment and the older part of our lines is in the centre of the city and plays an instrumental role in North-South and East-West communication. Some solutions of the past are no longer used and must be changed – a typical example is ballast-. But let see a summary of our strategic goals.

First of all, we need to ensure reliability because this is our main strength. What makes Metro a favourite of Madrilenians is that we have no traffic jams and there's no uncertainties based on the state of traffic – our lines are an exclusive way providing a safe journey that also allows a good time planning. Of course, we also need to ensure economic and financial sustainability – this is the cornerstone of any company. Keeping the customer trust and enhancing the commitment of employees is also very important – both are intangible assets showing our ability of meeting customer's expectations and our quality as employers. And we have to keep on working on current projects that are paving the future, including cybersecurity, useful ideas for our new headquarters, the complete refurbishment of line 1 track infrastructure or the future centre of global control.

And in which ones is it going to especially need the collaboration and contribution of our industry?

Whatever helps innovation will always be really useful – a customer-oriented and financially sound innovation is the key to success.

Metro de Madrid is recognised for its commitment to accessibility and for promoting inclusive transport. According to the 2021-2028 Plan, 84% of the stations in the network will be fully accessible upon completion. How are they carrying this out?

We are working a lot in accessibility because it is one of our core values. On the other hand, we have to cope with a large network -294 km and 302 stations- that has been build in different times, starting from 1917. Bearing both factors in mind, we are planning carefully the works because we need the cooperation and understanding of everyone and, of course, because budget matters! At this point, we have a lot of experience in this field of works and our hard-working and experienced professionals are one of the best assets for any company. I am very proud of their long-term commitment with accessibility and inclusion.

The Station Modernisation Plan involves the remodelling of a total of 33 stations in the Metro network, thanks to an investment of 89 million euros that will be carried out by the Comunidad de Madrid (Madrid Autonomous Community), and also underway is the service retainment for the project drafting in Madrid Nuevo Norte. What do they consist of?

As I said before, a network like ours needs to put resources in refurbishment but it's not the only thing to do - as operators, we need to get ready to operate new expansions of the network. Building new extensions is not our responsibility but

Railways are able to articulate cities and whole regions, providing great opportunities of social and economic development

our long experience as operators is something to be taken into account. By mid-2027 Line 11 is expected to open a substantial extension linking the new neighbourhood of Valdebebas with the rest of the city and allowing important interchanges with transport hubs. On the other side, the extension of Line 3 will increase the line connectivity. And I am sure that Nuevo Norte, currently under study, will make an extraordinary contribution to innovation.

The Spanish industry developments have brought with them in recent years innovative solutions in numerous fields such as energy efficiency, capability, accessibility, and improvement of the user experience. How do you value this commitment of companies in the sector?

I am most optimistic – Spanish companies are a byword of efficiency and I am sure that their contribution will be instrumental for the whole sector. Operators need this drive

We have a lot of experience in this field of works and our hard-working and experienced professionals are one of the best assets for any company. I am very proud of their long-term commitment with accessibility and inclusion

towards innovation because we need to meet the demands posed by our customers and we also need good reasons to offer our customers the best possible experience.

The railway, due to its numerous environmental, efficiency and safety advantages, is key to sustainable mobility. And in this process it is very necessary to have professionals who help implement new developments, reinforce innovation and move towards the digitalisation of the sector. What message, in your

opinion, should the sector convey to attract talent?

Railways are a steadfast ally of society and a most challenging sector with a long future ahead. That's why it attracts investments and makes part of public and private planning. Railways are past, present and, above all, future. Working in this sector is one of the best things for anyone who is really interested in innovation and in shaping a better world.

We know that women are the biggest user in mobility, but they only represent 22% of the workforce in the European railway sector. As the first woman to lead Metro de Madrid, an entity with more than 100 years of history, what measures do you consider are required to increase the presence and to promote equal opportunities for women in planning, management and decision-making in the sector?

We take equality very seriously – our II Equality Plan is in force, providing analysis and clear measures to promote equality. We follow all the legal requirements, that goes without saying, and we are proud to say that women in Metro de Madrid have means to complain effectively in case they feel discrimination. We are also very glad to see how women work in functions that have traditionally been performed by men, like Heads of Train Depot. However, we all need to make a better effort to promote STEM among the youngest which, in my opinion, could make a real difference.



The mobility OF THE FUTURE travels by train



The railway, an attractive industry that **generates employment**

PROGRESS IN SUSTAINABLE MOBILITY WILL BE LINKED TO THE CREATION OF JOBS IN ALL SUBSECTORS, IN ADDITION TO THE INCORPORATION OF NEW SPECIALISED PROFILES. THE RAILWAY INDUSTRY FACES A NEW CHALLENGE: ATTRACTING AND RETAINING TALENT.

The railway industry is a critical component of the transport sector, and as such is constantly evolving to be able to propose solutions to the different mobility alternatives demanded by society. But these actions involve the development of investment capacities and increasing knowledge,

which require, without a doubt, the participation of new people who join the different companies to contribute their knowledge in technological innovations as important as artificial intelligence, Big Data, connectivity ..., without forgetting the solutions for an increasingly green mobility among others.

The European Union supports the railway, considering this transport

as the most sustainable one, and one of the main elements that will contribute to the development of the EU Climate Agenda which seeks to become the first climate-neutral continent by 2050.

Due to its numerous environmental, efficiency and safety advantages, the railway will be the key in this modal shift. And in this process, it is very necessary to have profes-

sionals who help to implement the new developments, reinforce innovation, and move towards the digitalisation of the industry. Progress in green mobility will be linked to the creation of jobs in all subsectors, in addition to the incorporation of new profiles specialised in sustainability, environment, blockchain, telecommunications, cybersecurity, operators, auxiliaries, new construction modeling methodologies, etc.

It is necessary to have new professionals who help to implement the necessary developments reinforcing innovation and digitalisation



Fields all of them with great employment prospects, together with human resources management, corporate social responsibility or digital marketing, among others.

The challenges are multiple and it is necessary to have professional profiles that contribute their qualities, specialisation and know-how to the development of the railway.

Mobility progress demands new professionals

Society evolves, and with it the railway does so, applying solutions to the different challenges that it has faced. The modal shift currently demanded by society will be key in new projects. And in order to accept these challenges, it is necessary to have new professionals who help to implement the necessary developments reinforcing innovation and digitalisation.

One of the challenges facing the railway industry is the training, development, and career plans inside and outside the companies of the many professionals who will join it in the coming years. The ability to have the best market profiles in companies will depend, to a large extent, on the attraction and retention of talent so that working in this leading industry with a great future is considered to be the best option.

It is about a complete process in which various proposals are combined for employees to want to develop their future in the company and to feel involved with its evolution and progress: attractive conditions and identification with corporate values, etc.

To arouse the interest of working in an industry with great growth prospects, it is key for them to feel that talent and effort are taken into account. Companies have to combine not only a conventional salary,

The corporate culture of companies increasingly tends to focus on the needs of the employee to attract and retain talent

but a competitive and "emotional one", mediation options, opportunities to participate in innovation projects, constant training, etc. In addition, candidates increasingly take into account companies responsible for the environment in which they operate and their commitment to the Sustainable Development Goals (SDGs).

In this respect, the human resources policy is valued for having inclusive workforce, where equal opportunities, intergenerationality and quality of employment prevail.

To overcome these challenges, both the companies and the organisations that make up the railway sector will have to be able to retain them, to provide all the human capital with a value proposition, where each professional feels that it is the place where they want to steadily work and develop their career, with a quality job that brings them numerous benefits and where they share a vision to progress and grow.

It is also key for the sector to strengthen its current image and projection as well as its global leadership position. Likewise, they must continue applying all the developments at their disposal to be more innovative, productive and have a consolidated organisational structure.

Professionals wanting to join this sector are in a very favorable context along with the opportunities that will arise in the industry.

Renfe is a benchmark in training, which is delivered by the Professional Technical Schools of Driving, Operations and Maintenance. This school covers all the training needs in the driving area of the Renfe

Group and responds to the training requests and needs of other railway companies and entities in the sector.

As a differentiating element, it has a wide network of driving simulators that allows to carry out the training and continuous improve-

ment of the students, making it possible for them to successfully face their responsibilities, establishing the principle of safety as an essential value above any other objective.

R+D is a priority in the sector to continue advancing in the green mobility model of the future led





by the railway. The collaboration of private companies in the sector with public entities, research centres, and universities is essential to incorporate new developments in the railway systems and to ensure that the latest technology is available. In fact, there are already avant-garde technological developments supported by some universities, as is the case of the Polytechnic University of Valencia.

At a public level, the Railway Infrastructure Manager (Adif) and Adif Alta Velocidad, within its 2030 Strategic Plan, has launched the largest public employment offer. There will be almost 62,000 jobs until 2025 in

order to meet the demands of the railway service. With this employment plan they want to respond to new challenges arising such as the generational handover, railway liberalisation, and the expansion and improvement of network provisions, among others.

The challenge facing the railway industry in general, and Spain in particular, is having highly qualified professionals for the coming years, where they can develop their activity in the area of transport that contributes to make it increasingly efficient and sustainable and to facilitate mobility and the lives of citizens.

Priority R+D
to continue
progressing
in the green
mobility model
of the future of
the railway

BE MOTION.

The energy transition is an unstoppable process.

To face this challenge, **The Real Dream Team** is born, a movement based on Heroes and Heroines that just like you do, share the same dream: a world where the energy production is clean.

Will you join?



THE
REAL
DREAM
team

BE PART OF
THE ENERGY
TRANSITION.
BE A
HERO.

Ingeteam 50 YEARS
ELECTRIFYING
A SUSTAINABLE
FUTURE

The importance of corporate values

The image that the employer projects on people interested in joining a new project is becoming increasingly important in the candidate's final decision. It is a determining factor for attracting talent.

The railway industry has an international reputation closely linked to its capacity for innovation, the great expertise of its professionals and know-how, integrity, equality, commitment to society, engagement in the employees' welfare, dealing with suppliers and customers, etc. Employees need to identify with the "raison d'être" of the company and have a "sense of belonging" to a group with which they feel identified.

This set of values will enable greater affinity and a much higher likelihood for professionals to wish to develop their careers in the company. It will also enable companies to have the best "brand ambassadors", their own internal influencers who will expand the knowledge and reputation of the company.

The railway industry has an international reputation closely linked to its capacity for innovation, the great experience provided by its professionals, the development of a R+D in constant evolution, and, above all, the challenge of being able to work on large-scale projects around the world. These factors make this sector one of the most attractive to be able to develop new ideas in accordance with the most advanced cutting-edge technology, and in the remit of the needs demanded by society.

Currently one of the main requests made from all countries is to achieve solutions that allow sustainable mobility that is appropriate to the

environment, and that is one of the developments to which the new specialists joining the companies that are part of the railway industry must contribute.

Sustainable development to achieve a more egalitarian society

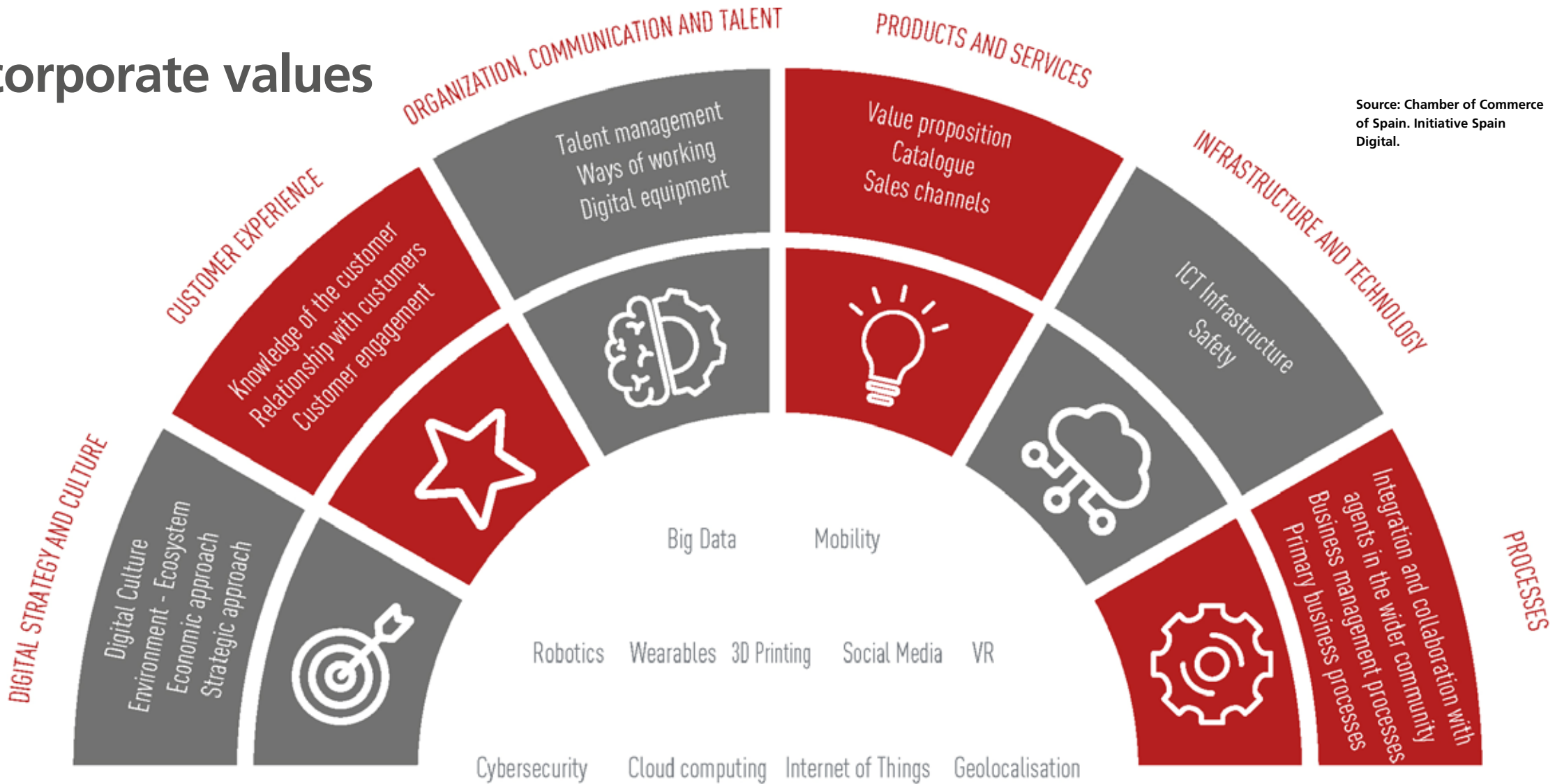
The commitment of companies in the railway sector to the 2030 Agenda and its 17 points is reflected, in the field of employment, in the adoption of measures in line with the different SDGs: 3 "Health and Well-being", 5 "Gender equality", 8 "Decent work and economic

growth", 9 "Industry, innovation and infrastructure", 11 "Sustainable cities and communities" and 13 "Climate action".

Developments in these fields contribute not only to being a responsible company with its environment, but also to reinforce the brand image and to strengthen the desire of professionals to work in a responsible company.

Diversity and equal opportunities

The railway industry, in line with developments in employment mat-



Source: Chamber of Commerce of Spain. Initiative Spain Digital.

The company's reputation is key to attract specialists to the railway industry

SUSTAINABLE DEVELOPMENT GOALS





Advancing the incorporation of women, one of the great challenges of the rail industry

ters, is strongly committed to diversity and equal opportunities.

A plural workforce, made up of multidisciplinary teams, helps to strengthen productivity and business results, as it brings together the best talent in the same direction.

One of the great challenges is to advance in the incorporation of women into the railway sector, both in operational and auxiliary tasks, as well as in engineering and senior management positions. The

latest UNIFE reports show that the different actions carried out in the European Year of Youth (2022), as well as in the European Year of Rail (2021) should be used to deploy an initiative to make this sector more attractive to women.

The European Transport Commission, recognising the current gender imbalance, launched a few years ago the Women in Transport Platform, an initiative aimed at counteracting the low percentage of women employed in transport

across the European Union. And at the railway industry level, female labour representation is valued at only 20 percent.

On the other hand, UNIFE made an effort during the Year of Rail to explicitly draw attention to this shortage and to give voice to women already working in the railway industry to know what their needs and concerns were and to correct them when trying to make their entry into the railway labour market much more accessible. 🌱

At the forefront of rails solutions

XCarb®
Towards carbon neutral steel



ArcelorMittal

ArcelorMittal Rails & Special Sections with production facilities in Poland, Luxembourg and Spain, offers a wide portfolio of products, covering rails for subways, trams, trains, light rails, crane rails, crossings and rail accessories. ArcelorMittal is a specialist in rails for high-speed networks, with over one million tonnes produced and is present in infrastructure projects in over 30 countries. Its high technologic quality allows us to participate in the most demanding tenders all over the world.

ArcelorMittal's main trending topics for railway:

- **RailCor®** a completely new range of specific corrosion resistant rail products, to meet the most demanding customer requirements.
- **Climate Action: XCarb™** will bring ArcelorMittal's reduced, low and zero-carbon products, steelmaking activities, wider initiatives and green innovation projects, into a single effort focused on achieving carbon neutral steelmaking.
- **R&D:** ArcelorMittal operates a dedicated rail research and development unit which includes pilot plants and prototyping facilities. Its Rail Excellence Centre also includes a dedicated welding unit which can provide advice and support for current and future grades for its customers.
- **Digitalisation:** ArcelorMittal Rails & Special Sections is extending its 4.0 transformation with the launch of several digital tools. New Rail Tool version available.
- **Increasing the length of rails:** in order to provide further track safety, welding, track laying and maintenance cost savings.
- **Increasing the service life of rails:** with the most appropriate solutions related to different applications: for Light Rail Transit operators a complete range of Low Carbon Vanadium (LCV) grades of grooved rails; for ports and heavy loads, R340, a top wear performance crane rail and for transport rails, new hardness grades for heavy haul.



sociations, a consulting firm and 14 educational institutions, aims to help meet training needs and to improve the dialogue between the education sector and the labour market of the railway sector, offering human capital solutions for all levels of the railway value chain. A railway members union - Skill Alliance - will be created as a result of the project, which will aim at developing a Blueprint strategy that will enable to recognise the current needs and the new capacities for the achievement of a single European railway space.

The project is currently working on the implementation of the training pro-

grammes developed in its preliminary phases. To do so, agreements will be encouraged, supported and developed between the different project partners (academic and industrial), around the following training programmes:

- Trans-European student mobility programmes and internships in companies
- Trans-European scholarship holder mobility programmes and internships in companies
- Trans-European staff mobility programmes and internships in companies
- VET in the EQF levels 3-5
- VET in the EQF levels 6-8

Universities and public-private collaboration in professional development

The railway is constantly evolving to adapt itself, as a differentiating element to what society requests. In this context, it is essential to maintain continuous training of professionals who develop their work within the railway industry, in each and every one of its systems.

In the railway industry, and thanks to public-private collaboration of companies, institutions and universities, the offer of this continuous training is wide and key. The companies have subsidised schemes in auxiliary tasks, and specialised master's degrees in a wide range of segments.

STAFFER brings together key stakeholders in the railway industry

In mid-2020, The European Rail Supply Industry (UNIFE) analysed the situation of the European railway industry that is responsible for 400,000 direct and indirect jobs and detected that it is necessary to look for the best means to guarantee the training of professionals who adapt to the changing needs of transport, capable of carrying out the development of the next generation of railways. And from this asso-

ciation the programme "Skill Training Alliance For the Future European Rail system" (STAFFER) was promoted.

The STAFFER project, with a consortium consisting of 7 infrastructure operators / administrators, 8 railway industry suppliers, 2 as-

sociations, a consulting firm and 14 educational institutions, aims to help meet training needs and to improve the dialogue between the education sector and the labour market of the railway sector, offering human capital solutions for all levels of the railway value chain. A railway members union - Skill Alliance - will be created as a result of the project, which will aim at developing a Blueprint strategy that will enable to recognise the current needs and the new capacities for the achievement of a single European railway space.

Challenges in depth

About 30% of the workforce is expected to retire in the next decade	The sector is experiencing both a severe skill shortage and a need for re/upskilling.	Digitalisation and automation, requires to bring in suitable skills and competencies	Difficulty to recruit people: including underrepresented groups such as women and young people
	Negative perception of working conditions in rail industry	Low awareness about the high-tech job opportunities that are offered by the sector.	

TRAINING AND DEVELOPMENT

One of the aspects that is most valued by employees when being part of a company is the possibility of growing within the organization and having support to continue their professional development. The candidates value quality proposals and companies that have training plans in those areas that are most demanded to be up to date with the most relevant advances in the sector.

Investment in continuous training is essential to strengthen the workforce and have a highly qualified human capital, according to the demands of the market and with the

ability to provide a differentiating value both, to customers, and to the infrastructure projects that are developed. From the workforce point of view, these plans promote employee satisfaction, increase their integration, and allow them to move forward. In this way, its development is enhanced and the perceptions of stagnation that can lead to the search for other options in the market are avoided.

In the railway sector, the training provision is very wide. The companies have bonus schemes, as well as advanced courses in

railway schools for driving, in auxiliary tasks, and specialized master's degrees in a wide range of segments. Corporate culture increasingly tends to be based on each employee's motivation to meet their career aspirations and address their needs.

Specialised Masters

Future professionals in the sector are looking for a specialised training offer. Institutions, agencies, and universities work closely to provide specialisation plans according to market demands.

EMPLOYMENT AND BUSINESS PRESENTATION DAY 2023 (JEPE) UPV/EHU (UNIVERSITY OF THE BASQUE COUNTRY)

With the aim of bringing Mafex closer to the training offer and making the railway sector known to students, on 16th February the association participated in the Employment and Business Presentation Day of the University of the Basque Country (UPV/EHU). During this annual meeting, the students from the Faculty of Engineering had the opportunity to learn about the activities carried out by the railway companies and the incorporation opportunities and profiles they are looking for.



EQUAL OPPORTUNITIES MANIFESTO IN THE MOBILITY SECTOR

Mafex endorses the "Equal Opportunities Manifesto in the Mobility Sector" promoted by EJE&CON | Asociación Española de Ejecutiv@s y Consejer@s. (Spanish Association of Executives and Consultants).

The aforementioned document aims to strengthen the presence of women in the mobility sector, which currently represents only 22% and is instead the largest user in mobility. To do so, it is considered essential to promote equality with the application of good practices that generate greater talent, diversity and therefore greater wealth and added value to mobility.



ONE OF THE MAIN CHALLENGES FACING THE RAILWAY INDUSTRY IS THE DEVELOPMENT AND MANAGEMENT OF TALENT. THE SECTOR DEMANDS NEW SPECIALISED PROFILES, MORE TRANSVERSAL ROLES AND TRAINING THAT MEETS ITS NEEDS. TO RESPOND TO THIS CHALLENGE, MAFEX PARTICIPATES IN DIFFERENT TRAINING AND EMPLOYMENT ACTIVITIES. SOME OF THESE EXAMPLES ARE:

WORKinLan SUMMIT

Mafex attended the WORKinLan Summit held in Bilbao on 16th-17th February. The scientific, academic, institutional, and economic meeting point to face the challenges related to employment was attended, among others, by David Card, Nobel Prize in Economics and Professor of Economics at the University of California, Berkeley.

In this context, the ISEAK Foundation presented the White Paper on Employment in the Basque Country. The three major transitions that we face in the historical territory, as well as in the national one and the EU were presented. The challenge, to take advantage of the opportunities presented by these changes to generate quality employment.

Demographic transition, increased longevity and declining birth rates hamper the welfare system and the intergenerational equity. The technological transition, on the other hand, has accelerated technological development, the use of the internet and the use of artificial intelligence. This transition represents a great opportunity to increase the level of well-being, but it can lead to



great inequalities. For this reason, technological development should be associated with "brilliant technologies"; technologies that generate productivity improvements without substituting employment for capital. Finally, the climate transition, a global problem that must be addressed with international agreements.

Reflections and instruments of change have been presented in this congress. The social welfare and the employment

of the future must be achieved with policies that will deal with education, the integration of women and of foreign nationals, climate change mitigation policies or public-private research.

In addition, COVID-19 has fuelled new forms of work, which coexist with new forms of training and coexistence with disruptive tools. These are possibilities to promote lifelong learning and for different generations to live together in working environments.

INITIATIVES FROM SOME OF THE MAFEX MEMBERS



Thales, supporting the big ambitions of our talent

► **THALES**
Thales Spain attract the best professionals, mainly people with initiative and who seek constant excellence in what they do. Our professionals are a basic pillar

for the company, which is why we take care of their professional development and training, as evidenced by the TOP Employers certifications and the presence of Thales in the Best Companies to Work For ranking published by Actualidad Económica magazine in the last decade.

The company encourages "The Talent Programme" focused on the recruitment of recently graduate students to be part of the national and international projects developed by the company. The enterprise intends to attract youth talent highly motivated with technology and eager to learn.

STEM professions "awakening vocations"

► **TELTRONIC**
In addition to actively collaborating with various university and vocational training centres, in the field of employment and attracting talent, Teltronic has focused especially on equality, trying both to

facilitate the professional development of its female employees and to promote new vocations among young women.

In this way, the company has participated in various initiatives such as the Management Development Programme for High Potential Women promoted by the

Government of Aragon. Teltronic has also played an important role in "Awakening STEAM vocations 2023", a project aimed at making Aragon the Autonomous Community with the highest percentage of ICT professionals and fostering STEAM vocations by creating a favourable training and working environment.



Siemens Mobility offers specialized training in the railway industry for recent graduates

► **SIEMENS**
Making rail the backbone of present and future mobility means the creation of jobs in the sector and, therefore, the growing need for qualified professionals to meet this challenge.

In this area, Siemens Mobility Spain, aware of the constantly changing context in which we are living, has as one of its main objectives to ensure that its people remain resilient and relevant to the market. To this end, it constantly invests in their development and training through adapted, flexible and inspiring plans, as well as learning initiatives in functional, technical and leadership terms for digital transformation and on its portfolio.

In addition, the company 100% funds paid training programs that offer recent



university graduates the opportunity to enter the job market with the best professionals in the industry in a challenging, diverse and equitable environment. These are the Dual Master of Sciences Rail Mobility Technologies, developed with the Universidad Politécnica de Ma-

drid (UPM), and the Commercial Project Management (CPM) NextGen Academy, a unique opportunity to learn first-hand about the world of project management. These and other offers, as well as the requirements to access them, are available at: www.siemens.es/mobility-jobs.

Sener fosters diversity and equal opportunities

► **SENER**
The Sener engineering and technology group promotes diversity and equal opportunities in all dimensions of diversity: demographic, cognitive and experiential. Sener is a member of the Diversity Charter, the Code of Principles for Generational Diversity (Generation and Talent Observa-

tory), the EJE&CON Code of Best Practices for Talent Management and Improving Competitiveness in Companies, and RAI's (Spanish Royal Academy of Engineering) Women and Engineering program.

sener develops policies for equal opportunities in people management processes, eliminating gender, age, disability, cultural and sexual orientation biases. It

enables work-life balance through flexible working hours - teleworking, intensive working hours, etc. - and is certified as a Family-Responsible Entity (MásFamilia Foundation). All this is aligned with a professional development plan for the continuous training of its people in technical capabilities, digitalization and management skills, so that they can continue to grow professionally.



INITIATIVES FROM SOME OF THE MAFEX MEMBERS

ICON.Talent, ICON Multimedia's talent development programme 4.0

► **ICON MULTIMEDIA**

Training, development and promotion are the fundamental pillars of the ICON. Talent programme that ICON Multimedia is developing to attract and retain talent. It has recently strengthened its People & Culture area, focusing on initiatives that are committed to new talent as a driver of change: scholarship programme, FP Dual, and approaches to training centres at all levels and cross-cutting areas are the main initiatives promoted by this programme.

It also focuses on promoting the incorporation and vocation of women in the predominantly male-dominated field of technology.

ICON.Talent is also committed to its employees, adapting to the challenges of each one of them in their different stages



of professional growth, in order to acquire experience and learn how to continue developing professionally. All of this is also

driven by initiatives that promote Work-Life Balance and various Team Building activities, facilitating 'work engagement'.

Stadler Valencia opens its new training centre

► **STADLER**

One of the main pillars of Stadler Valencia's CSR policy is its commitment to education and training. In collaboration with the Universitat Politècnica de València (UPV), the Stadler Chair brings the two organisations together from a multidisciplinary approach. Its activities focused on bringing future professionals closer to the world of work, encouraging and rewarding talent, disseminating and promoting rail transport and fostering research in the railway sector.

The demand for technical staff is increasing, although there is a growing shortage of these skilled workers. Dual Training is another of the pillars of this policy of attracting and promoting talent, combining theoretical training in educational centres with practical training in our company. At the end of 2022, we took a step forward by opening our own training centre equipped with the most advanced training facilities, which has involved an

investment of more than 1 million euros. It is aimed at providing Dual Vocational

Training cycles and training for our employees.



TECH/JOB IMPULSE is present in digitalized training through our investee REWOOX

► **JOB IMPULSE**

The brain retains 90% of what has been experienced, so virtual reality applied to training, brings improvements to the traditional in a broad way. It allows professionals to experiment and repeat real situations, internalizing the procedures, always in a controlled and safe environment while drastically reduces learning times. It improves safety and efficiency in the multiple activities of the railway environment, (maintenance, manufacturing, safety, operation..) Our solutions monitor the evolution



of each student, obtaining complex KPIs (learning times, error graduation

and analysis) that until now were very difficult to obtain.

Imathia Construcción supports diversity and equal opportunity in Africa

► **IMATHIA**

At IMATHIA Construction we are about to inaugurate the newly Uganda Sleeper Factory in Lugazi. This factory will produce 208 sleepers/day necessary for the renovation of the Kampala-Namanve-Mukono section. In total there will be 47,180 prestressed sleepers of reinforced concrete and metric gauge for UIC-54 rail, whose manufacture is part of a project that undoubtedly constitutes a railway reference for the entire African continent. The staff working in the factory are mostly



locals and many women, which we are especially proud of, because they are the economic engine of their families. The inclusion of women in the world of work is

fundamental to economic and social development and an important step towards achieving gender equality and sustainable development in Africa.



Tenth edition of Alstom Spain's Young Talent programme

► **ALSTOM**

Alstom Spain, in collaboration with Fundación Universidad Empresa, has laun-

ched the 10th edition of the Alstom Talent Energy programme, an initiative of academic and professional excellence aimed at students in their final year of Bachelor's and Master's degrees and re-

cent graduates, through which more than 300 students have already passed. To train and promote young talent in the railway sector, the programme, which lasts between 6 and 12 months, offers post-graduate training scholarships and paid internships at Alstom centres in Madrid, Barcelona and Bizkaia.

With different academic profiles, the 20 new students of this edition have joined Alstom teams specialised in digital mobility (Madrid), maintenance and digital services (also in Madrid), rolling stock manufacturing (Santa Perpètua, Barcelona) and traction systems manufacturing (Trápaga, Bizkaia).

Project to improve the integration of women in Tanzanian schools

Among them, in 2023, the Foundation will finance 33 projects, focusing on initiatives to promote the employability of vulnerable groups, such as young people and women, as well as welfare and children's education programmes.

Last year, Javier Hinojal, Business Developer in Alstom Spain, proposed one of the selected initiatives. To proceed with his project, the Alstom Foundation has partnered with the NGO AMREF Salud Africa to reduce school dropout rates among young girls in the region of Mwanza, Tanzania.

In this region, 48% of girls miss school because of menstruation, which has a negative im-

EACH YEAR, THE ALSTOM FOUNDATION INVITES ALL EMPLOYEES TO SUBMIT PROPOSALS FOR CHARITABLE PROJECTS WHERE THE ORGANISATION CAN ACTIVELY COLLABORATE WITH FINANCIAL CONTRIBUTIONS AND LOGISTICAL SUPPORT.

pact on their school performance. As a result, only 74.6% of girls access secondary school compared to 84.5% of boys. The Alstom Foundation has provided funds to improve menstruation hygiene management and sanitation conditions for 3,035 girls in five public schools in Mwanza.

The project's main objectives include girl-friendly sanitation infrastructures, public acceptance of menstruation and improved school

capabilities for good practices. Work will be done on improving the availability, access and quality of sanitation infrastructures while respecting the specific needs of school girls for proper menstrual hygiene management.

It will also improve the acceptability of menstruation by the public, the school community's capacities, and its involvement in implementing proper menstrual hygiene management practices.



Equality, a complex and motivating challenge in the sector

COMSA Corporación is committed to placing people at the centre of its strategy, fostering diversity in the group's workplaces and promoting equal opportunities.

The infrastructure sector is characterised by being predominantly male, so that SDG5 Gender equality is a highly complex but motivating challenge for the company, through which to contribute to a more diverse society. Within the framework of its Diversity, Equality and Inclusion Policy, COMSA Corporación articulates Equality Plans, promoting a varied set of measures such as conciliation and prioritisation of female recruitment and promotion. Training is also provided on gender awareness and diversity awareness. Finally, as members of the Global Compact's Target Gender Equality, COMSA Corporación promotes the campaign 'Mujeres Referentes' (Women of Reference) through interviews with female employees of the group who serve as inspiration for the professionals of the future.



We are CERTIFER A global presence

For 25 years, CERTIFER provides certification, inspection, Audit and support in testing services in railway, guided transportation and beyond.

**21**
locations

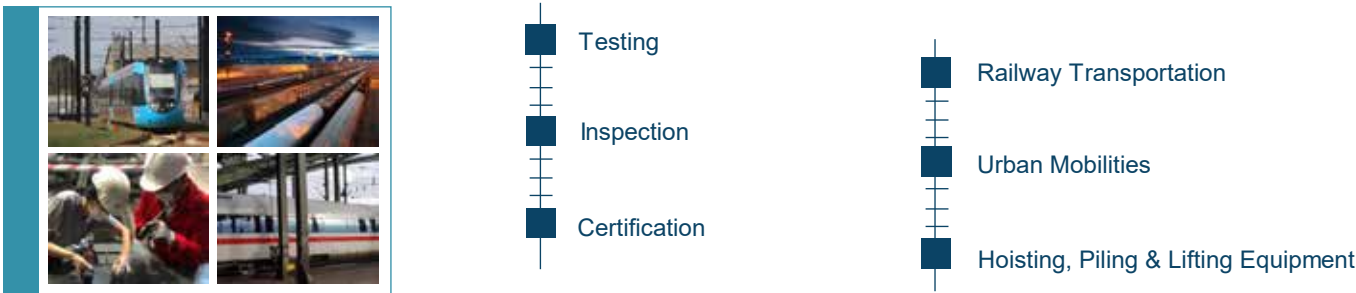
**50+**
countries with projects undertaken

**25 years**
of expertise in railway testing, inspection and certification

**650+**
experts from all railway sectors

**220+**
employees worldwide

**20**
languages spoken



Science and Technology for Women, a key programme for Thales Spain



The 5th edition of the Science and Technology for Women project promoted by the Association of Science and Technology Parks of Spain (APTE) culminated on 9 April with its closing event.

This initiative aims to make science, technology, engineering, mathematics and arts studies visible and promote them among secondary school students with the participation of 20 science and technology parks members of APTE and secondary schools from all over Spain.

Thales participates in Science and Technology for Women as a promoter of the initiative in the Leganés Tecnológico Scientific, Technological and Business Park together with the Carlos III University of Madrid, the Business Association of the Leganés Tecnológico Park and AEQ. One of its premises is located in this tech-

THIS PROGRAMME PLAYS A FUNDAMENTAL ROLE IN THALES SPAIN'S CORPORATE SOCIAL RESPONSIBILITY STRATEGY, IN ITS DIVERSITY PILLAR. IN THIS WAY, IT ENABLES IT TO COMPLY WITH SDG 5 ON GENDER EQUALITY.

nology park and, for this reason, it sponsors SDG workshops for high school students, organises visits to its headquarters, makes some of its female leaders visible and contributes testimonials from its employees to the programme. In 2023, it has also strengthened its participation by sponsoring the closing ceremony of the national programme.

The programme ran from November to April and included visits to the headquarters of the companies and the collaborating parks, practical workshops, presentations by women from the parks and their environ-

ment, a tour of the exhibitions "Women who changed the world" and "Women who change the world" - which already has 166 professionals from the parks' environment -, participation in a national competition on challenges focused on the SDGs and the delivery of illustrated guides with examples of career opportunities in STEAM studies.

This programme plays a fundamental role in Thales Spain's Corporate Social Responsibility strategy, in its diversity pillar. In this way, it enables it to comply with SDG 5 on Gender Equality.

CERTIFER has been awarded with an ECOVADIS silver medal for its ethics and environmental commitment

At CERTIFER Group, our commitment towards sustainability starts by prioritising the issues where our activities have a significant impact and which are the most important to our stakeholders. As a 3rd party organisation, ethics and fight against corruption are our main concern in order to maintain trust of our customers and authori-

ties worldwide. CERTIFER's business is built on our human resources: the expertise and dedication of our employees are the cornerstones of our reputation as a trusted partner in supporting our clients' projects.

Our CSR objectives therefore focus on these "material" topics: ethics, anti-corruption, safety, well-being and development of our employees' skills.

As a consequence of our commitment and actions towards ethics and environment, CERTIFER has been awarded with an ECOVADIS Silver medal in 2021. We will continue to integrate sustainability considerations into every aspect of our operations. By doing so, our everlasting goal is to participate in building a safer and a more sustainable world.



CHANGES AT THE HEART OF THE CITY

A complete range of switches and crossings for urban layouts

Siemens Mobility: Mobility solutions for a better tomorrow

At Siemens Mobility, sustainability is a fundamental part of our business and we are fully committed to the United Nations Sustainable Development Goals. We aim to support the development of zero-emission mobility through our products and solutions, the responsible management of our own operations, our expertise and leadership and our activities as a socially responsible company.

We manage these tasks through our global DEGREE (Decarbonization, Ethics, Governance, Resource Efficiency, Equity and Employability) framework, a 360-degree approach that involves all our stakeholders: from society to the planet, including our customers, suppliers, investors and employees.

To realize our commitment, we work closely with our customers and use our market knowledge to offer innovative solutions that form the backbone of any sustainable mobility infrastructure.

Thanks to our comprehensive portfolio, we offer end-to-end solutions for freight and passenger transport, within and between cities. In addition, we can reduce operating costs with our rolling stock portfolio, which offers a high level of energy efficiency, supported by integrated lifecycle management and intelligent rail infrastructure.

A clear example is our Velaro E high-speed train, which covers the 625 km route between Madrid and Barcelona in less than 2.5 hours and has been delivering a reliable and safe service to passengers for years. With it, we managed to increase the number of passengers on

THE VELARO E HIGH-SPEED TRAIN, WHICH COVERS THE 625 KM ROUTE BETWEEN MADRID AND BARCELONA IN LESS THAN 2.5 HOURS AND HAS BEEN DELIVERING A RELIABLE AND SAFE SERVICE TO PASSENGERS FOR YEARS.

the train by more than 30%, guaranteeing 100% system availability thanks to our predictive maintenance solution: only 1 out of every 3,000 journeys suffered a significant delay in 3 years. Overall, we managed to reduce greenhouse gas

emissions between the two metropolitan areas by more than 29,000 tons of CO2 equivalent per year.

More information at:
www.siemens.es/mobility-sostenibilidad



First Metaverse of the railway sector

This new tool allows to explore railway products and solutions through interactive simulations and fleet management systems.

The virtual space consists in a more than 4 km² city where trains, metros, locomotives, trams, and mono-rails run in a detailed 3D version of the real solutions. All these solutions can be approached at a high detail level to analyse their parts and components, capabilities and functionalities. In addition to the rolling stock display, it is possible to watch them move around the city and adjust their operation through the integrated fleet management systems.

The complexity of the demonstrations that can be displayed is also adjustable depending on whom they are addressing, emphasising the different levels of detail and functionalities.

The new metaverse provides multiple functions for internal and external audiences. For employees, it is a tool to learn more about the different technologies available at a level of detail and interaction not

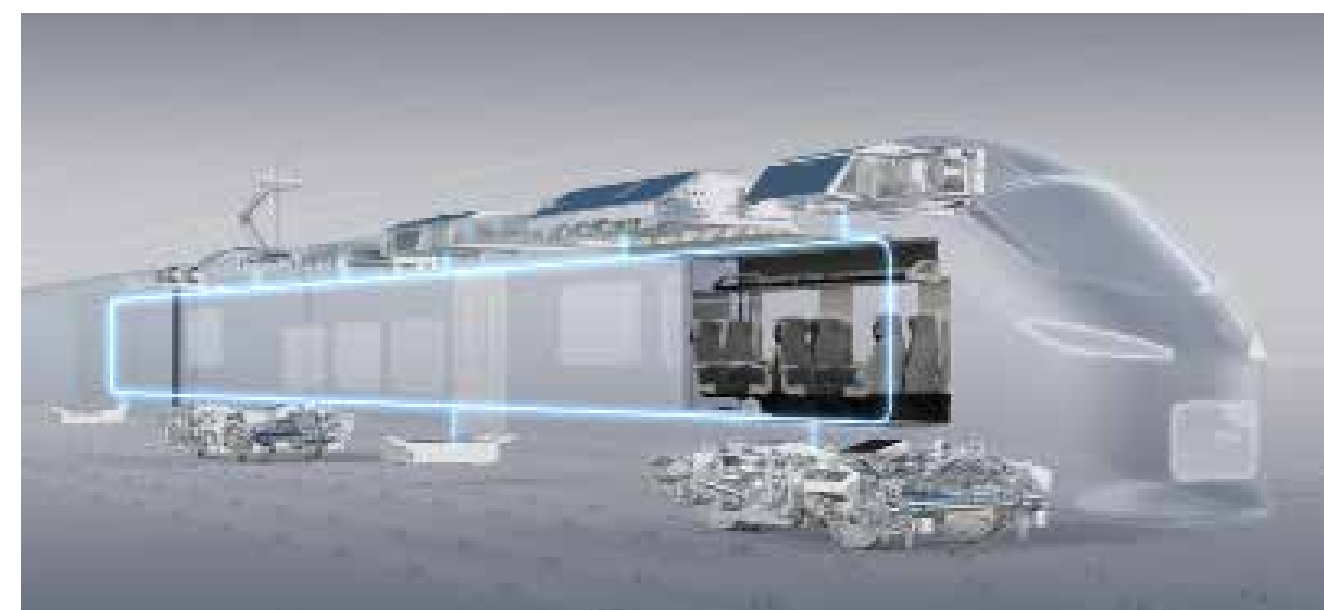
ALSTOM HAS ENTERED THE METAVERSE WITH ITS OWN VIRTUAL REALITY ENVIRONMENT, THE FIRST IN THE RAIL INDUSTRY



experienced before. In addition, it also facilitates knowledge transfer and collaboration between teams around the world for the development of new solutions.

This new tool provides a complete overview of sustainable and smart

mobility solutions to external audiences: operators, suppliers, partners or the general public. It also provides the ability to showcase digital mobility solutions that may not be as visual as rolling stock or components and help understand their role in railway operations.





New Leadmind functionality: optimising train energy efficiency for a more sustainable mobility

The rise of energy costs has made us more aware that a more rational and efficient use of energy is necessary. Although the transport sector is the most energy-efficient mode of transport compared to road or air transport, the goal of making fleets more energy efficient and mitigating emissions is the order of the day.

One of the solutions for detecting inefficiencies and potential anomalies in the energy consumption of rail fleets is the integration of advanced analytics. LeadMind facilitates the definition of energy saving initiatives thanks to a daily monitoring, management and control for a more sustainable mobility. With it, the energy expenditure of each train is known, we quantify the benefit of the potential initiatives and evaluate associated economic savings. LeadMind's Energy functionality provide insights that respond to diverse needs.

CAF EXPANDS ITS SCOPE TO MAXIMIZE THE ENERGY EFFICIENCY OF FLEETS.

Management, control, and analysis: An overview of energy consumption that gives users the possibility to analyze consumption behaviors and to identify the most effective driving and routes.

Driving strategies: The driving mode directly affects energy consumption. LeadMind allow users to locate the most efficient driving profiles for each section based on real driving data. In the results, there may be differences of up to 15% between the most and least efficient. Always ensuring safety first and fluid driving for passenger comfort, it allows users to analyze and visualize potential savings. Catenary receptivity: This functionality enables control over all the

energy that is burned in the resistances and quantifying it by sections. Therefore, savings can be estimated for storing this energy or not.

Out of service train energy: This last option analyses the consumption of trains not in service, in the workshop or circulating without passengers, quantifying how much and when they consume that energy.

On this path towards a greener mobility, LeadMind is a great support by providing information on the energy expenditure of the UTs, quantifying the benefit of energy saving initiatives and saving up to 10% of energy and hundreds of tons of CO emissions.

Structural backfilling of reinforced concrete sleepers with Geoplus® resin injections

With the transit of trains, vibrations and vertical fluctuations of the sleepers were produced, so it was necessary to offer a solution to this problem.

The intervention was necessary to restore the contact of a total of 81 prefabricated reinforced concrete sleepers with the underlying concrete slab. When the railway was unloaded, the block was in the highest position with respect to the concrete slab, while when the train passed over the blocks were lowered to the slab by more than 10 mm.

In the first phases of the injection, the water present between the sleeper itself and the slab in the ground was expelled.

After grouting, the sleeper was observed to move between 0,1 and

URETEK CARRIED OUT AN INTERVENTION FOR THE STRUCTURAL BACKFILLING OF REINFORCED CONCRETE SLEEPERS AT A RAILWAY STATION IN VENICE (ITALY).



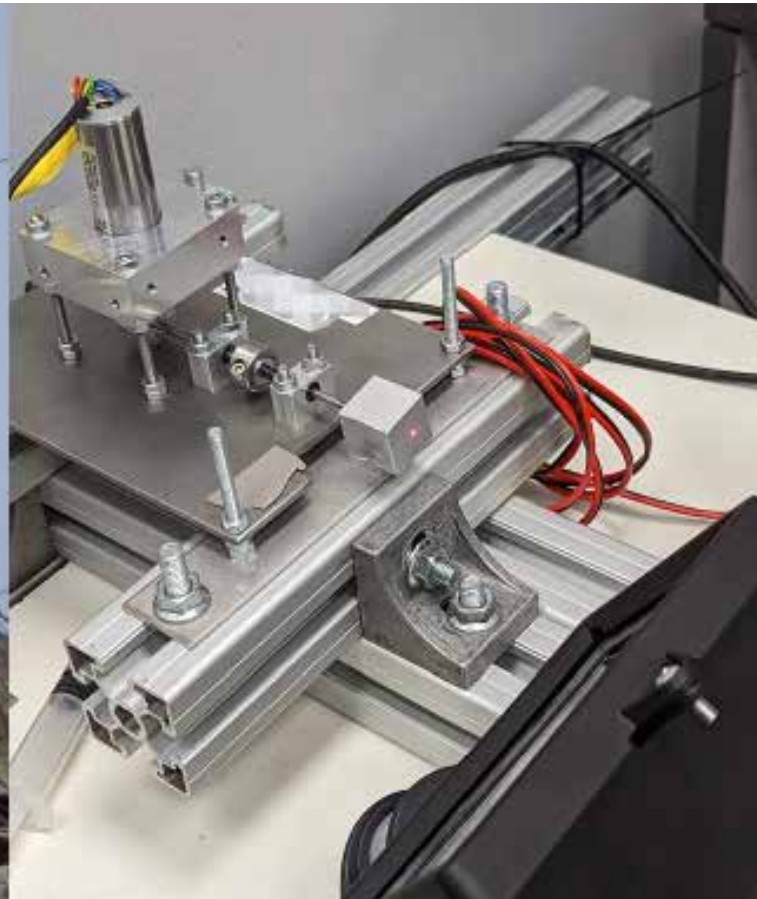
0,2 mm during the transit of a convoy. Before the intervention, the movements were up to 10 mm.

During the resin injection operations, a centesimal comparator was used to check the behavior of the

structure with respect to vertical displacements. In addition, the entire procedure was monitored with a high-precision laser.

More information
<https://hubs.li/Q01JbCn50>





New generation Dynamic Pantograph Behaviour sensor

This new detector allows, as a world-first feature, the simultaneous measurement of contact wire displacement in the vertical and transverse axes at any commercial speed, in straight- or curved-line sections, with a minimally invasive installation and excellent independence from climatic conditions.

The interaction between pantograph and catenary is subject to a delicate electrical and mechanical balance. On the electrical side, a continuous and high-quality power transmission must be guaranteed. Mechanically, the actuating force of the pantographs must be kept to the minimum necessary to improve the durability of the various components. Beyond compliance

TELICE IS DEVELOPING A NEW GENERATION DYNAMIC PANTOGRAPH BEHAVIOUR SENSOR (DPB) BASED ON PATENTED TIME-OF-FLIGHT LASER TECHNOLOGY.

with the EN 50317:2012 standard, monitoring the displacement of the contact wire as pantographs pass allows for improved maintenance and the reduction of dewirement events, which force traffic to stop and cause considerable economic losses.

Up to now, DPB systems have been based on extensometric or machine vision technologies. However, these

technologies can be overly invasive or present durability and reliability concerns.

In any case, their cost makes it difficult to extend them to all types of railway lines beyond high-speed routes. With this new development, TELICE aims to generalise this sensor type to ensure safe and compliant operations to all kinds of flexible overhead contact lines.

Cybersecurity in RAIL sector

Security in the railway sector is essential to ensure the safety of both passengers and onboard staff. Nowadays, cybersecurity is one of the determining factors to guarantee that the train control system does not suffer external attacks and therefore cause damage to people and materials.

Teldat has developed state-of-the-art cybersecurity solutions (NGFW) with a particular focus on the railway environment to favor the understanding and prevention of events involved in cyber-attacks.

The use of AI has allowed Teldat to develop an XDR (Extended Detection and Response) model to improve the average time required to detect Zero Day vulnerabilities and therefore have a more efficient response to alert and

TEL DAT HAS DEVELOPED STATE-OF-THE-ART CYBERSECURITY SOLUTIONS (NGFW) WITH A PARTICULAR FOCUS ON THE RAILWAY ENVIRONMENT TO FAVOR THE UNDERSTANDING AND PREVENTION OF EVENTS INVOLVED IN CYBER-ATTACKS.

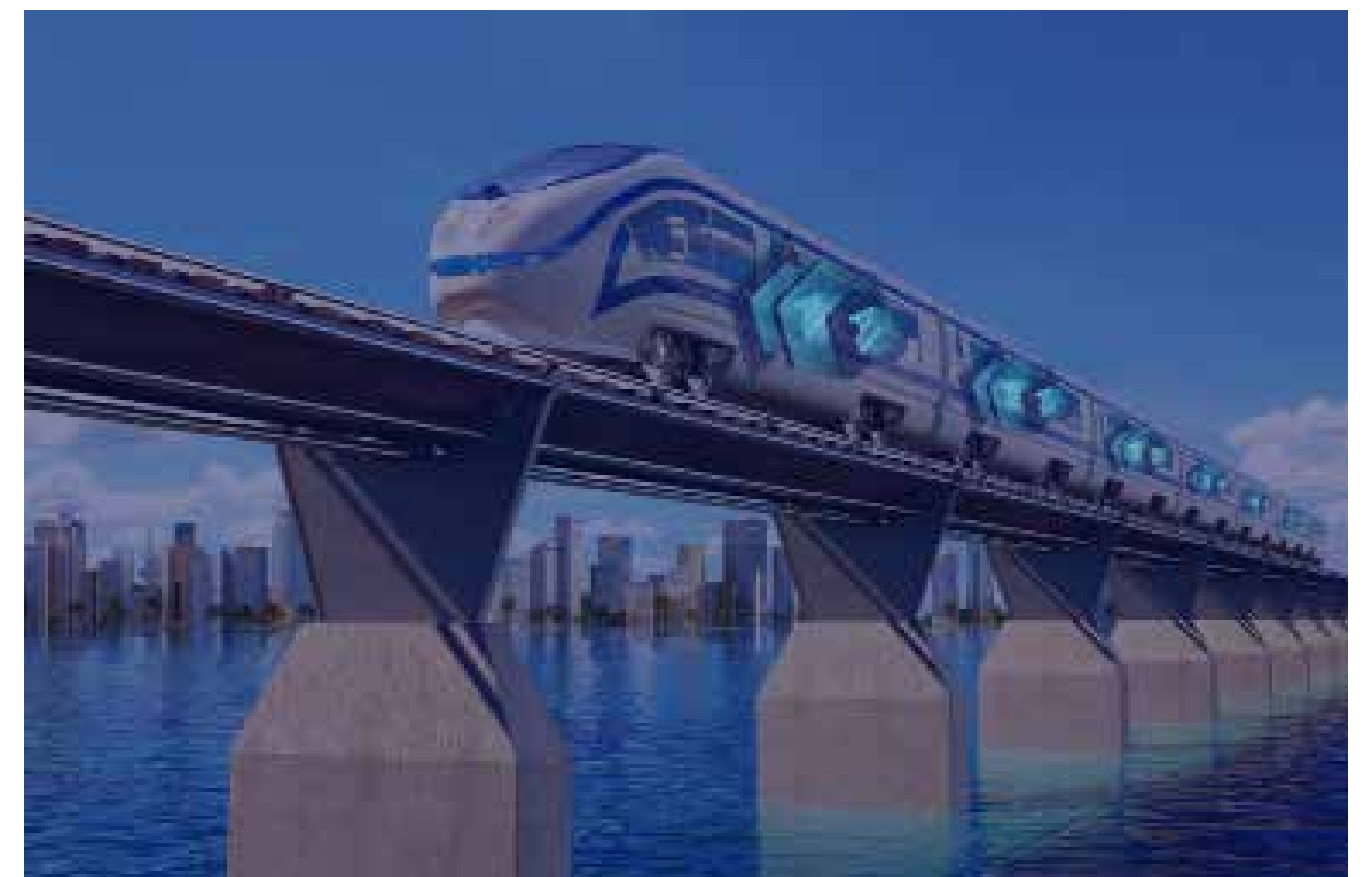
react correctly to these threats. XDR manages to obtain information from the network through two Teldat tools, Be.Analyzer and Be.SAFE.

The first makes it possible to monitor and analyze physical/virtual networks and therefore memorize and diagnose user activity, actions and protocols used for visualization purposes.

The second introduces an active element in the network that protects it and prevents intrusion (IDS-

IPS) by intercepting malicious traffic through configurable policies, traffic inspections, SSL decryption, etc.

Teldat also presents CARTA (Continuous Adaptive Risk and Trust Assessment), a cybersecurity solution based on XDR technology to which it adds TTP (Tactics, Techniques and Procedures) knowledge to the AI algorithms, allowing threats to be identified and actions to be corrected by dynamically reconfiguring the network to minimize the potential impact.



Transparent technology in communication with travelers

The railway industry relies on conventional devices for content of interest and utility for the user. In response to the need to innovate this conventional content emission systems in transportation,

Screensor Tech develops innovative solutions to improve the emission of informative and advertising content in transportation, while improving the user experience. Screensor's proposal is based on the integration of transparent displays in previously unused spaces. This is achieved thanks to T-OLED technology, which allows the screens to become transparent so that advertising and informative content can be integrated naturally without obstructing the view behind them. Users can see through the screen while at the same time seeing the content that is being displayed on it. This technology makes Screensor an innovative and functional solution

SCREENSOR TECH USES THE LATEST DISPLAY TECHNOLOGY (TRANSPARENT OLED) TO IMPROVE THE USER EXPERIENCE IN TRANSPORTATION.

for railway transportation and other environments where integration and aesthetics are important. Screensor offers solutions for vehicle interiors, where transparent screens are integrated into windows, turning them into real-time digital screens. This unique technology allows the screen surface to have clarity like conventional glass, resulting in an ideal solution for subway, train, bus, and airport interiors.

In addition, it offers offboard solutions that allow the installation of these displays in locations where it is not possible with conventional content emission systems. For

example, platform doors, glass walls, and other areas of stations and their surroundings. This digital signage system, designed with the latest display technology, are thin, lightweight, and designed to withstand harsh environments with minimal maintenance.

Screensor is revolutionizing the way users interact with information in public and private transportation. Its innovative solutions are presented as an alternative to improve content supports in railway transportation, integrating them into the environment and improving the user experience.



Development of the FRMCS (Future Railway Mobile Communication System) on regional railways

These are R2DATO, focused on the digitalisation and technological automation of railway operations, and FutuRE, which aims to guarantee the long-term viability of this means of transport by reducing the total cost of ownership (TCO), among other aspects.

The R2DATO (Rail to Digital and Automated Train Operations) project adopts a different approach to meet the required increase in train capacity: while preserving the robustness and reliability of the railway system, it proposes the implementation of current and future innovations in digital technology and automation for developed operations, so that infrastructure

COMSA CORPORACIÓN PARTICIPATES IN TWO EUROPEAN INNOVATION PROGRAMMES WHOSE OBJECTIVE IS TO CONTRIBUTE TO THE DEVELOPMENT OF THE FRMCS (FUTURE RAILWAY MOBILE COMMUNICATION SYSTEM) ON REGIONAL RAILWAYS.

managers and railway companies can implement them in a timely and cost-effective way. FutuRE, on the other hand, is committed to revitalising regional railway lines to make them economically, socially and environmentally sustainable to meet the current needs and challenges of passengers. Its main objective is the reduction of TCO, as well as ensuring high service quality and operational reliability. Both projects are part of the first call of Europe's Rail Joint Undertaking, an initiative of the European

Commission to improve the sustainability of Europe's railways and build a more attractive and resilient mode of transport.



New tools for on-board video surveillance

Within the ITS systems for rail transport, it is possible to distinguish those related to critical services (safe movement of the train) and those related to non-critical operational services or assistance to exploitation. The latter include on-board CCTV video surveillance systems.

GMV has developed a back-office tool for managing on-board CCTV systems from the control center, as an evolution of the DV-REC ® product present in on-board systems in train, metro and tram throughout the world. It is a cloud-native solution based on microservices. This architec-

GMV HAS DEVELOPED A BACK-OFFICE TOOL FOR MANAGING ON-BOARD CCTV SYSTEMS FROM THE CONTROL CENTER, AS AN EVOLUTION OF THE DV-REC ® PRODUCT PRESENT IN ON-BOARD SYSTEMS IN TRAIN, METRO AND TRAM THROUGHOUT THE WORLD.

ture ensures high availability, scalability, resilience, and load balancing.

The web interface guarantees access from anywhere through a browser, even from mobile devices, with full flexibility of the user space and a professional design following

the Material Design lines. The tool allows various functions such as real-time video viewing (streaming), downloading and viewing of recorded videos, CCTV system status monitoring on board trains, and configuration of system operating parameters.



ENGINEERING, CONSULTANCY AND CERTIFICATION

Projects and infrastructure technical assistances, superstructure, signalling, communications and ticketing

- ▲ ACYGS Sales Management, S.L.
- ▲ Aimen Centro Tecnológico
- ▲ Ardanuy Ingeniería, S.A.
- ▲ Asea Brown Boveri, S.A.
- ▲ Barbara IoT, S.L.
- ▲ Caf Signalling, S.L.
- ▲ Caf Turnkey & Engineering, S.L.
- ▲ Calmell, S.A.
- ▲ CEIT
- ▲ Create Human Resources
- ▲ Citef (Fundación para el fomento de la innovación industrial)
- ▲ Dsaf-Dinámicas De Seguridad, S.L.
- ▲ Elecnor Deimos
- ▲ Mieres Rail, S.A.
- ▲ Endavamientos y Señalización Ferroviaria ENYSE, S.A.U.
- ▲ HaslerRail (Secheron Hasler Group)
- ▲ Ibérica Tecnología en Sistemas de Seguridad Ferroviarios, S.L. (ITSS)
- ▲ ICF - Ingeniería y Control Ferroviario
- ▲ Idom-Engineering, Consulting, Architecture
- ▲ Ikusi, S.L.U.
- ▲ Indra Sistemas, S.A.
- ▲ Ineco-Ingeniería y Economía del Transporte, S.A.
- ▲ Ingerop T3 S.L.U.
- ▲ Inse Rail, S.L.
- ▲ Luznor Desarrollos Electrónicos, S.L.
- ▲ Segula Technologies España, S.A.U.
- ▲ Sener Ingeniería y Sistemas, S.A.
- ▲ SGS Group Spain
- ▲ Tecnival, S.A.
- ▲ Teldat, S.A.
- ▲ Teltronic
- ▲ Tekniker
- ▲ Thales España Grp, S.A.U.
- ▲ TPF Getinsa Euroestudios, S.L.
- ▲ Trigo Group
- ▲ Typsa - Técnica Y Proyectos, S.A.
- ▲ Screenshot Tech
- ▲ Vicomtech
- ▲ WSP Spain-Apia, S.A.

Systems, environmental, financial management and IT consulting

- ▲ Aimen Centro Tecnológico
- ▲ Aquafrisch, S.L.
- ▲ Ardanuy Ingeniería, S.A.
- ▲ Asea Brown Boveri, S.A.
- ▲ Citef (Fundación para el fomento de la innovación industrial)
- ▲ Elecnor Deimos
- ▲ Idom-Engineering, Consulting, Architecture
- ▲ Ineco-Ingeniería y Economía del Transporte, S.A.
- ▲ Ingerop T3 S.L.U.
- ▲ Mainrail, S.L.
- ▲ Segula Technologies España, S.A.U.
- ▲ Sener Ingeniería y Sistemas, S.A.
- ▲ SGS Group Spain
- ▲ SQS (Software Quality Systems, S.A.)
- ▲ TPF Getinsa Euroestudios, S.L.
- ▲ Vicomtech
- ▲ WSP Spain-Apia, S.A.

Technical Specifications Drafting and supervision of rolling stock manufacturing

- ▲ Aimen Centro Tecnológico
- ▲ Ardanuy Ingeniería, S.A.

- ▲ Asea Brown Boveri, S.A.
- ▲ Bureau Veritas Inspección y Testing (Grupo Bureau Veritas)
- ▲ Caf Turnkey & Engineering, S.L.
- ▲ Hispacold, S.A.
- ▲ Idom-Engineering, Consulting, Architecture
- ▲ Ineco-Ingeniería y Economía del Transporte, S.A.
- ▲ Ingerop T3 S.L.U.
- ▲ Segula Technologies España, S.A.U.
- ▲ Sener Ingeniería y Sistemas, S.A.
- ▲ SGS Group Spain
- ▲ Trigo Group
- ▲ WSP Spain-Apia, S.A.

Work supervision

- ▲ Aimen Centro Tecnológico
- ▲ Ardanuy Ingeniería, S.A.
- ▲ Asea Brown Boveri, S.A.
- ▲ Caf Turnkey & Engineering, S.L.
- ▲ Idom-Engineering, Consulting, Architecture
- ▲ Indra Sistemas, S.A.
- ▲ Ineco-Ingeniería y Economía del Transporte, S.A.
- ▲ Ingerop T3 S.L.U.
- ▲ Inse Rail, S.L.
- ▲ Job Impulse España
- ▲ Segula Technologies España, S.A.U.
- ▲ Sener Ingeniería y Sistemas, S.A.
- ▲ SGS Group Spain
- ▲ Sice Tecnología y Sistemas
- ▲ Tpf Getinsa Euroestudios, S.L.
- ▲ Typsa - Técnica y Proyectos, S.A.
- ▲ WSP Spain-Apia, S.A.

Product and process certifications

- ▲ ACYGS Sales Management, S.L.
- ▲ Aimen Centro Tecnológico
- ▲ Applus+ Laboratories
- ▲ Ardanuy Ingeniería, S.A.
- ▲ Bureau Veritas Inspección y Testing (Grupo Bureau Veritas)
- ▲ Certifer Belgorail, S.A. Sucursal en España
- ▲ Cetest, S.L.
- ▲ Citef (Fundación para el fomento de la innovación industrial)
- ▲ Dsaf-Dinámicas De Seguridad, S.L.
- ▲ Idom-Engineering, Consulting, Architecture
- ▲ Ineco-Ingeniería y Economía del Transporte, S.A.
- ▲ Sener Ingeniería y Sistemas, S.A.
- ▲ SGS Group Spain
- ▲ SQS (Software Quality Systems, S.A.)
- ▲ Trigo Group
- ▲ WSP Spain-Apia, S.A.

Drafting of operation and maintenance (O&M) plans and transport and demand studies

- ▲ ACYGS Sales Management, S.L.
- ▲ Aimen Centro Tecnológico
- ▲ Ardanuy Ingeniería, S.A.
- ▲ Caf Turnkey & Engineering, S.L.
- ▲ Citef (Fundación para el fomento de la innovación industrial)
- ▲ Mieres Rail, S.A.
- ▲ Idom-Engineering, Consulting, Architecture
- ▲ Ineco-Ingeniería y Economía del Transporte, S.A.
- ▲ Ingerop T3 S.L.U.
- ▲ Segula Technologies España, S.A.U.
- ▲ SGS Group Spain
- ▲ Tekniker
- ▲ Tpf Getinsa Euroestudios, S.L.
- ▲ Typsa - Técnica y Proyectos, S.A.

Training and simulations tools

- ▲ Aimen Centro Tecnológico

- ▲ Applus+ Laboratories
- ▲ Asea Brown Boveri, S.A.
- ▲ Create Human Resources
- ▲ HaslerRail (Secheron Hasler Group)
- ▲ Ingerop T3 S.L.U.
- ▲ Job Impulse España
- ▲ Lander
- ▲ Segula Technologies España, S.A.U.
- ▲ Tekniker
- ▲ WSP Spain-Apia, S.A.

INFRASTRUCTURE AND SUPERSTRUCTURE

Civil works (platforms, stations, depots)

- ▲ Aimen Centro Tecnológico
- ▲ Azvi, S.A.
- ▲ Barbara IoT, S.L.
- ▲ Caf Turnkey & Engineering, S.L.
- ▲ Comsa Corporación
- ▲ Elecnor SyP
- ▲ Funor, S.A.
- ▲ ICF - Ingeniería y Control Ferroviario
- ▲ Imathia Construcción, S.L.
- ▲ Inse Rail, S.L.
- ▲ Lantania
- ▲ Luznor Desarrollos Electrónicos, S.L.
- ▲ Sener Ingeniería y Sistemas, S.A.
- ▲ Uretek Soluciones Innovadoras, S.L.U.

Electrification

- ▲ Alstom Transporte, S.A.
- ▲ Azvi, S.A.
- ▲ Asea Brown Boveri, S.A.
- ▲ Caf Turnkey & Engineering, S.L.
- ▲ Comsa Corporación
- ▲ Cunext
- ▲ Elecnor SyP
- ▲ HaslerRail (Secheron Hasler Group)
- ▲ ICF - Ingeniería y Control Ferroviario
- ▲ Ingeteam Power Technology, S.A.
- ▲ Inse Rail, S.L.
- ▲ La Farga Yourcoppersolutions, S.A.
- ▲ Lantania
- ▲ Telice, S.A.
- ▲ Valdepinto, S.L.

Infrastructure and superstructure equipment and components

- ▲ Aimen Centro Tecnológico
- ▲ Alstom Transporte, S.A.
- ▲ Amurrio Ferrocarril y Equipos, S.A.
- ▲ Applus+ Laboratories
- ▲ Arcelormittal España, S.A.
- ▲ Artech (Electrotécnica Artech Smart Grid, S.L.)
- ▲ Asea Brown Boveri, S.A.
- ▲ Azvi, S.A.
- ▲ Cables de Comunicaciones Zaragoza, S.L.
- ▲ Caf Turnkey & Engineering, S.L.
- ▲ CEIT
- ▲ Comsa Corporación
- ▲ Create Human Resources
- ▲ Cunext
- ▲ Dsaf-Dinámicas De Seguridad, S.L.
- ▲ Elecnor Deimos
- ▲ ICF - Ingeniería y Control Ferroviario
- ▲ Mieres Rail, S.A.
- ▲ Flexix, S.A.
- ▲ Funor, S.A.
- ▲ Ikusi, S.L.U.
- ▲ Inse Rail, S.L.

MEMBERS DIRECTORY

- Ladicim
- Lantania
- Llalco
- Precon - Prefabricaciones y Contratas, S.A.U.
- Pretensados del Norte, S.L.
- Screensor Tech
- Talleres Alegría, S.A.
- Talleres Zitón
- Tecnival, S.A.
- Telice, S.A.

Track assembly

- Alstom Transporte, S.A.
- Amurrio Ferrocarril y Equipos, S.A.
- Azvi, S.A.
- Caf Turnkey & Engineering, S.L.
- Comsa Corporación
- Create Human Resources
- ICF - Ingeniería y Control Ferroviario
- Imathia Construcción SL
- Inse Rail, S.L..
- Lantania
- Pretensados del Norte, S.L.
- Talleres Alegría, S.A.
- voestalpine Railway Systems JEZ, S..L.

TRAFFIC CONTROL AND SIGNALLING SYSTEMS, COMMUNICATION, PASSENGER INFORMATION AND TICKETING

Traffic control and signalling (safety)

- Alstom Transporte, S.A
- Cables de Comunicaciones Zaragoza, S.L.
- Caf Signalling, S.L.
- Caf Turnkey & Engineering, S.L.
- CEIT
- Create Human Resources
- Enclavamientos y Señalización Ferroviaria ENYSE, S.A.U.
- Electrans, S.A.
- HaslerRail (Secheron Hasler Group)
- ICF - Ingeniería y Control Ferroviario
- Ikusi, S.L.U.
- Indra Sistemas, S.A.
- Inse Rail, S.L..
- Luznor Desarrollos Electrónicos, S.L.
- Revenga Ingenieros, S.A.
- Segula Technologies España, S.A.U.
- Sice Tecnología y Sistemas
- Siemens Rail Automation, S.A.U.
- Tecnival S.A
- Teltronic, S.A.
- Telice, S.A.
- Thales España Grp, S.A.U.
- voestalpine Railway Systems JEZ SL

Protection (security) and infrastructure monitoring

- Alstom Transporte, S.A.
- Azvi, S.A.
- Asea Brown Boveri, S.A.
- Barbara IoT, S.L.
- Caf Turnkey & Engineering, S.L.
- Comsa Corporación
- Create Human Resources
- Dsaf-Dinamicas De Seguridad, S.L.
- HaslerRail (Secheron Hasler Group)
- ICF - Ingeniería y Control Ferroviario
- Indra Sistemas, S.A.
- Inse Rail, S.L..

- Mainrail, S.L.
- Segula Technologies España, S.A.U.
- Siemens Rail Automation, S.A.U.
- Telice, S.A.
- Thales España Grp, S.A.U.
- Vicomtech

Systems and equipment for collection, ticketing and access control

- Asea Brown Boveri, S.A.
- Caf Turnkey & Engineering, S.L.
- Calmell, S.A.
- Comsa Corporación
- Gmv Sistemas, S.A.U.
- Ikusi, S.L.U
- Indra Sistemas, S.A.
- Inse Rail, S.L.
- Revenga Ingenieros S.A:
- Sener Ingeniería y Sistemas, S.A.
- Sice Tecnología y Sistemas
- Siemens Rail Automation, S.A.U.
- Telice, S.A.
- Vicomtech

Communications

- Azvi, S.A.
- Cables de Comunicaciones Zaragoza, S.L.
- Caf Turnkey & Engineering, S.L.
- CEIT
- Cellnex Telecom, S.A.
- Comsa Corporación
- Elecnor SyP
- Enclavamientos y Señalización Ferroviaria ENYSE, S.A.U.
- Gmv Sistemas, S.A.U.
- HaslerRail (Secheron Hasler Group)
- ICF - Ingeniería y Control Ferroviario
- Ikusi, S.L.U
- Indra Sistemas, S.A.
- Inse Rail, S.L.
- Revenga Ingenieros S.A.
- Screensor Tech
- Sener Ingeniería y Sistemas, S.A.
- Sice Tecnología y Sistemas
- Siemens Rail Automation, S.A.U.
- Teldat, S.A.
- Teltronic, S.A.U.
- Telice, S.A.
- Thales España Grp, S.A.U.
- Vicomtech

Passenger information and on-board entertainment systems

- Alstom Transporte, S.A.
- Caf Turnkey & Engineering, S.L.
- Elecnor Deimos
- Elecnor SyP
- Gmv Sistemas, S.A.U.
- Icon Multimedia, S.L.
- Indra Sistemas, S.A.
- Inse Rail, S.L.
- Ikusi, S.L.U
- Revenga Ingenieros, S.A.
- Screensor Tech
- Sice Tecnología y Sistemas, S.A.
- Siemens Rail Automation, S.A.U.
- Tecnival, S.A.
- Teldat, S.A.
- Telice, S.A.
- Vicomtech

ROLLING STOCK MANUFACTURERS High Speed trains (over than 250km/H) M.R para tráfico de pasajeros alta velocidad (más de 250km/H)

- Alstom Transporte, S.A.
- Caf-Construcciones y Auxiliar de Ferrocarriles, S.A.
- Patentes Talgo, S.L.
- Siemens Rail Automation, S.A.U.
- Zeleros

Long distance and regional passengers trains (up to 250km/H)

- Alstom Transporte, S.A.
- Caf-Construcciones y Auxiliar de Ferrocarriles, S.A.
- Patentes Talgo, S.L.
- Siemens Rail Automation, S.A.U.
- Stadler Rail Valencia, S.A.U.

Urban and suburban trains

- Alstom Transporte, S.A.
- Caf-Construcciones y Auxiliar de Ferrocarriles, S.A.
- Patentes Talgo, S.L.
- Siemens Rail Automation, S.A.U.
- Stadler Rail Valencia, S.A.U.

Freight wagons and Locomotives

- Alstom Transporte, S.A.
- Caf-Construcciones y Auxiliar de Ferrocarriles, S.A.
- Patentes Talgo, S.L.
- Siemens Rail Automation, S.A.U.
- Stadler Rail Valencia, S.A.U.
- Talleres Alegría, S.A.
- Zeleros

Vehicles for infrastructure maintenance

- Alstom Transporte, S.A.
- Caf-Construcciones y Auxiliar de Ferrocarriles, S.A.
- Patentes Talgo, S.L.
- Siemens Rail Automation, S.A.U.
- Talleres Alegría, S.A.

MANUFACTURERS OF VEHICLE COMPONENTS, AUXILIARY EQUIPMENT AND SYSTEMS

Traction and propulsion components

- Aimen Centro Tecnológico
- Alstom Transporte, S.A.
- Ariño Douglass, S.A..
- Artech (Electrotécnica Artech Smart Grid, S.L.)
- Asea Brown Boveri, S.A.
- Caf Power & Automation, S.L.U.
- Flexix, S.A.
- Forging Steel Products, S.L.
- HaslerRail (Secheron Hasler Group)
- Ingeniería Viesca, S.L.
- Ingeteam Power Technology, S.A.
- Mgn Transformaciones del Caucho, S.A.
- Siemens Rail Automation, S.A.U.
- Trafag España, S.L.
- Zeleros

Control, auxiliary and diagnostic systems

- Aimen Centro Tecnológico
- Alstom Transporte, S.A.
- Artech (Electrotécnica Artech Smart Grid, S.L.)
- Asea Brown Boveri, S.A.
- Barbara IoT, S.L.
- Caf Power & Automation, S.L.U.
- CEIT

- Endavamientos y Señalización Ferroviaria ENYSE, S.A.U.
- Faiveley Transport Iberica (Wabtec Corporation)
- Gmv Sistemas, S.A.U.
- HaslerRail (Secheron Hasler Group)
- Hispacold S.A.
- Ibérica Tecnología en Sistemas de Seguridad Ferroviarios, S.L. (ITSS)
- Indra Sistemas, S.A.
- Ingeniería Viesca, S.L.
- Ingeteam Power Technology, S.A.
- NGRT, S.L.
- NRF España, S.A.
- Stadler Rail Valencia, S.A.U.
- Teldat, S.A.
- Trafag España, S.L.
- Zeleros

Assembly equipment

- Agui, S.A.
- Aimen Centro Tecnológico
- Artech (Electrotécnica Artech Smart Grid, S.L.)
- Asea Brown Boveri, S.A.
- Barbara IoT, S.L.
- Danobat, S. COOP.
- Faiveley Transport Iberica (Wabtec Corporation)
- Forging Steel Products, S.L.
- Fundiciones del Estanda, S.A.
- Funor, S.A.
- Gurutzpe Turning Solutions S.L.
- Trafag España, S.L.

Mechanical components

- Agui, S.A.
- Alstom Transporte, S.A.
- Caf-Construcciones y Auxiliar de Ferrocarriles, S.A.
- Faiveley Transport Iberica (Wabtec Corporation)
- Flexix, S.A.
- Forging Steel Products, S.L.
- Funor, S.A.
- Fundiciones del Estanda, S.A.
- Hispacold, S.A.
- Metalocauchó, S.L.
- Mgn Transformaciones del Caucho, S.A.
- Stadler Rail Valencia, S.A.U.
- Talleres Alegría, S.A.
- Trafag España, S.L.
- ULMA Forja S.Coop.
- Vogelsang, S.L.U.
- Zeleros

Interiors

- Agui, S.A.
- Ariño Duglass, S.A.
- Colway Ferroviaria, S.L.
- Flexix, S.A.
- Hexis Graphics España
- Satys Interiors Railway Spain, S.A.
- Screensor Tech
- Trafag España, S.L.

Safety

- Agui, S.A.
- Alstom Transporte, S.A.
- Artech (Electrotécnica Artech Smart Grid, S.L.)
- Barbara IoT, S.L.
- Dsaf - Dinamicas de Seguridad, S.L.
- Enclavamientos y Señalización Ferroviaria ENYSE, S.A.U.
- Faiveley Transport Iberica (Wabtec Corporation)

- HaslerRail (Secheron Hasler Group)
- Hexis Graphics España
- Indra Sistemas, S.A.
- Luznor Desarrollos Electrónicos, S.L.
- Trafag España, S.L.

MAINTENANCE: EQUIPMENT, MAINTENANCE SERVICES AND REFURBISHMENT

Infrastructure and superstructure maintenance

- Aimen Centro Tecnológico
- Alstom Transporte, S.A.
- Amurrio Ferrocarril y Equipos, S.A.
- Azvi, S.A.
- Barbara IoT, S.L.
- Caf Turnkey & Engineering, S.L.
- CEIT
- Comsa Corporación
- Create Human Resources
- Elecnor SyP
- ICF - Ingeniería y Control Ferroviario
- Imathia Construcción, S.L.
- Mainrail, S.L.
- Mieres Rail, S.A.
- Inse Rail, S.L.
- Job Impulse España
- Ladicim
- Smart Motors
- Trafag España, S.L.
- Uretex Soluciones Innovadoras, S.L.U.

Rolling Stock maintenance

- Aimen Centro Tecnológico
- Alstom Transporte, S.A.
- Artech (Electrotécnica Artech Smart Grid, S.L.)
- Azvi, S.A
- Barbara IoT, S.L.
- Caf - Construcciones y Auxiliar de Ferrocarriles, S.A.
- Caf Turnkey & Engineering, S.L.
- Comsa Corporación
- Create Human Resources
- Gurutzpe Turning Solutions S.L.
- Grupo Trigo
- Hexis Graphics España
- Hispacold, S.A.
- Job Impulse España
- Patentes Talgo, S.L.
- Siemens Rail Automation, S.A.U.
- Stadler Rail Valencia, S.A.U.
- Talleres Alegría, S.A.
- Talleres Zitón
- Vogelsang, S.L.U.
- Trafag España, S.L.

Maintenance of traffic control and signalling, communications, passenger information and ticketing systems

- Aimen Centro Tecnológico
- Alstom Transporte, S.A.
- Artech (Electrotécnica Artech Smart Grid, S.L.)
- Azvi, S.A.
- Barbara IoT, S.L.
- Caf Signalling, S.L.
- Caf Turnkey & Engineering, S.L.
- Dsaf-Dinámicas de Seguridad, S.L.
- Electrans, S.A.
- Elecnor Deimos
- Elecnor SyP

- Gmv Sistemas, S.A.U.
- ICF - Ingeniería y Control Ferroviario
- Ibérica Tecnología en Sistemas de Seguridad Ferroviarios, S.L. (ITSS)
- Ikusi, S.L.U.
- Indra Sistemas, S.A.
- Inse Rail, S.L..
- Job Impulse España
- Luznor Desarrollos Electrónicos, S.L.
- Patentes Talgo, S.L.
- Screensor Tech
- Sice Tecnología y Sistemas, S.A.
- Siemens Rail Automation, S.A.U.
- Smart Motors
- Telice, S.A.
- voestalpine Railway Systems JEZ, S.L.
- Vogelsang, S.L.U.

Maintenance of traffic control and signalling, communications, passenger information and ticketing systems

- Aimen Centro Tecnológico
- Alstom Transporte, S.A.
- Artech (Electrotécnica Artech Smart Grid, S.L.)
- Barbara IoT, S.L
- Caf-Construcciones y Auxiliar de Ferrocarriles, S.A.
- Caf Power & Automation, S.L.U.
- Caf Turnkey & Engineering, S.L.
- Enclavamientos y Señalización Ferroviaria ENYSE, S.A.U.
- Faiveley Transport Iberica (Wabtec Corporation)
- Gmv Sistemas, S.A.U.
- Géminis Lathes
- Grupo Trigo
- HaslerRail (Secheron Hasler Group)
- Hexis Graphics España
- Hispacold, S.A.
- ICF - Ingeniería y Control Ferroviario
- Indra Sistemas, S.A.
- Ingeteam Power Technology, S.A.
- Job Impulse España
- Mgn Transformaciones del Caucho, S.A.
- NGRT, S.L.
- NRF España, S.A.
- Patentes Talgo, S.L.
- Satys Interiors Railway Spain ,S. A.
- Screensor Tech
- Sice Tecnología y Sistemas
- Smart Motors
- Stadler Rail Valencia, S.A.U.
- Trafag España, S.L.
- Vogelsang, S.L.U.

Maintenance of systems, equipment and vehicles components

- Aimen Centro Tecnológico
- Alstom Transporte, S.A.
- Aquafirsch, S.L.
- Danobat, S. COOP.
- Electrans, S.A.
- Faiveley Transport Iberica (Wabtec Corporation)
- ICF - Ingeniería y Control Ferroviario
- Ingeniería Viesca, S.L.
- Newtek Solidos, S.L.
- Patentes Talgo, S.L.
- Tecnival, S.A.
- Trafag
- Vogelsang, S.L.U.

**ASEA BROWN BOVERI, S.A.**

Rail is being rediscovered as a sustainable and energy-efficient form of transport. We understand the importance and implications of running these railway networks.

We provide complete solutions that protect your infrastructure, and meet the expectations of users and transport stakeholders for all key applications. These include infrastructure, passenger stations, control and signaling units, tunnels and rolling stock.

🚩 C/ SAN ROMUALDO, 13 - 28037 (MADRID)

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✉ contact.center@es.abb.com

🌐 new.abb.com/railway/abb-solutions-for-transportation-rail-and-infrastructure

**ACYGS SALES MANAGEMENT, S.L.**

ACYGS is an engineering services consulting company dedicated exclusively to the railway sector and specialized in all the consulting and engineering services associated with a rolling stock maintenance workshop. We offer a personalized railway engineering service for each client, adapting to the needs of each workshop and project, developing its activity at an international level carrying out projects in the 5 continents, providing global solutions backed by the experience of more than 20 years in the rolling stock maintenance sector of the professionals who are part of Acygs.

🚩 C/ Loeches , 65 - Oficina 7 Madrid (MADRID)

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✉ jleon@acygs.com

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**AGUI, S.A.**

AGUI is a B2B subcontractor expert in the manufacturing of electro-mechanical assemblies for OEMs. We collaborate with the client in the design of the product, contributing with our knowledge in process engineering and welding, and once the product is defined, we industrialize and manufacture it according to the takt time. AGUI is certified in ISO-3834 and EN-15085, which positions us as a reference supplier for welded assemblies.

🚩 Pol. Ind. Lintzirin-Gaina. Parcela B-1. 20180 Oiartzun - (GIPUZKOA)

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✉ +34 943 552 066

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**APPLUS+ LABORATORIES**

Applus+ Laboratories a division of the Applus+ Group, provides testing, certification and development engineering services for a wide range of industries. In the railway sector, Applus+ Laboratories conducts operational stress measurements; electromagnetic compatibility (EMC) testing; environmental testing for onboard electronic components; the characterization of rolling stock; and fire reaction and resistance testing.

From bogies, complete railcars and onboard electronics; to seats and bulkheads, they provide support to ensure that all railway components meet the highest quality and safety standards.

🚩 Campus UAB- Ronda Font del Carme s/n 08193 Bellaterra (BARCELONA)

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**AQUAFRISCH, S.L.**

More than 25 years of experience in the railway sector endorse Aquafrisch as a manufacturer of train washing systems, bogies washing cabins, WC extraction systems (CET) and other products for the maintenance of rolling stock in railway workshops.

Our equipment is installed in more than 30 countries on 5 continents. Aquafrisch is also a leader in industrial water treatment and purification. Aquafrisch takes care of the design, manufacture, installation, commissioning, training and maintenance of the machines according to the customer's needs. Aquafrisch is certified ISO9001:2015, ISO14001:2015 and ISO 45001:2018.

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**ArcelorMittal****ARCELOMITTAL**

ArcelorMittal, as the steel industry leader in product and process innovation, is fully geared to meet the future requirements of the rail industry. With rail production facilities in Spain, Poland, Luxembourg and USA offers a wide portfolio of rails for subways, trains, trams, light rails, crane rails, crossings and rail accessories. We are specialist in rail for high-speed net, with over 1 million tons produced, and presence in infrastructure of over 30 countries, the high technologic quality allows participating in the more demanding tenders all over the world. ArcelorMittal has its own R&D Rail Excellence Centre for developing new products and processes.

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✉ rails.specialsections@arcelormittal.com

🌐 https://rails.arcelormittal.com/

**AIMEN CENTRO TECNOLÓGICO**

We are an innovation & technology Centre specialized in materials and in advanced manufacturing technologies, especially joining technologies and laser technologies applied to materials processing and robotics. We develop R&D&I in collaboration with companies in the field of the technologies for industry 4.0, and we offer technological services to industry in the field of welding and corrosion engineering, manufacturing engineering, design and simulation and mechatronics; developing customized and integral technological solutions which respond to the needs of our clients and associated companies. Our accredited laboratories provide analysis and testing services, especially failure analysis and in-service behavior of industrial components.

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**ALSTOM ESPAÑA**

As a promoter of sustainable mobility, Alstom offers a complete range of solutions (from high-speed trains to metros, tramways and e-buses), passenger solutions, customized services (maintenance, modernization), infrastructure, signalling and digital mobility solutions. The company recorded sales of €8,2 billion in the 2017/18 fiscal year. Alstom is present in over 60 countries and employs 38,900 people. In Spain Alstom employs around 2,000 people on 18 sites, including a rolling stock manufacturing site and 4 innovation centres where it runs R&D programmes for rolling stock and railway signalling, safety, security, digital mobility and services.

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✉

🌐 www.alstom.com

**AMURRIO FERROCARRIL Y EQUIPOS, S.A.**

Design, production, installation of turnouts, track devices, crossings. For all type of purpose. Metro, tram, regional, conventional, high speed, heavy haul, ports and industrial.

🚩 Maskuribai, 10 01470 Amurrio (ARABA/ÁLAVA)

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🌐 www.amufer.es

**ARDANUY INGENIERÍA, S.A.**

Ardanuy Ingeniería, S.A. is an engineering consulting firm specialized in studies, projects, works management, safety engineering (ISA), operation / maintenance studies; and technical guidance for railways (high-speed, conventional, freights, metros, trams, cable cars), electrical engineering (sub-stations and high-voltage lines), roads (highways, freeways, BRT's, streets, etc.), buildings (architecture and facilities) and telecommunications.

The company was established in 1992 and is comprised of a permanent team of more than 200 professionals.

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**ARIÑO DUGLASS, S.A.**

50 years' experience behind us as a company specialised in glass for architecture and railway. An extensive presence in the Spanish, European and world markets has enabled us to obtain the knowledge and know-how in order to offer the most technologically advanced products of high quality.

It is in our DNA to continuously research and develop technology that allows us to adopt the very latest manufacturing methods, resulting in business excellence and ongoing innovations. In partnership with a number of organisations and institutions, we collaborate, cooperate and lead different research projects.

🚩 Pol. Ind. Royales Bajos, S/N, 50171 La Puebla de Alfindén (ZARAGOZA)

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**ARTECHE**

The Artech Group is focused on offering equipment and solutions for the electricity and railway business worldwide. The expertise of more than 70 years manufacturing instrument transformers and electromechanical relays gives the client the assurance of a technological leader. With projects over more than 40 countries, our dedicated range of railway relays are designed to meet the highest standard requirements of the sector and its reliability and durability allow them to be used not only as general purpose relays, but also in all kind of safety functions, both for on-board and signalling applications making them suitable to be used in circuits requiring up to SIL-4 safety integrity level.

🚩 Derio Bidea, 28 48100 Mungia (BIZKAIA)

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**AZVI**

Azvi is the company which undertakes construction within Grupo Azvi. For over 100 years, Azvi has carried out a significant number of large scale civil engineering and building projects. Azvi has extended its activity to all construction areas in Europe, America and the Middle East, without losing sight of its origins and railway background. By applying principles of responsibility to the whole business sphere, seeking the creation of value, maintaining a strong commitment to all its stakeholders in all countries where it is present and investing in R&D Azvi continues constructing a company capable of facing the new challenges of an increasingly globalised market.

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**BARBARA**

Barbara is the Cybersecure Industrial Edge Platform, designed to implement automated decision-making within critical industrial processes. It connects, deploys and orchestrates AI and ML based applications at the Edge. Barbara's architecture, distributed across thousands of computing nodes, allows companies to communicate and virtualize any industrial element and then operate it through real-time Artificial Intelligence applications. Developed with cybersecurity by design, is compatible with Edge applications to optimise industrial processes and asset management, it is the perfect enabler to address the industry's biggest challenges and accelerate industrial intelligence.

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**BUREAU VERITAS INSPECCIÓN Y TESTING (GRUPO BUREAU VERITAS)**

BUREAU VERITAS INSPECCIÓN Y TESTING is a Bureau Veritas company based in Madrid, Spain. BUREAU VERITAS INSPECCIÓN Y TESTING is a world leader in conformity assessment services as Notified Body (NoBo) and Designated Body (DeBo), as well as Inspection Body to perform Independent Safety Assessment (ISA) and Risk Assessment (AsBo). Bureau Veritas has an extensive experience in the rail sector; with presence in more than 140 countries, more than 75,000 employees worldwide, and a network of 1400 offices and laboratories. Bureau Veritas is in a unique position to offer a global solution to its customers in the railway sector.

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 🌐 <https://www.bureauveritas.es/nuestros-mercados/automocion-y-transporte/ferroviario>

**CAF SIGNALLING, S.L**

CAF Signalling, the technological subsidiary of the CAF Group, designs and provides Integral Signalling Solutions, both in Spain and abroad. The company has its own advanced technology products, both for on-board and wayside applications that make up the core of its integral solutions. As a result of a significant and growing effort in R&D&I, particularly in the area of critical safety systems, CAF Signalling promotes continuous innovation and customer focus. CAF Signalling, boasts the Company's own in house engineering and expertise to take on "turn-key" railway signalling projects.

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**CAF TURNKEY & ENGINEERING**

CAF Turnkey & Engineering was created in 2007 with its head office in the Technological and Scientific Park of Biscay (Zamudio). It began its business in Integrated Engineering of Transport Services and in 2015, after merging with the company CMFS (Mexico), it increased its portfolio of services with the inclusion of EPC projects for both civil works and subsystems. Following solid and constant growth, the company currently has a workforce of 200 with offices in Zamudio, Madrid and Mexico, providing service to both companies within the CAF Group and national and international private and public customers.

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**CALMELL, S.A.**

The Calmell Group is the leader in access control and identification, through its companies Calmell S.A., Affix S.L., Idoneum S.A., which are respectively engaged in producing the supports (tickets, cards,...), developing specific software and hardware, personalization and security. In the public transport sector it works for integrators and operators supplying any kind of support for ticketing and reader/writer systems. With a strong international presence through its network of representatives and distributors, the Calmell Group is able to satisfy your needs on a global level.

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**CABLES DE COMUNICACIONES ZARAGOZA, S.L.**

Cables de Comunicaciones is one of the main European companies dedicated to the design, manufacturing and commercialisation of telecommunication, signalling and optic fibre cables. Ever since its foundation in 1971, it has contributed to the development and extent of the telecommunications infrastructures. Railway companies from the main European countries entrust us with the manufacture of their cables. Among them, they stand out: Adif, SNCF, NetworkRail, Infrabel etc. Cablescom undertakes its activity in Zaragoza, in the Malpica industrial park, over a surface of 77,000 m2, which includes a production plant, offices and warehouses. de producción, oficinas y almacenes.

🚩 **Polígono de Malpica, C/D, 83 50016 Zaragoza (ZARAGOZA)**
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 ✉ j.alzorritz@cablescom.com
 🌐 www.cablescom.com

**CAF - CONSTRUCCIONES Y AUXILIAR DE FERROCARRILES, S.A.**

CAF is one of the world leaders in the design and implementation of comprehensive transit systems. CAF provides comprehensive project and engineering management throughout all stages of the project including feasibility analysis and investigations, system design, civil work, signalling, electrification and other electromechanical systems, rolling stock supply and system operation and maintenance. In terms of rolling stock, CAF supplies and maintains high speed trains, regional and commuter trains, locomotives, metro units, tramways and buses.

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**CAF POWER & AUTOMATION**

CAF Power & Automation designs and develops electric traction systems, energy storage systems and control & communication, which guarantee adaptable reliable and committed solutions with transport. Our systems are modular and flexible and can be integrated both in new vehicles and in those in service or that need refurbishment. Traction systems; Energy Storage (GREENTECH) and Control & Communication (COSMOS). Railway systems modernisation and refurbishment: Equipment and components, system integration, installation, maintenance and guarantee. Railway system maintenance: Technical support, spare parts, training courses, test benches.

🚩 **Mikeletegi, 58 - 2, Parque Tecnológico de San Sebastián (GIPUZKOA)**
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**CAUCHO INDUSTRIAL VERDÚ, S.L.**

Caucho Industrial Verdú is a company with more than 50 years of experience in the rubber market. We produce a wide range of products in rubber and rubber-metal, and we are focused in the infrastructure sector. We design and manufacture elastomeric bearings, pot bearings and expansion joints for bridges and other structures. In addition, we manufacture resilient elements for railway applications, as underballast mats (UBM), slab track mats (STM) and undersleeper pads (USP). All these products are manufactured using recycled rubber (90%) from used tyres. Our technical staff can design and advice about the best solution for the client's needs, always based on the standards EN, DIN, ASSHT.

🚩 **Fila Benimeríns, 32, Alcoy (ALICANTE)**
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**CEIT**

We are a Basque Technology Center founded by the University of Navarra, whose main objective is to develop applied R+D+i projects with companies to improve their competitiveness. We are part of BRTA (Basque Research & Technology Alliance), which includes 16 agents that constitute the Basque Network of Science, Technology and Innovation (RVCTI). We also participate in Shift2Rail Joint Undertaking as associated members. We focus our R+D+i activity within the railway sector in the following topics: energy efficiency, maintenance, railway dynamics, component design and characterisation, embedded systems (SIL4), positioning, data intelligence.

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**CELLNEX TELECOM, S.A.**

Cellnex manages a portfolio of more than 130,000 sites – including forecast roll-outs up to 2030 – in Spain, Italy, the Netherlands, France, Switzerland, the United Kingdom, Ireland, Portugal, Austria, Denmark, Sweden and Poland. Cellnex's business is structured in four major areas: telecommunications infrastructure services; audio-visual broadcasting networks, security and emergency service networks and solutions for smart urban infrastructure and services management (Smart cities and the "Internet of Things" [IoT]).

🚩 **Passeig de la Zona Franca, 105, 08038 (BARCELONA)**
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 🌐 www.cellnextelecom.com


**CERTIFER BELGORAIL SA
SUCURSAL EN ESPAÑA**

Certifer Belgorail SA is a certification, inspection and safety evaluation entity for the guided transport sector, both conventional railways and subways and trams. We are an accredited body for the certification of interoperability (NoBo), national regulations (DeBo), safety evaluations under CENELEC standards (ISA) and under CE Regulations (AsBo). We are part of the Certifer Group, with a presence, in addition to Spain, in Belgium, France, the Netherlands, Germany, Austria, Italy, Sweden, Turkey, Algeria, Brazil, Australia, Vietnam, the United Arab Emirates and China.

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🌐 www.certifer.eu


CETEST, S.L. Centro de Ensayos y Análisis

Fully accredited ISO17025, CETEST is an experienced laboratory in railway vehicles and components testing. Its offering covers a wide variety of component test benches at their facilities as well as portable ones. CETEST provides a global on-track measurement deployment capacity. From validation and verification test in the development phase to product homologation and failure detection / root cause analysis in the after-sales operation, CETEST can assist you during the full lifecycle of your product. Their customers include passenger, freight and special track maintenance vehicle manufacturers, component suppliers, as well as Notified Bodies, engineering firms and authorities.

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**CITEF (FUNDACIÓN PARA EL FOMENTO
DE LA INNOVACION INDUSTRIAL)**

CITEF (Railway Technology Research Centre) was created in 1997 as part of F2I2 (the Foundation for the Development of Industrial Innovation) for research, innovation, experimentation, study and teaching purposes within the railway knowledge area. It is a non-profit organisation pursuing aims of general interest within any rail transport technology sector.

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CUNEXT COPPER INDUSTRIES

Cunext in the way to continuous development has created the entire cable product range for overhead line electrification adapting at any speed from local transport to high speed line. Our modern technology together with a wide experience at cable and alloy manufacturing makes us the best partner for railway companies offering best product quality and service. Cunext Group locate production plants at strategic places such as Cordoba for copper products, Vitoria and Brescia for aluminium products.

🚩 Av. de la Fábrica, s/n
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DANOBAT S.COOP.

Specialised Machine Tools and production systems for railway industry offering technologically advanced solutions and services, including among others engineering, consultancy, which are fully adapted to clients' needs.

DANOBAT focuses its activity in the supply of turnkey solutions for the manufacturing and maintenance of railways rolling stock, incorporating own leading technology products, together with those manufactured by specialised companies.

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DINÁMICAS DE SEGURIDAD, S.L.

DSAF is a entrepreneurial society focused on the safety of the movement of people at risk. Committed to the new technologies applied to the design of signaling systems, prevention and emergency in safety, DSAF promotes the development of products that guarantee the highest grade of security according to the standards of type approval current in generalized risk societies such as global ones.

The activity of DSAF focuses on these two major sectors: road / rail tunnels and wind towers.

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COLWAY FERROVIARIA, S.L.

COLWAY FERROVIARIA S.L., a company belonging to the COLWAY Group, is specialized in the design, engineering, manufacture, installation and commissioning of turnkey railway interiors and toilet modules projects. Revamping of seats and floors for a significant improvement of the coaches, with a controlled investment, is included among its capabilities. Through the integrated management of modular supplies & systems, based on experience, research and innovation, satisfaction and expectations of railway constructors and Public Administrations are achieved. Its work is based on the application of strong values: commitment, professionalism, ethics and agility.

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COMSA

COMSA is the company of COMSA Corporación specialised in railway infrastructures. Founded in 1891, the company provides a comprehensive service in the field of construction, maintenance, electrification and control and communication systems for high-speed and conventional lines, metros and tramways. In this business activity, it is leader in Spain, where has been involved in the carrying out of all high-speed lines, and has permanent operations in Argentina, Brazil, Croatia, Denmark, Mexico, Poland, Portugal and Uruguay. It has also taken part in a large number of projects in other markets such as Italy, the Philippines, Taiwan, Malaysia, India, etc.

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CREATE HUMAN RESOURCES

Railway and business training consultant, approved since 2009 by the State Agency for Railway Safety (AESF) of the Ministry of Development to provide the necessary training to obtain and maintain the different qualifications of railway personnel, as well as all kinds of technical training and specific to the railway sector.

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**ENCLAVAMIENTOS Y
SEÑALIZACIÓN FERROVIARIA
ENYSE, S.A.U.**

Enyse is a Signalling company belonging to the Industrial Services division of the ACS group. For Enyse, the success of their projects is based on a high level of adaptation to functional and operational needs of the various railways - flexibility is the key word. In an industry increasingly integrating technology standards, the required Reliability, Availability, Maintainability and Safety standards not only apply to system design level, but are the actual premises to properly implementing and commissioning turn-key Signalling projects.

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ELECNR DEIMOS

Elecnor Deimos is the technological subsidiary of the Elecnor Group that operates in the railway transportation sector, information and telecommunications systems, space, aeronautics and defense. In the railway sector, Elecnor Deimos is responsible for the development and evolution of passenger information platforms and remote station management. In addition, the company is specialised in delivering comprehensive turnkey projects as well as the development, implementation, and maintenance of these systems.

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ELECNR SYP

Elecnor has become one of the most outstanding European business groups and a benchmark in the infrastructure sectors, with more than 60 years of continuous growth (25,000 employees and 3,5 billion Euros turn over) and presence in 55 countries. Elecnor promotes, develops and constructs all manner of infrastructure on all continents including concessional projects. Elecnor Group's long experience in the railway sector enables it to engage in turnkey projects for electrification, signal and interlocking systems, communications, and control systems. Elecnor has been involved during 30 years in the development of electrification railway projects as a technologist providing solutions to industry.

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ELECTROSISTEMAS BACH, S.A.

Electrans, established in Barcelona in 1977, has had a successful career path that turn it in an international relevant supplier in signalling, particularly in the field of level crossing protection solutions, railway and tramway signalling, detection systems and LED lighting, obtaining its products and solutions worldwide recognition.

Electrans' constant progress is motivated by the commitment to innovation, at the service of the adaptability of systems and products for the current needs of railway projects.

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FAIVELEY TRANSPORT IBERICA

Faiveley Transport Iberica, as member of Wabtec Corporation offers the complete portfolio of products of the Corporation in Spain and Portugal, as well as all service activities related.

Design, manufacturing, repair and maintenance of rolling stock systems.
Braking Systems, Access Doors, Platform Screen Doors, HVAC, PIS/CCTV, Power Collection, Sanitarries, Event Recorders, Beacon Readers, Relays.
With Headquarters in La Selva del Camp (Tarragona), offices in Madrid and service centers in Madrid, Barcelona, Valencia, Seville, Beasain and Lisbon.

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FLEXIX, S.A.

FLEXIX, develops, manufactures worldwide since 1950 INJECTION and EXTRUSION RUBBER PARTS, rubber-metal, rubber-plastic, special elastomers and assemblies. We are part of the KÄCHELE-FLEXIX Group, with 2 plants in Germany, 1 in Spain and a warehouse in USA. For the RAILWAY SECTOR we produce mainly for infrastructures, absorption of vibrations under track, tie pads for sleepers, different range of stiffness (14-152 kN/mm). We provide development in geometries (FEM), materials, (conductivity, non-harmful gases...) TYPE OF PARTS: Pads, Ducts, bellows, tubes, silentblocks, joints, bumpers, axles, links, valves, bearings. MIXTURES: NR, SBR, EPDM, CR, H/ NBR, ECO, AEM, ACM, Silicone, FPM.

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GEMINIS LATHES, S.A.

Leaders in the development of horizontal and multiprocess lathes, and specialized in railway sector, where we are proud to support the manufacturers of trains and maintenance lines, among other agents in the value chain. We offer customized solutions with highly reliable machines for the maintenance of rolling stock. Our lathes are specialized in the machining of axles, axle-wheel set and wheels.

🚩 Lerun, 1 - 20870 Elgoibar - (GIPUZKOA)
☎ +34 943 748 060
☎ +34 943 744 182
✉ sales@geminislathes.com
🌐 geminislathes.com



GURUTZPE

GURUTZPE is a company specialized in the manufacturing of high value-added heavy-duty Turnmills for machining strategic pieces in demanding industrial sectors. With over 60 years of experience, GURUTZPE provides customized and innovative manufacturing solutions on an international level.

The company specializes in maintenance and manufacturing of wheels, axles, and wheelsets for the railway sector, operating both nationally and internationally.

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GLOBAL QUALITY ENGINEERING

TRIGO Spain is a supplier of quality services and support in the supply chain in industrial sectors. Founded in 2001, it offers quality assurance services in products, maintenance, industrial means management and metrology with more than 600 quality professionals in Spain. TRIGO GROUP is present in 25 countries with a team of more than 10,000 professionals.

TRIGO Spain exports to the railway sector good practices of high added value developed in sectors such as aerospace and automotive.

🚩 Papiro, 8-9 Parq. Ind. La Negrilla 41016 Sevilla (SEVILLA)
☎ + 34 954 526 195
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FORGING STEEL PRODUCTS, S.L.

Manufacturing of machined and if needed painted forged components ready for assembly destined to the railway rolling stock manufacturers for chassis, brakes, clutches, hooks etc.

🚩 Barrio Arregui s/n 48340 Amorebieta-Etxano (BIZKAIA)
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FUNDICIONES DEL ESTANDA, S.A.

Since 1957 Estanda has been providing various sectors with steel castings. The half of all its activity is focused on the high-speed train brake discs manufacturing, being one of the first worldwide manufacturers, the other half is focused on a wide range of sectors such as the cement and mining industry, defence, off-shore, automotive industry, and bogie components for the railway equipment. Mostly low alloy steels, wear resistant steels, refractory steels, stainless steels and white irons are casted. With its 14.000 tonnes per year production capacity, Estanda manufactures from 10 to 2000 kgr. parts in all kinds of batch sizes, with 2.400 mm as its maximum part dimension.

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FUNORSA

Funorsa is a Steel casting foundry with more than 20 years in the railway sector. We are specialized in pieces of high responsibility as couplers, Pivots, connection rods and different parts of the bogies. We are able to cast low alloy, alloy and inox castings up to 1.300 kg with a capacity of 2.000 Tons per year.

🚩 Condado de Treviño, 41 Pol. Villalonquejar, 09001 Burgos (BURGOS)
☎ +34 650 665 302
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GMV SISTEMAS, S.A.U.

GMV is a leading firm in the design, development, implementation and rollout of Intelligent Transportation Systems (ITS) guaranteeing compliance with the railway sector standards. Main products and services: On board units for location and communications, Fleet Management Systems, Fare Collection Systems, Passenger information systems, CCTV systems, PA & Intercom system, Systems for security reinforcement, Eco-driving systems, Software for planning and scheduling of services. Conceived for all railway modes (tram, metro, commuter train, long distance, high speed trains...)

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HASLERRAIL (SECHERON HASLER GROUP)

Sécheron Hasler Group is a leading global supplier of electrical and electronic safety components and solutions and traction power systems for the railway industry and also provides solutions for renewable energy, DC grid, and other industrial systems. HaslerRail is the world's leading supplier of innovative On-Board Electronics, Data Acquisition and Recording, Speed Sensors and Odometry, Visualisation solutions and Speed Indicators, Energy Metering, Control, Protection and I/O, Software and data management solutions, and Cybersecurity for the railway industry. Our solutions are backed by our extensive global service and support network.

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**HEXIS GRAPHICS ESPAÑA**

We have been manufacturing adhesive films since 1989. More than 30 years dedicated to the manufacture of adhesive films for cutting or large format digital printing. Hexis Graphics has specialized in the manufacture of high performance cast films, both PVC and latex. It is also constantly developing new solutions for professionals in the graphics industry, signage, vehicle wrapping and textile personalization. Hexis is not only a manufacturer of self-adhesive films, but also a distributor in 8 countries, thanks to our own branches located in France, Spain, Italy, Sweden, Germany, Switzerland, FWI and Australia.

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 ✉ info@haslerrail.com/ javier.jurado@hexisgroup.com
 🌐 <https://www.hexas-graphics.com/es/>

**HIERROS Y CARBONES, S.A.**

Since 1997 Hicasa is specialised in transformation, tailored cut, storage and distribution of railway tracks materials, all kinds of rails and railways accessories with a permanent stock of more than 3.500 MT. In 2006 we have incorporated to our Group of companies a factory specialised in manufacturing light rails from 7 kg/m to 48 kg/m, manufacture according European and American Standard, Australian or South African together with other types of Standard (AREMA). Our own experience allows us the optimal management of the supply chain, exporting to more than 30 countries all over the world.

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**ICON MULTIMEDIA, S.L.**

With over 25 years of experience, we have a extensive experience in the Digital Signage sector. Our DENEVA Digital Signage platform is specially designed for high availability environments such as Smart Cities or as a powerful and comprehensive marketing tool for 'Smart Stations', guaranteeing a reliable and safe travelers and users experience.

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**INDRA**

Indra is one of the leading global technology and consulting companies and the technological partner for core business operations of its customers world-wide. It is a world-leader in providing proprietary solutions in specific segments in Transport and Defense markets, and a leading firm in Digital Transformation Consultancy and Information Technologies in Spain and Latin America through its affiliate Minsait Its business model is based on a comprehensive range of proprietary products, with a high-value focus and with a high innovation component. In the 2018 financial year, Indra achieved revenue of €3.104 billion, with 43,000 employees, a local presence in 46 countries and business operations in over 140 countries.

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**INECO**

Global leader in transport engineering and consultancy, it has contributed to the development of transport infrastructures for over 50 years in more than 50 countries. Its high level technical specialisation allows its activity to diversify into new markets and reinforce its presence in those where it is already established. Its participation in the whole railway system in Spain has led the company to develop important international projects like the Makkah-Madinah high speed in Saudi Arabia, the HS2 project in the United Kingdom or the deployment of ERTMS in Europe.

🚩 Paseo de la Habana, 138 - 28036 Madrid (MADRID)
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**INGENIERÍA Y CONTROL FERROVIARIO, SAU**

ICF offers technical and sustainable solutions for railway signalling. In this area, our vocation is betting heavily on the development and innovation, constantly releasing new products that can be used to improve and optimize existing technology solutions. All the level crossings since June 2001 have been protected by ICF with its level crossing protection system SPN-900. We are working worldwide with more than 1000 international references. For us it's very important to be sustainable so we have worked hard to design systems that reduces dramatically its power consumption which allows it to work taking its energy only from sun, getting a zero CO2 emissions and zero external power supply.

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**IDOM CONSULTING, ENGINEERING AND ARCHITECTURE, SAU.**

IDOM is one of the leading companies in the field of professional services in Engineering, Architecture and Consultancy. An independent company established in 1957 and it has participated in over 30.000 projects in five continents. In 25 countries with 42 offices. More than 3.500 staff possesses the expertise and experience to cover all the phases of a railway project (high speed, conventional, freight, metro, light rail, tramway, depot and workshops). From conception to commissioning and beyond and facing the challenges of an innovative, efficient and resilience Transport System. IDOM accompany the client by providing the correct technical assistance required for the decision making process.

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**IKUSI, S.L.**

At Ikusi, we provide complex turnkey integration project design, engineering and development services both for rolling stock and for infrastructure, with the agility and flexibility required by the rail industry. We are oriented towards improving our clients' competitiveness and innovation capacities, thanks to our deep business knowledge developed during these years. Our business focus is the design and supply of innovative technological solutions to help vehicle builders, transport operators and authorities optimize and transform their business while guaranteeing quality of service and enhancing passenger experience in terms of security, information, comfort and accessibility.

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 🌐 www.ikusi.com

**IMATHIA**

IMATHIA Construcción started in the civil works sector in 2004, providing Spanish and International clients with a professional and specialized approach to construction challenges, with an special vocation for Railways. We've been involved in projects throughout the main spanish HS Corridors and lines around the world. Our expertise covers a wide range of infrastructure and superstructure construction for metro, high-speed, and conventional railway. Our most outstanding reference is the High Speed Railway line in KSA, which we currently maintain. Some of our ongoing works are the Refurbishment of the Kampala-Malaba Line for URC (Uganda) or the Fuencarral II Depot.

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**INGENIERÍA VIESCA, S.L.**

We are specialists in design and manufacture of power electronic equipment. Our equipment work satisfactorily in all the continents with high reliability and availability, making efficient use of the available energy. We adapt our products to customer needs and requirements according with the applicable standards and the best quality.

The expected functionality is guaranteed by means of specific test protocols.

Our innovation is present in all our products: auxiliary power converters, battery chargers, flat battery starters, ...

🚩 Rumanía 5, Nave B2 - P.E. Inbisa Alcalá I. 28802 Alcalá de Henares (MADRID)
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**INGEROP**

INGEROP T3 is an engineering and architecture company specialising in the sectors of transport, mobility and cities, infrastructure, building, energy and industry, which has been operating in Spain since the 1990s. It has offices in Madrid, Barcelona, Granada and Seville. INGEROP T3 belongs to a group of more than 2,300 employees, mostly engineers, with a presence in more than 70 countries. It is a totally private and independent company, whose capital is wholly owned by its managers and employees. The INGEROP T3 team offers a wide range of services for both public and private clients, from planning to operation and maintenance.

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**INGETEAM POWER TECHNOLOGY, S.A.**

Ingeteam is an international group specializing in power and control electronics (inverters, frequency converters, controllers and protections) and electrical engineering and automation projects. The company operates in 22 countries, with 3,900 employees. R&D is at the backbone of its business activities. In railways, the traction converters INGETRAC are based on an smart integration of proved Proved Modules, comprising all necessary elements to be fully operational, on each required application.

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 🌐 www.ingetteam.com

**INSE RAIL, S.L.**

Inse Rail is an engineering firm that is highly specialized in the railway industry and specifically its installations and systems. Founded in 1994, it is dedicated to engineering, consulting and project management in the railway, industrial, energy and building construction industries, carrying out its activities in the different stages of planning, design, construction and operation of investments. Inse Rail participates in the international development of the High Speed Rail and metropolitan transportation, with a strong specialization in electrification, signaling, security and communication systems, and other railway transport installations.

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**INTERNACIONAL HISPACOLD, S. A.**

Hispacold, a World leader Company for climate systems with more than 40 years' experience is specialized in passengers comfort. Hispacold designs and manufactures HVAC solutions for all rail vehicles: trams, metros, EMUs, DMUs, LRVs... with proven and reliable technology solutions. Hispacold is certified in the most recognized International quality management, environment and safety standards: ISO 9001, ISO 14001, OSHAS 18001, EN 15805-2 and the prestigious IRIS ISO/TS 22163.

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**IBÉRICA TECNOLOGIA EN SISTEMAS DE SEGURIDAD FERROVIARIOS SL (ITSS)**

Founded in 2005, is a leading manufacturer and supplier of railway hazard monitoring equipment, focusing mainly on hot axle box / hot wheel and Wheel impact load / Weighing in motion detectors. The ITSS systems use state-of-the-art infrared and fibre-optic technology. The PEGASUS HABD/HWD multi beam system monitors the axle box and brake temperatures of coaches. The AGUILA WIM/WILD system uses fibre-optic sensors to detect off-centre wheels and flat spots. It can also report train weight and overloading. ITSS products are the model representation of a perfect combination of experience and innovation.

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**LADICIM - UNIVERSIDAD DE CANTABRIA**

LADICIM participates in R&D projects focused on the innovation of the railway superstructure, carrying out studies on the development of its elements, acc to national (Adif), European (EN) and American (AREMA) reference standards. The results are reflected in more than 500 reports, 25 research papers with a high impact index and 7 Doctoral Theses. The projects include collaborations in countries such as the USA, Canada, Saudi Arabia, Turkey, Germany, Senegal, Tanzania, Morocco or Ethiopia. LADICIM has implemented a quality system according to the UNE-EN ISO/IEC 17025 standard, being accredited by ENAC (Spanish Accreditation Board) for the testing of fastenings, sleepers and rail welds.

🚩 **E.T.S. Ing de Caminos, Canales y Puertos**
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**LANDER SIMULATION & TRAINING SOLUTIONS**

Lander Simulation & Training Solutions, S.A. specialises in designing, developing and implementing cutting-edge commercial simulation devices for training purposes. On the basic premise of preventing accidents and loss of human life, Lander works with each customer to build training simulators which meet the specific needs of each operation. Lander was incorporated in 2002, and now operates in more than 20 countries across all 5 continents. Its solutions cover the entire range of railway operations - suburban trains, long-distance units, high-speed trains, freight, monorail systems, metros or light rail..

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**LANTANIA**

Lantania specializes in the construction of heavy civil works (roads, highways, dams, water treatment plants, maritime works, railways and airports), building construction and energy projects. The company began its activity in 2018 with the acquisition of the construction, energy and services business units of the Isolux Corsán Group and the subsequent purchase of the Velasco Group in 2019. One of the differential characteristics of Lantania is its ability to execute any kind of rail project in an integral way. The company has built more than 150 km of infrastructure, tunnels and railway viaducts, as well as more than 50 traction power substations and more than 1,500 km of overhead line..

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**JOB IMPULSE**

JobImpulse, an experienced professional services company with a successful history since its founding. With 57 offices in 13 countries and more than 9. 5,000 employees worldwide. Our services with international reach focus on Outsourcing, Recruitment and Head-hunting in different markets such as Railway, Aerospace, IT and Defense. JobImpulse, can attract qualified professionals from other areas adapting them to the railway. To do this, with programs and specialists, we offer training around the world, developing technical and communication skills among employees. Thus, we break the generation gap and lack of resources that exists in the sector.

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La Farga is able to produce all the range of railway products in an integrated process. Our railway range includes all alloys used, the different measures of grooved contact wire and all supporting and electricity supply elements, feeders, hangers and cables. Furthermore, we offer technical visits and assessment to our clients and we constantly develop new railway products with the aim of introducing the best copper solutions into the market. La Farga is a family-run metallurgical company, with more than 210 years of history. We produce semi-finished copper products and their alloys for several technological sectors.

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**LLALCO FLUID TECHNOLOGY**

Llallo Fluid Technology is one of the few manufacturers and suppliers of impact absorption technology for end of track rail lines -Buffer Stops. World Class Technology that protects people, machinery and the Environment. Their products are highly sophisticated end of rail track shock absorbers with a unique performance. Llallo has a wide range of models with gas hydraulic buffers, sliding friction shoes or a combination of both. Their technology allows to control the deceleration to the desired value. They have been delivering high quality Buffer Stop projects in Spain & Portugal since 1970 and in America and other European Countries since 2004. Llallo is also ISO9001, 14001 & 45001 Certified.

🚩 **Torre de Cristal pl. 18. Pso. de la Castellana**
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**LUZNOR DESARROLLOS ELECTRONICOS, S.L.**

LUZNOR is a company specialized in the design and manufacture of professional torches, emergency lighting and other electronic security devices. LUZNOR puts at your disposal highly qualified technicians, a high quality standard, efficient development, manufacturing and control systems and, above all, a philosophy of commitment to clients that allows LUZNOR to offer innovative products with advanced technology and recognised prestige.

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**MAINRAIL, S.L.**

MainRail is a high-tech startup devoted to providing IT-based solutions to help you digitizing and optimizing the railway infrastructure maintenance operations. We combine our expertise in a wide range of technologies (e.g. big data analysis and visualization, digital twins, IoT, machine learning, etc.) with a solid knowledge in railway maintenance and operations. Our solutions are based in a customizable IT platform (MainRailMT) for the management of all maintenance-related operations and a family of IoT devices (MainRailID) for a continuous and cost-effective inspection of your infrastructure.

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**METALOCAUCHO, S.L. (MTC)**

MTC, being part of Wabtec Corporation, designs and manufacture rubber-metal components for suspension and vibration control systems used on railway, automotive and industrial applications. With headquarters in Spain, MTC has 4 production facilities in 1) Spain, 2) China, 3) India and 4) USA, which offers to customers the possibility to localize production in any of these countries. Thanks to a wide commercial presence in any country of the world, MTC gives local support to develop projects for both OE and Aftermarket business.

Our main products are related to Primary Suspensions, Secondary Air Springs, Bushings, Buffers, Layer Springs, Subassemblies, Elastic Wheels, etc

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- ✉ info@mtc.com
- 🌐 www.wabtec.com/business-units/metalocauch-mtc

**MGN TRANSFORMACIONES DEL CAUCHO, S.A.**

MGN was established in 1957 and since then it has been developing its activity both designing and manufacturing rubber-metal components, mainly for the railway industry. MGN invests in research and innovation as a basis for the development of elements to be adapted in the new understanding of passenger and freight trains, taking the latest technological advances of the rubber world, vibration control and damping systems. - Primary and secondary suspensions. - Conical springs - Bushes and spherical bearings - Rods, Bogie subsystems - Pivot Bushes - Elastic Supports - Compression buffer and Draw Gear springs - Bellows, Gangway protections - Profiles, o-rings and seals.

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- ☎ +34 91 887 40 35
- ✉ enp@mgncaucho.com
- 🌐 www.mgncaucho.com

**MIERES RAIL, S.A.**

Design, manufacturing and supply of turnout systems, and their components, for Metro, classic or conventional lines, industrial and heavy haul or High Speed up to 350 km/h. Design, manufacturing and supply of casted manganese steel crossings. Trimetallic flash butt welding. Insulated glued joints, transition rails, fastening systems, locking systems, wear measuring devices.

- 🚩 Polígono Industrial Fábrica de Mieres, s/n 33600 Mieres (ASTURIAS)
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**NRF**

Since 1927 NRF is a leading manufacturer and supplier of cooling products for the automotive market, industrial, railway and marine sector. NRF is known for the production of high quality radiators, but also produces and supplies a large range of other engine cooling and air conditioning products. NRF has global engineering, testing and development facilities. Railway and ship manufacturers, large retailers of vehicle parts, radiator shops and specialists in more than 80 countries worldwide daily rely on NRF's high quality products.

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- 🌐 www.nrf.eu

**PARRÓS OBRAS, S.L.**

Family business with over 25 years experience in civil construction and iron and steel industry for the railway sector. Parros Group which is specialized in pile driving and catenary foundations, has implemented the 80% of the foundations of the entire Spanish High Speed Network. Whether conventional railway network or Highspeed Railway (AVE), PARROS GROUP is distinguished by the versatility of our machines adapted "Ad hoc" for auxiliary civil works from the railway, with automatic switching to the three Spanish gauges. Also innovative is our implementing system of noise barriers from the railway track and its foundations. Generic activities of building and general construction.

- 🚩 Ctra. Virgen del Monte, 1 13260 Bolaños de Calatrava (CIUDAD REAL)
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**PATENTES TALGO, S.L.U.**

Talgo is a Spanish company with more than 70 years of experience, specialized in designing and manufacturing trains, maintenance equipment as well as providing maintenance services to railway operators worldwide. Today, Talgo is the leading global reference for Spanish High Speed Technology and the number one player in Spain's railway market. Due to Talgo's successful expansion strategy and its globally acclaimed products, the company has become truly international. Its key success factors are innovation, unique technology, sustainability, safety, competitiveness and tailor-made projects with clear focus on customer. Talgo trains are internationally recognized as the best in their category.

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**NEXT GENERATION RAIL TECHNOLOGIES, S.L. (NGRT)**

NGRT S.L. is a company focusing on railway safety, working with railway regulators and helping infrastructure managers and train operators secure their infrastructure and operations. NGRT's products are designed to detect any anomalies that occur in the railway infrastructure.

The NGRT applications will detect rolling stock, independent of speed, direction and track conditions at any location, in all weather conditions, as well as anomalies impacting on the railway infrastructure.

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**NEWTEK SOLIDOS, S.L.**

NEWTEK is mainly active in the manufacture of systems for filling sand in trams, trains and locomotives. NEWTEK supplies installations composed of storage silos, fixed sand feeders, sand feeding mobile units, aspiration systems and dust collection devices. The company also designs, manufactures and maintains custom installations according to the needs of each client.

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- ✉ anajera@newteksolidos.com
- 🌐 www.newteksolidos.com

**PREFABRICACIONES Y CONTRATAS, S.A.U. (PRECON)**

PRECON is the Spanish leader in design and supply of precast concrete products for railway tracks, either ballast and ballastless tracks. It has supplied monoblock, twinblock, block slabs and sleeper for switches and crossings, Either for high speed, conventional lines, haul, subways and tramways.

- 🚩 Espronceda, 38 (Local 3) 28003 Madrid (MADRID)
- ☎ +34 91 343 03 48
- ☎ +34 91 359 12 46
- ✉ fsanchez@precon.cemolins.es
- 🌐 www.preconsa.es

**PRETENSADOS DEL NORTE, S.L.**

PRETENSADOS DEL NORTE, is one of the most important producers of pre-stresses steel in the world. Our products are recognised for having the best quality on the market. Our high standards of quality mean that we are talking about the best pre-stresses steel you can find. Our company has more than 30 years' experience in manufacturing and investment that have led to what we are today: PRETENORTE. Technologically, we have equipped our company in Vitoria-Gasteiz with the best state-of-the-art machinery. We continue to incorporate the latest novelties for your complete satisfaction. Pretenorte is highly specialised in pre-stressed steel and its many applications.

- 🚩 Miravalles, 4 Zona Indus. de Betoño 01013 Vitoria (ARABA/ÁLAVA)
- ☎ +34 945 258 431
- ☎ +34 945 261 400
- ✉ pretenorte@pretenorte.com
- 🌐 www.pretenorte.com

**REVENGA SMART SOLUTIONS**

Revenge Smart Solutions offers comprehensive solutions for the transport sector: railways and metros, roads, ports & airports. In railways & metros we focus on passenger experience solutions, ranging from intercomms, public address and information panels, to systems related with revenue/cost issues, like ticketing, tolling and access control, and also with operator oriented solutions like railway telephony, signalling (level crossings, point heaters and inspection systems) and station control. More than 45 years of experience. Projects deployed in 24 countries.

- 🚩 Fragua, 6 28760 Tres Cantos (MADRID)
- ☎ +34 91 8061810
- ☎ +34 91 8041955
- ✉ marketing@revenga.com
- 🌐 www.revenga.com

**SATYS INTERIORS RAILWAY SPAIN**

Satys is a Spanish company specializing in the design and manufacture of galley systems for railway rolling stock.

A galley system is broken down into 3 main families of equipment:

- Refrigerated cabinets
- Functional systems. Cooling, electricity, water, lighting, etc.
- Interiors. Countertops, lining, etc.

Satys offers a wide range of products specifically for each one. Thanks to the unique and highly efficient Satys technology, our products are internationally recognized as the best in their class in terms of quality, safety, availability, reliability, accessibility and environmental friendliness.

🚩 **Avenida de la Cañada, 64-66 - Nave 1A
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✉ **mvega@satys.com**

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**SCREENENSOR TECH**

Screenensor Tech is a startup committed to innovating conventional media in the field of signage and broadcasting advertising and information content. We provide tailor-made solutions to our clients, from public transport to retail, enabling them to place transparent T-OLED screens in strategic locations. With the latest display technology, we offer users a unique experience, providing them with relevant content and real-time information, while creating a new space for effective communication between brands and their audiences.

🚩 **C/ del Doctor Castelo, 44, 28009
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☎ **+34 676 123 937**



✉ **info@screenensor.eu**

🌐 **www.screenensor.eu**

**SEGULA TECHNOLOGIES**

SEGULA Technologies is an engineering group with a global presence, helping boost competitiveness within all of the major industrial sectors: automotive, aerospace, energy, rail, naval and defense, pharmaceutical and oil & gas. Present in 30 countries and with 140 offices worldwide, the Group fosters a close relationship with its customers thanks to the expertise of its 12,000 employees. A leading engineering specialist placing innovation at the heart of its strategy, Segula Technologies conducts large-scale projects, ranging from studies to industrialisation and production.

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**SIEMENS MOBILITY, SLU**

Siemens Mobility is a separately managed company of Siemens AG. As a leader in transport solutions for more than 160 years, Siemens Mobility is constantly innovating its portfolio in its core areas of rolling stock, rail automation and electrification, turnkey systems, intelligent traffic systems as well as related services. With digitalization, Siemens Mobility is enabling mobility operators worldwide to make infrastructure intelligent, increase value sustainably over the entire lifecycle, enhance passenger experience and guarantee availability.

🚩 **Ronda de Europa, 5
28760 Tres Cantos (MADRID)**

☎ **+34 91 514 88 87**



✉ **www.siemens.es/siemens-mobility**

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**SMART MOTORS**

Smart Motors applies new technologies to generate added value from the monitoring of critical railway assets that believe that Digitalization and the uses of advanced analytics are the way to service excellence. The priority is to generate new knowledge about the operation of railway assets that satisfies the requirements of the most demanding environments and with a real day to day contribution.

Smart motors has its own Digitalization Platform to help maintenance and operation that brings together signaling monitoring systems, infrastructure and rolling stock, as well as IoT sensors adapted to the railway sector.

🚩 **Torroella de Montgrí 17-19, 08027
Barcelona (BARCELONA)**

☎ **+34 675 220 603**



✉ **info@smartmotors.org**

🌐 **smartmotors.org**

**SENER INGENIERÍA Y SISTEMAS, S.A.**

SENER is one of the leading engineering and technology groups in Europe with over one billion euros of annual turnover, more than 2,000 professionals and a continuously growing international presence with offices in over 15 countries. In the field of railway engineering, Sener counts on an extensive experience in metros, light rail trains systems and tramways, conventional railway line, freight transport and High Speed Lines. SENER's activities range from preliminary, conceptual and feasibility studies, basic and detailed engineering to project management services, supervision of works, value engineering and ICE services.

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**SGS GROUP SPAIN**

SGS is the world's leading inspection, verification, testing and certification company. We are recognized as the global benchmark for quality and integrity. With more than 97,000 employees, we operate a network of more than 2,600 offices and laboratories around the world.

Our core services can be divided into four categories: Certification, Inspection, Testing and Verification.

We are constantly looking beyond customers' and society's expectations in order to deliver market leading services wherever they are needed. Our independent services add significant value to our customers' operations and ensure business sustainability.

🚩 **C/ Trespaderne, 29, 3º Edificio
Barajas I, 28042 - Madrid (MADRID)**

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✉ **maha.salemsoliman@sgs.com**

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**SICE TECNOLOGÍA Y SISTEMAS, S.A. (SICE TYS)**

SICE Tecnología y Sistemas, (SICE TYS) is a group of companies that provides solutions and systems for Transport and Traffic, Environment and Energy efficiency, Smartcities and Telecommunications.

SICE TyS, as systems integrator, offers technological solutions adapted to the railways sector, conceiving a centralized management with functionalities oriented to the operation of public and private transport, integrating: - Security Systems - Telecommunications Systems - Signaling (Interlockings, Level Crossings, CTC) (ENYSE) - Automatic Fare Collection - Traffic Prioritization of Public Transport - Engineering (OFITECO): railway lines; Tunnel monitoring; Load test (railways bridges).

🚩 **La Granja, 72-Pol. Ind. Alcobendas
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**SOFTWARE QUALITY SYSTEMS, S.A.**

SQS is a company specialised in software validation and verification with extensive experience in safety critical systems and, specifically, in the railway sector.

We accompany our clients throughout their development process, optimizing it and guaranteeing compliance with specific regulations and standards for their sector in terms of safety, functionality, quality, etc.

Likewise, we design and implement automated test environments and complement our offer with training activities in the field of software testing and quality.

🚩 **Avenida Zugazarte 8, 1º-6, Getxo,
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**STADLER RAIL VALENCIA, S.A.U.**

International rail vehicle construction company, Stadler, is headquartered in Bussnang in Eastern Switzerland. Founded in 1942, it has a workforce of over 8,500 based in various production and over 40 service locations. Stadler provides a comprehensive range of products in the heavy and urban transport segments: High-speed trains, intercity trains, regional and commuter heavy rail trains, underground trains, tram trains and trams.

Stadler also manufactures main-line locomotives, shunting locomotives and passenger carriages, including the most powerful diesel-electric locomotive in Europe. It is the world's leading manufacturer in the rack-and-pinion rail vehicle industry.

🚩 **Pol. Ind. del Mediterráneo Mitjera, 6
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Talleres Alegría, s.a.

TALLERES ALEGRÍA, S.A.

Talleres Alegría, s.a. is a family owned company devoted since 1900 to design, manufacturing and after sales assistance of all kind of fixed track material, its accessories and spare parts. Developing of Designing and Commissioning Integral projects of turnouts to be installed at Depots and Industrial Ports and Factories. Design, manufacturing, repair and maintenance of self propelled vehicles to carry out works at the infrastructure. Design, manufacturing, retrofitting, repair and maintenance of freight wagons.

🚩 **Peña Santa, 7 - Pol. Ind. Silvota
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**TECNIVIAL,S.A.**

In TECNIVIAL we specialize in all types of fixed signalling for track (Marker Boards), conventional lines and High Speed lines. We are one of the companies approved by the Spanish Railway Infrastructure Administrator (Adif) and the others. The last product boosted to the market have been the NANOTEC SIGNS (R+D). The incorporation of cutting-edge materials (carbon nanoparticles) to the signs manufacturing , allows the improvement of its behavior and mechanical features: light, corrosion-free, low residual value and maintenance, eco-friendly, resistant to loads (snow/ wind). Besides, we develop Corporative Image projects according to the needs of the customer; design & installation.

🚩 **Livorno, 19004 Guadalajara (GUADALAJARA)**
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 ✉ export@tecnivial.es
 🌐 www.tecnivial.es

**TEKNIKER**

R&D center oriented to technology transfer through research projects.

Specialization areas:

- Advanced manufacturing: laser processes, LMD coating and repair, cutting processes
- Surface engineering: friction and wear studies, physical-chemical coatings seeking to improve anti-corrosion, wear, easy cleaning, anti-adherence, optical and aesthetic characteristics
- ICTs: solutions for inspection and measurement based on vision and AI techniques, O&M, condition monitoring, data management, Smart components, sensor development
- Product engineering: new product development, tribological testing, fault diagnosis.

🚩 **Iñaki Goenaga, 5, 20600 Eibar (GIPUZKOA)**
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**TEL DAT S.A**

Since 1985, Teldat has been providing solutions for cloud access, remote office communications, cybersecurity and voice/data connectivity both in the office and in specific environments (industrial, railway, vehicles or public services). Teldat invests heavily in R&D&I including technologies such as network virtualisation, artificial intelligence, Federated Learning, 5G and DLT. Combined with its ability to work closely with its customers according to the specific needs of each project, it is among the European leaders in the corporate communications market. Present in more than 40 countries, it has headquarters in both Spain and Germany.

🚩 **C/ Isaac Newton 10, 28760 Tres Cantos, (MADRID)**
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**TPF GETINSA EUROESTUDIOS, S.L.**

Passion for excellence

Our priority : developing solutions that meet our client needs. This approach is based on three pillars: expertise, efficiency and continuous innovation.

Today, TPF is ranked among the most important multidisciplinary companies active in the following sectors: building, transport infrastructure, water and energy.

Over the years, the group successively expanded in Europe, Asia, Africa and America through a series of acquisitions and became a key player, internationally recognized in its field.

🚩 **Ramón de Aguinaga, 8 28028 Madrid (MADRID)**
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**TRAFAG**

Trafag is a Swiss manufacturer of pressure, temperature, level and SF6 gas density sensors, as well as a supplier of speed sensors.

Present along the whole world and, managing from Spain the Iberian Peninsula and Latin America.

Sectors of activity: railway, hydrogen, hydraulics, pneumatics, renewables, shipbuilding, test benches, big engines, EX zones...

🚩 **Parque Tecnológico de Bizkaia, edif. 208B. 48170 - Zamudio - (Bizkaia)**
 ☎ 667 843 260 / 946 414 063
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 🌐 www.trafag.com

**TYPESA**

Founded in 1966, TYPESA is a leading consulting engineering group in the fields of transport, buildings, water, environment, energy and rural development. We have a long-standing relationship with public, private and institutional clients in the Americas, Europe, Africa, Asia and the Middle East, assisting them in the development of infrastructure, energy and city projects from concept to completion. In addition to providing world-class engineering services, TYPESA has extensive experience in building the capacity of local firms and in strengthening institutions to guarantee the sustainability of the infrastructure.

🚩 **Gomera, 9 -28703 San Sebastián de los Reyes (MADRID)**
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**TELICE, S.A**

Telice is an international company, with more than 45 years of experience in different markets related to cutting-edge technology and standing out in the railway market. Its activity covers the design, installation and maintenance of railway electrification systems, safety and railway signalling, electrical substations, civil engineering projects, industrial electricity, fibre optic installation, industrial automation and safety systems in tunnels, underground and mining projects. Due to its wide expertise, Telice has become preference collaborator for the main railway administrations. Telice has international presence in Norway, United Kingdom, Portugal, Peru, Chile and Brazil.

🚩 **Anabel Segura 11, Edif. A, 3ª Pl. Oficina B 28108 Alcobendas (MADRID)**
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**TELTRONIC**

Backed by over 40 years of experience in the design, manufacturing, and deployment of Professional mobile radio projects on a turnkey basis, Teltronic presents a broad portfolio of critical communication solutions for transport sector, providing complete solutions: network infrastructure, control centre, and end-user equipment, including specialized onboard systems specifically designed for train, metro, tram and LTR. Besides voice and data transmission solutions, the company offers integration services with other subsystems: PA and intercom, applications to manage and control fleets and for operating aid, real time CCTV or communications support for signalling systems ETCS, CBTC, PTC...

🚩 **Pol. Malpica, C/F Oeste 50016 Zaragoza (ZARAGOZA)**
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**THALES ESPAÑA GRP, S.A.U.**

Thales is a World leader in Mission Critical Solutions for Land Transportation. Thales Spain, with more than 60 years of experience, has been pioneer and leader in the technological development of the Spanish railways, being one of the main suppliers of safety and telecommunication systems for the Spanish Railways Administrations and present in countries as Turkey, Mexico, Algeria, Malaysia and Morocco.

Its activity goes from the development, manufacturing installation, commissioning to the maintenance of equipments and systems for railway signalling, train control, Telecommunication, Supervision ticketing and critical infrastructures security.

🚩 **Serrano Galvache, 56 Edif Álamo 28033 Madrid (MADRID)**
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**ULMA FORJA S.COOP.**

Ulma Forja S.Coop is a cooperative company, part of Ulma Group and specialized in the manufacturing of Forged Components. With more than 50 years of experience and with two production plants (Oñati and Lazkao), we offer forged and machined components of high quality. We produce our pieces forged from a wide variety of materials to meet the different requirements and needs of our customers in many industries.

In the railway sector, Ulma collaborates with companies in the value chain to which supplies forged components in different materials such as carbon steel, aluminium or low alloy, among others.

🚩 **C/ Zubillaga 3, 20.560 Oñati (GUIPÚZCOA)**
 ☎ +34 670 621 868
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 ✉ mlopetegi@ulmaforge.com
 🌐 www.ulmaforge.com

**URETEK SOLUCIONES INNOVADORAS, S.L.U**

We are the inventors of consolidation with Expansive Resins. Our patented technologies are the most used in the world, with more than 100,000 interventions carried out. Our high technology, the quality of the interventions and more than 30 years of experience, we have become the reference for the consolidation of land with injections of expansive resin to be able to provide multiple solutions to your problems. We are committed to repairing structures without interfering with life and activities, in particular we use unique and patented innovative technologies that are fast and conservative.

🚩 **Príncipe de Vergara, 1261º F - 28002 Madrid (MADRID)**
 ☎ +34 900 809 933
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 ✉ uretek@uretek.es
 🌐 www.uretek.es

**VALDEPINTO, S.L.**

Valdepinto, S.L. was established in 1986 and focuses its activities in the Railway sector.

We have four main product lines:

- All types of machining (specialists in electrical insulation).
- Screen printing, Signs and Engraving low-relief.
- Metal transformation and welding.
- Design and fabrication of transformers and coils of high/low voltage. Our philosophy is to always offer all our clients an unbeatable value for Money, combined with an excellent service.

🚩 **C/ Águilas, 9 - Nave 11 28320 Valdepinto (MADRID)**
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VICOMTECH

Vicomtech is an applied research centre specialising in Artificial Intelligence, working on technological solutions based on Computer Vision, Data Analytics, Computer Graphics, Advanced Media Technologies and Language Technologies. It aims at meeting the innovation requirements of the local companies and institutions to face new economic and social challenges, and improving their competitiveness in a global market. The transfer mechanism for this research is the creation of R+D+i projects geared to companies' needs. Furthermore, the centre works intensively on cooperation projects, through cooperative technology development promotion schemes at local, national and international level.

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voestalpine Railway Systems JEZ, S.L.

We are committed to the designing, manufacturing, supplying and maintenance of all types of manganese steel switches and railway track systems for railways and tramways, in addition to moulded cast steel parts for the general industry. Our Technical Department (Department R&D) ensures we have the capability of designing and producing points and crossings (turnouts, crossovers, scissor crossovers and diamond crossings) or parts for them, such as hard steel manganese crossings, spare tongues... as well as the generation of patents.

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VOLGELSANG

As the inventor of the elastomer-coated rotary lobe pump and a pioneer in the area of vacuum wastewater technology, we have been supplying technical solutions whose functionality, quality and reliability set the benchmark for our competitors. Renowned railway companies such as the Deutsche Bahn among other international companies put their trust in our intelligently designed solutions for wastewater disposal and fresh water supply as well as Vogelsang's demand-oriented technical equipment. These include systems mobile solutions, maintenance for bioreactor toilet systems as well as servicing and cleaning to ensure the highest standards regarding hygiene, usability and cost-efficiency.

🚩 Roger de Lluria, 50 5° 08009 Barcelona Crta. del Pla 285 nau 20 43800 Valls
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WSP SPAIN

As one of the world's leading professional services firms, WSP provides engineering and design services to clients in the Transportation & Infrastructure, Property & Buildings, Environment, Power & Energy, Resources and Industry sectors, as well as offering strategic advisory services. Our experts include engineers, advisors, technicians, scientists, architects, planners, surveyors and environmental specialists, as well as other design, program and construction management professionals. With approximately 49,000 talented people globally, we are uniquely positioned to deliver successful and sustainable projects, wherever our clients need us.

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 ✉ Mario.Perez@wsp.com
 🌐 www.wsp.com/es-ES



ZELEROS

Zeleros is the Spanish company developing a hyperloop transport system, already considered as "the fifth means of transport". Its focus on the vehicle optimization allows to reduce infrastructure costs and to operate at safer pressures for the passengers. Zeleros has already raised substantial private and public support, and collaborates with companies such as Renfe (Trenlab) and Altran, research centers (Universitat Politècnica de València, CIEMAT, UPM) and is supported by investors such as Plug and Play, Angels or ClimateKIC. Currently Zeleros is preparing the construction of its own 2-kilometer test-track in Sagunto to demonstrate the system at high speed.

🚩 Muelle de la Aduana s/n, Edificio Lanzadera 46024 Valencia (VALENCIA)
 ☎ +34 633 386 733
 ✉ info@zeleros.com
 🌐 www.zeleros.com



ZITRON, S.A.

ZITRON is a world-wide leading company in designing, manufacturing, commissioning and maintenance complete ventilation systems for metro and tunnels. ZITRON has the world's biggest aerodynamic test bench, certified by AMCA, for testing fans at full load and 100 % speed. ZITRON's extensive reference list includes more than 500 metro and tunnel projects. The latest and more significant ones are Crossrail in London and Doha Metro. Experience and know-how, providing innovative and tailor-made solutions, are our most appreciated values. The global growing market of ZITRON's fans, along with the high level of satisfaction of the Clients is the best mark of its equipment and services quality.

🚩 Autovía AS-II nº2386, Polígono Rocas 33211 Gijón (ASTURIAS)
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**WHEN YOU MOVE IN GOOD COMPANY,
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