



SPECIAL

Rail Live! is being held in Madrid on 30th November and 1st December at IFEMA.



MAFEX INFORMS

Annual summary of the project portfolio of the Mafex innovation area.



INTERVIEW

Raquel Sánchez, Minister for Transport, Mobility and Urban Agenda.

Well prepared, with an acute vision... This is our way of looking at global transport. This is our way of designing, developing, manufacturing, installing and integrating all the parts that make up an inter-connected mobility system. We do it your way, adapting to your needs and preferences, making it sustainable, safe and comfortable for the people and cities of the future all around the world.

Your Way
TO FUTURE MOBILITY

Photo: Kaohsiung Tramway System – CAF Turnkey Project

05 / EDITORIAL

06 / MAFEX INFORMS

MAFEX WILL SUPPORT EUROPEAN SMES IN INTERNATIONAL PUBLIC PROCUREMENT PROJECTS WITH THE S-ACCESS PROJECT

MAFEX WILL PROMOTE THE ADOPTION OF ADVANCED TECHNOLOGIES BY SMES WITH THE STARS PROJECT



ANNUAL SUMMARY OF THE PROJECT PORTFOLIO OF THE MAFEX INNOVATION AREA

MAFEX COORDINATES THE SPANISH GROUP PARTICIPATION AT THE TRANS-MEA FAIR-CONGRESS

THE SPANISH RAILWAY PRESENT AT THE BENCHMARK FAIR-CONGRESS IN THE MIDDLE EAST, MIDDLE EAST RAIL



MAFEX PREPARES AN INTENSE AGENDA OF ACTIVITIES FOR 2022

II EDITION OF THE MASTER'S DEGREE IN RAILWAY ENGINEERING

INCOFER PROMOTES THE ELECTRIC PASSENGER TRAIN PROJECT TO THE SPANISH RAILWAY INDUSTRY

FIEM APPROVES A NON-REIMBURSABLE LINE OF FINANCING FOR THE DEFINITION OF PROJECTS

MAFEX JOINS CEOE'S EUROPEAN FUNDS TASK FORCE

20 / MEMBERS NEWS



46 / INTERVIEW
RAQUEL SÁNCHEZ, MINISTER FOR TRANSPORT, MOBILITY AND URBAN AGENDA



53 / SPECIAL
NEW EDITION OF RAIL LIVE 2021
This professional platform will serve to analyse the present and future of the railway, its challenges and opportunities, as well as to present the latest innovations and the companies' most avant-garde solutions.

78 / INNOVATION
MAFEX MEMBERS PRESENT THEIR LATEST DEVELOPMENTS

92 / MEMBERS DIRECTORY

IMAGINING THE MOTION



INGETRAC Traction converters are based on the smart integration of proven Power Modules (BPM) and a configuration adapted to the vehicle's needs.

At Ingeteam, we imagine vehicles in motion, and we are ready to successfully address any challenge related to rail vehicle traction.

Rail Live 2021 is here, the national benchmark event to learn about the advances and challenges of the railway sector

We are in the last quarter of a decisive date for our sector: the "European Year of Rail". Parallel with this celebration, Madrid hosts Rail Live 2021. This professional platform will be the finishing touch of an agenda that - for 12 months - has highlighted the role that this mode of transport will have in the future of sustainable mobility.

For two days, the main players in the sector - from more than 25 countries - will analyse the present and future of the mode of transport that is called to be the backbone of intermodality, thanks to its numerous environmental, safety and reliability advantages. Everything is ready for the meeting and, from Mafex, as co-organisers, we want to welcome the more than 3,000 expected attendees, the sponsors and collaborating entities, the participating companies and the speakers who are coming to Spain to share a joint vision. This is a vision on the challenges of the coming years and the great opportunities that arise before the decisive boost that we want to give to the passenger and goods railway infrastructures.

The edition of Rail Live 2021 represents a long-awaited meeting for everyone, after the months of global slowdown due to the pandemic; an event that makes us look with optimism at a future where the railway will be an essential part of the new projects in terms of mobility.

In addition to this, from Mafex we continue working to achieve a more solid, competitive industry at the technological and digital forefront. In this line of action, we participate in new initiatives such as the "S-ACCESS project (SMEs Access to International Public Procurement)" which aims to ensure for SMEs to have a better access to third country markets. Likewise, we are part, together with 10 other entities in the railway sector, of the STARS project that aims to give a boost

also to SMEs in terms of productive performance and innovation capacity to facilitate the adoption of advanced technologies that can make this change possible. Furthermore, acknowledging that industry and knowledge must go together as an engine of innovation and competitiveness, we have launched the second edition of the Master in Railway Engineering that we organise together with the University of Cantabria. This Master has the support for its development of SUM + LAB - Sustainable Mobility and Railway Engineering and the Laboratory of the Division of Science and Engineering of Materials (Ladicim). The edition is completed with an important group of 28 companies and collaborating entities, with both logistic and teaching staff, which provide added value to the programme and contents of the training offered.

On the other hand, and as in previous occasions, this edition also includes the latest news of 34 of our partners, as well as the innovation projects of other 15 companies.

In 2022 we will therefore continue our efforts to defend an industry that is a world benchmark. It has a large international presence in more than 90 countries and that in Spain generates 30,000 direct jobs with a turnover of more than 15 billion euros (more than 8% of industrial GDP) constituting thereby a key and leading sector, both for our economy and for our country image. That is why, it is essential that public administrations place this mode of transport as the axis of their medium- and long-term policies and strategies of sustainable transport and that they acquire a firm commitment to R + D + i programmes. This shall include financing plans to promote their development and competitiveness throughout the value chain and support its foreign market presence.

We are waiting for you at Rail Live 2021!

MANAGEMENT: MAFEX.

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Mafex will support European SMEs in international **public procurement of innovation projects** with the S-ACCESS project

Access to third country markets is essential for European SMEs, especially as the size of the EU market is limited and growth is slower compared to some third countries with larger railway networks. One way to enter new markets is through Public Procurement of Innovation (PPI), but this is not usually an easy task for companies. SMEs face major challenges when bidding for tenders in foreign countries due to the requirements of authorities.

The railway sector is a sector in which the Public Procurement of Innovation plays a key role as the public bodies themselves are in most cases the final customers. This is why there is a need to support railway SMEs in these processes.

In July 2021, the new S-ACCESS project was launched, funded by the EU COSME programme, the aim of the project is to promote the competitiveness of companies and SMEs. The consortium of which Mafex is part of is led by the Italian railway cluster DITECFER, and of which are also part the railway clusters i-Trans (France), Rail.S (Germany), Järnvägsklustret (Sweden), RCSEE (Serbia and Southeast Europe) and Rail Alliance (United Kingdom).

THE PROJECT AIMS TO PROMOTE THE COMPETITIVENESS OF COMPANIES AND SMES. THE PROJECT WILL CONTRIBUTE TO REINFORCE THE EU'S EFFORT TOWARDS A GREENER AND MORE DIGITALISED ECONOMY, SUPPORTING THE RESILIENCE OF EUROPEAN SMES THROUGH INTERNATIONALISATION.



The project covers 1,000 SMEs members of the 7 partners, and it focuses on defining for Public Procurement of Innovation strategies in three countries, the United States, Canada, and Norway. During the 36 months of the project, a complete analysis of the target countries will be offered, as well as training and advisory services for SMEs, company missions to the target countries, and other relevant actions to support SMEs in the bidding processes related to the Pu-

blic Procurement of Innovation. To this end, the S-ACCESS project will be developed in two phases, a first phase of preparation and a second one of execution, during which the analysis of SMEs will be carried out, as well as of the different markets and their bidding and public procurement procedures.

The project will contribute to reinforce the EU's effort towards a greener and more digitalised economy, supporting the resilience of European SMEs through internationalisation.

The new internationalisation approach proposed by the S-ACCESS project can be exploited by other European industrial sectors, as many of the SMEs operating in the railway sector also develop solutions for other public-driven sectors, such as energy, water or defence. 

The new internationalisation approach proposed by the S-ACCESS project can be exploited by other European industrial sectors.

Mafex encourages the adoption of **Advanced Technologies** in SMEs through the STARS project

Today's industry is living a situation of constant change, mainly caused by the COVID-19 pandemic, as well as by the three engines identified in the European Industrial Strategy: the transition to a greener Europe, global competitiveness and digital transition. That is why for a rapid recovery of the European economy after the pandemic, SMEs need be supported by actions and policy measures to adapt in the best possible way to the constant changes in the value chain and demand.

SMEs represent 90% of the railway industry, an industry with a market share of more than 80% in Europe and which represents almost half of the world market for railway products. Even so, in export matters it only covers 20% of the trade as the leading exporter. The global leadership of the European railway industry is largely due to the ability to innovate that it possesses, but even so, industry investments in R+D+&i on the annual turnover is significantly lower compared to other transport sectors, so the key is in harness the full potential of the industrial transition and innovation for the adoption of advanced technologies in the SMEs across the whole railway value chain.

Therefore, the STARS project aims to give a boost to SMEs in terms

THE STARS PROJECT AIMS TO GIVE A BOOST TO SMES IN TERMS OF PRODUCTIVE PERFORMANCE AND INNOVATIVE CAPACITY TO FACILITATE THE ADOPTION OF ADVANCED TECHNOLOGIES THAT CAN MAKE THIS CHANGE POSSIBLE.



of productive performance and innovative capacity to facilitate the adoption of Advanced Technologies that can make this change possible. And that is why its main objective is to develop a pilot project for the creation of a Strategic Alliance for SMEs in the sector.

In order to achieve this goal, the consortium of the STARS project has been formed by 11 clusters of the railway sector from 13 regions of 9 COSME countries (but covering 14 countries); 5 technology centres, selected based on the value chain and offering the complementary specialisation required

to be able to accompany any SME during its transition; and by a blockchain network developer and provider that will dedicate specifically to the project. It will also have the support of 30 relevant European organisations, among which are the EU JU Shift2Rail, several contacts of the European Enterprise Network, IDEKO-DANOBAT, Mondragón Corporation, and several members of EIT / KIC.

The project will address all aspects related to the adoption of advanced technologies by SMEs and for this purpose, activities will be developed to support SMEs in the process of organisational/cultural change based on innovative models, a better understanding of the aspects of investment, and the return on investment (ROI) related to the adoption of Advanced Technologies, training and assistance on opportunities for financing investments, improvement and updating of qualifications, etc. 

The project will address all aspects related to the adoption of advanced technologies by SMEs.

Annual summary of the project portfolio of the Mafex innovation area

The railway sector is synonymous with technology, efficiency, and sustainability, being one of the most energy-efficient modes of transport, as well as being responsible for 9% of passenger transport and 7% of the transport of goods. With a turnover of 49.2 billion euros and an annual growth rate of 2.3% until 2025, it stands as one of the most important industries in Europe. Since 2017 the railway sector has experienced an annual growth of 3.6%, driven largely by significant investments in rolling stock, infrastructure, and railway control. In addition to the increase in the number of vehicles and the kilometres of track available, which have served to help with the growth of the sector.

The COVID-19 crisis has highlighted the need to accelerate the innovation processes, as innovation is indispensable to remain competitive worldwide.

In order to increase the impact of the European railway sector but especially the Spanish one, Mafex develops projects that help improve the competitiveness of the sector.

Over the past year Mafex has been immersed in 6 projects, 5 being at European level and 1 at regional level.



RailActivation (Activating inclusive growth in Railway SMEs)

The RailActivation project, coordinated by MAFEX, has been part of the H2020 initiative and it ended last

THE ASSOCIATION CONTINUES TO EXPAND ITS AGENDA OF ACTIVITIES AND ITS PORTFOLIO OF PROJECTS, IN ORDER TO HELP COMPANIES IN THE SECTOR ADVANCE IN INNOVATION, INTERNATIONALISATION, COMPETITIVENESS AND STRENGTHEN THEIR LEADERSHIP IN THE WORLD.

31st of August. The European consortium of the project has consisted of Tecnalia, the technology centre; Ditecfer, the Italian cluster; BTS, the German cluster, and Quinn, the Italian association of universities.

During the two years that the project has lasted, the objective has been to create and test business and organisational mechanisms to help railway SMEs in the adoption of innovation in the workplace. To this end, during the execution of the project, it was analysed how the culture of innovation affects digital transformation and a specific outline was proposed for railway SMEs, which has subsequently been tested in 18 companies. With these use cases, the outline was improved, and a series of policy recommendations were proposed in order to promote the innovative culture and its importance in the process of digital transformation. These recommendations have been published in an article in Open Research Europe.

On the other hand, and in order to continue promoting innovation in the workplace and increase the impact of the project, the results of the analysis have been published in a scientific article, developed by MAFEX and Tecnalia, in the influential journal Transportation Research

Interdisciplinary Perspectives. The paper develops and tests the research model that encompasses individual behaviour, organisational practices, and innovation process practices among employees, analysing the impact of workplace innovation on company performance.

Finally, the framework defined for the project has been exploited in a chapter developed by Mafex and Tecnalia within the book "Decision making". And finally, the recommendations proposed in the project have been published in Open Research Europe.



EXXTRA (Excellence Exchange and Teaming-up between railway clusters and ecosystems)

A cluster is an exceptional network to remain at the forefront of technological developments and to establish partnerships. Facts have shown that the European railway sector must remain at the forefront of R&D and innovation.

To maintain its leading position and remain able to successfully compete

against foreign suppliers, the sector must face industrial transformation, digitalisation, skills shortages, and the level playing field in terms of internationalisation.

The EXXTRA project partners are innovation-driven clusters in the Railway Supply Industry (RSI) sector, a sector where the EU accounts for almost half of the global market and more than 80% of the European market share.

90% of the railway industry is represented by SMEs, and that is why clusters are becoming increasingly important. The development and sustainability of SMEs and start-ups depend on their ability to stay at the forefront of technological developments, an area on the rise in recent years. This is why SMEs and clusters need to get involved in broad and diversified networks in order to adjust their solutions according to the specific trends and needs of the sector.

After identifying the challenges and tasks to be carried out, the partners formulated an "EXXTRA Vision" on what the cluster organisation should be, in order to respond to the problems raised through activities such as the formulation of a European Partnership Joint Strategy.

Mafex, aware of the importance of this collaborative model participates in the project, whose objective is to accompany in the professionalisation of the competences and services of the clusters towards the creation and consolidation of world-class clusters in the field of Railway Technologies.

The project also has a mobility pilot programme based on the "ERASMUS" model called "ClusterXchange", a programme that allows short-term exchanges with other European organisations, promoting

cross-border cooperation, learning between parties, networking, and innovative adoption among participants from different industry groups in Europe.



STAFFER (Skill Training Alliance for the Future European Rail System)

Railway transport plays a key role for the European economy and society, but it has the potential to contribute much more. The sector is experiencing a severe staff shortage as well as a need for re-training. Furthermore, a part of the workforce is expected to retire in the next and that is why there is a need to increase the attractiveness of the sector. In turn, the transformation process driven by research and innovation requires the incorporation of the right skills and competencies.

In this context, one of the main challenges to face is the difficulty of hiring people, including women and young people. This is mainly due to two aspects: a widespread negative perception of working conditions on the railway and a poor knowledge of the high-tech employment opportunities offered by the sector.

To address this challenge, the STAFFER project brings together key players from the railway industry to work in close collaboration to meet training needs and improve dialogue between the education sector and the labour market. With a duration of 4 years and a consortium formed by 7 infrastructure operators / managers, 8 suppliers of the railway industry, 2 partnerships, a consulting company and 14 educational institutions, its main objective is to

offer human capital solutions for all levels of the railway value chain, obtaining a holistic vision of the sector as a system of systems.

The final result of the STAFFER project will be the creation of a union of railway members - Skill Alliance, which will aim to develop a Blueprint strategy that will make it possible to recognise current needs and new capacities for the realisation of a single European railway area. This strategy will overcome the fragmentation of the railway industry and it will help the railway industry and educational institutions (professional and university) to design and implement specific actions to meet technical needs.



ePROMAT (Nueva Célula de fabricación de composites de alta eficiencia en productividad y materiales)

The future global market of composites presents interesting opportunities for different industries such as transport, construction, energy, or consumer goods. By 2024, the global composites market is expected to reach a value of \$114.7 billion.

The challenge faced by these industries when developing new manufacturing processes for composite parts is based on finding the balance between the cost of the process, the investment, and the productivity, especially in the case of high-volume parts.

The objective of the ePROMAT project will be to develop a new 4.0 manufacturing cell for large composite parts for the railway and naval sector. This cell will be based on advanced and intelligent organisational models for the automation of the processes

MAFEX develops projects that help improve the competitiveness of the sector.

of lamination, preforming, handling, and moulding of optimised materials by liquid route.

The project is developed with the support of the HAZITEK 2020 programme and has a consortium of 9 industrial partners, 1 cluster (MAFEX) and 2 RVCTI agents, led by the company POLIKEA, a manufacturer of complete components and modules for the railway and naval industry.



S-ACCESS (SMEs Access to International Public Procurement)

The S-ACCESS project, which has started in July of this year, has the main objective of supporting railway SMEs in the participation in public procurement, since one of the main barriers to internationalisation faced by this type of companies are the requirements often established by local / national tendering authorities, which require the participation of local SMEs when supplying railway materials. To this end, the project will develop a series of tools to help SMEs during the bidding processes and will train them for operational activities. In addition to this, the project will develop an internationalisation strategy and a roadmap that will outline the steps to be followed by companies.

The internationalisation strategy will focus on both the market framework and the legal/tax/labour rights of three different countries, the USA, Canada, and Norway, through which it is intended to create transversal synergies with the main stakeholders and learn from success stories.



STARS (Strategic Alliances Boosting Railway SMEs)

The STARS proposal aims to develop a pilot project to create a strategic

alliance in SMEs in the railway sector. The consortium consists of 11 railway clusters, 5 Technology Centres selected following a value chain approach and offering complementary specialisations suitable to accompany any type of SME for any type of transition need, and 1 initial developer and provider of a blockchain network that will be specifically available and dedicated to the project.

The opportunity will multiply the impact of the demonstrative and practical learning activities of the Technology Centres, as well as the "Hack & Match" Events that will be organised throughout the project, so that SMEs within the Strategic Alliances apply their technologies.

The project is supported by 30 relevant European organisations. And the actions carried out will

The opportunity will multiply the impact of the demonstrative and practical learning activities of the Technology Centres.

respond to the objectives by addressing all aspects related to the adoption of advanced technologies by SMEs.

Name	Duration	Budget for the project	Role of MAFEX	Consortium	Description
RailActivation	24 months 1 September 2019 31 August 2021	298.524,25€	Coordinator	Mafex (Spain), Tecnalía (Spain), BTS (Germany), Ditecfer (Italy), Quinn (Italy)	The aim of the RailActivation project has been to create and test business and organisational mechanisms to assist railway SMEs in adopting Workplace Innovation. To this end, during the execution of the project, an analysis of how the culture of innovation affects digital transformation was carried out and a specific outline was proposed for railway SMEs, which has subsequently been tested in 18 companies. In addition, in the final stage of the project, a series of policy recommendations were proposed to promote the innovative culture in SMEs from the railway sector.
EXXTRA	24 months 1 February 2020 31 January 2022	293.808,19	Partner	Ditecfer (Italy), CEN SEC (Denmark), BTS (Germany), i-Trans (France), Mafex (Spain), Railgrup (Spain), ARUS (Turkey)	The EXXTRA project aims to accompany clusters in the professionalisation of their skills and services, towards the creation and consolidation of clusters worldwide in the field of Railway Technologies. The project has a mobility pilot programme based on the "ERASMUS" model known as "ClusterXchange", which allows short-term exchanges with other European organisations, promoting cross-border cooperation, learning between parties, networking, and innovative adoption among participants from different industry groups in Europe.
STAFFER	48 months 1 November 2020 30 October 2024	3.999.446,00€	Partner	7 infrastructure operators/managers, 8 railway industry suppliers, 2 associations, a consulting firm and 14 educational institutions	The STAFFER project 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. As a result of the project, a union of members of the railway - Skill Alliance will be created, with the aim of developing a Blueprint strategy that will allow to acknowledge the current needs and the new abilities for the establishment of a single European railway area.
ePROMAT	36 months 1 June 2020 31 May 2022	4.495.506,00€	Partner	Polikea S.A., Abeki Composites S.L., Danobat S Coop., EKIDE S Coop., Goiti S. Coop., INKATEC Automatización y Robótica S.L, Oliver Design, Sisteplant S.L., Mafex, Composites Quimibber, Gaiker (RVCTI), Ideko (RVCTI)	The ePROMAT project will aim to develop a new 4.0 manufacturing cell for large composite parts for the railway and naval sector. This cell will be based on advanced and intelligent organisational models for the automation of the processes of lamination, preforming, handling, and moulding of optimised materials by liquid route.
S-ACCESS	36 months 1 July 2021 31 June 2024	533.331,87€	Partner	Ditecfer (Italy), BTS (Germany), i-TRANS (France), Rail Alliance (UK), RCSEE (Serbia), Järnvägsklustret (Sweden), Mafex (Spain)	The main objective of the S-ACCESS project will be to support rail SMEs in the participation in public procurement, facing one of the main barriers they face when it comes to internationalisation.
STARS	24 months 1 October 2021 31 September 2023	3.177.456,00€	Partner	11 railway clusters, 5 Technology Centres and 1 blockchain network initial developer and supplier	The STARS project will develop a pilot plan for the creation of a Strategic Alliance in SMEs in the sector. During the project, actions related to the adoption of Advanced Technologies by SMEs will be carried out.



Mafex coordinates the Spanish group participation at the TransMEA exhibition-congress in Egypt

THE SPANISH RAILWAY INDUSTRY PRESENT AT THE TRANSMEDIA EXHIBITION-CONGRESS IN EGYPT. THIS EVENT HELPS TO STRENGTHEN THE PRESENCE OF SPANISH COMPANIES IN THE COUNTRY.

In this context, the Spanish Railway Association (Mafex) has coordinated the group participation of 7 companies in the TransMEA exhibition-congress, which took place in New Cairo from the 7th to the 10th of November 2021.

This edition has been attended by companies such as Aquafirsch, Hispacold, Talleres Alegría, Tyspa and Zitron, as well as the rolling stock manufacturers Caf and Patentes Talgo. TransMEA, organised in cooperation with the Egyptian Ministry of Transport, aimed to bring together the main regional and international actors to show on the one hand, the main solution trends, products, and new technologies to achieve more efficient and even faster transport and logistics services. And on the other hand, to offer a congress agen-

da addressing topics such as digital technology, a vital element to promote innovation, and that covered data analysis, artificial intelligence, machine learning, cybersecurity, automation, digital transformation, or disruptive technologies among others.

It should be remembered that in the coming years the country wants to carry out various megaprojects such as the implementation of the first high-speed line in the country, the

signaling of the lines from Alexandria to Cairo, and from Beni Suef to Nag Hammadi, the modernisation of Line 2 of the Cairo Metro, the future Lines 5 and 6, the Abu-Qir metro project, the extension of the Alexandria tramway, as well as the various opportunities that will arise for the acquisition and rehabilitation of rolling stock.

This is an opportunity for the railway industry that already has a wide presence in this country due to the numerous systems designed by Spanish companies, as well as in rolling stock and infrastructures. 🚂

This is an opportunity for the railway industry that already has a wide presence in this country.

The Spanish railway present at the benchmark exhibition-congress in the Middle East, Middle East Rail

In this context, the Spanish Railway Association (Mafex) has once again coordinated the participation of a group of 5 companies in the Middle East Rail exhibition-congress, which took place in Dubai on 12th and 13rd October 2021

This edition has been attended by companies such as Idom Consulting, Engineering and Architecture; Danobat; Ineco; Tyspa, and Zitron.



Positioning themselves and looking for new opportunities are two of the main objectives of the Spanish companies, which are already considered a technological benchmark in

the countries of the area and where they have already contributed their solutions in the main projects of the recent years. This is why the attendance at the Middle East Rail repre-

sents for Mafex an ideal platform to promote the new Spanish technologies and establish contacts with the main actors that shape the future of transport in this market. 🚂



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Mafex prepares an intense agenda of activities for 2022

In the international area, Mafex is once again committed to continuing to promote Spanish railway services and technologies in countries with important investment plans and a portfolio of projects such

International promotion: Conventions and exhibitions

As in previous editions, Mafex will participate in leading sector exhibitions such as Middle East Rail in Abu Dhabi, InnoTrans in Berlin and TransMEA in New Cairo.

It is worth mentioning the Innotrans exhibition that will be held between 20th and 23rd September 2022 in Berlin after an edition postponed in 2020 due to the impact of Covid-19. Mafex will meet and coordinate again the grouped participation of 59 companies in the sector. This pavilion is the ninth time, and the most numerous, in which the association is responsible for the promotion of the Spanish railway sector in the main world event of the sector.

It is also worth noting the celebration in November 2022 and for the fifth consecutive year of the exhibition and congress "Rail Live!", which has become the main national reference forum of the railway sector with a marked international character and where Mafex is co-organiser.

Trade policy

The Association will pay particular attention to trade policy issues and

IN ADDITION TO INTERNATIONALISATION ACTIVITIES, THE ASSOCIATION CONTINUES TO BET ON INNOVATION AS A PATH TO EXCELLENCE.

impact on industry, as they are aware that trade in goods and services contributes significantly to greater sustainable growth and job creation. The negotiations of EU trade agreements with third countries will be followed with particular attention, as in order to create new business opportunities and overcome barriers to trade, it is necessary to closely monitor trade defence instruments, also ensuring effective protection of the interests of the sector and avoiding bad practices.

Strategic Intelligence

The preparation of "FocusOn" reports on identified strategic markets will continue as well as the renovation and improvement of the intelligence platform with the most relevant news and business opportunities in the national and international railway sector.

Networking

During the next year, the sectorial forums on Digitalisation, Mobility, Sustainability, Hyperloop and International Markets will be launched. New working groups will also be launched adapting them to the new dynamic defined in the Strategic Plan of the Association 2021-2024.

Competitiveness and Innovation

In addition to the activities of international character and the strategic

intelligence, the innovation is key in the services offered by Mafex given its differentiating nature in the competitive improvement of companies. That is why What Mafex acts as a facilitating agent of supply and demand of innovation in different activities, supporting R&D with the aim of keeping pace technological with other means of transport and looking for the partner companies to be more competitive, innovative, and technologically advanced.

In addition, the association considers necessary the collaboration and the implementation of joint initiatives to support the sector in different areas such as: sectorial forums, attraction of talent, technological training and the organisation of training days and technological missions. Also, and as it has been done, Mafex, will follow with the continuous approach to universities and technological centres, as well as to start-ups to promote collaboration between academia and the industrial sector.

All the year-round work will continue in the identification of calls at national and European level, pulling and managing consortia for the presentation of projects and promoting the participation of partner companies in R&D projects in a collaborative way.

The second edition of the Master's degree in Railway Engineering organised by the University of Cantabria and Mafex begins



THIS INITIATIVE IS CONSOLIDATED TO RESPOND TO ONE OF THE STRATEGIC CHALLENGES OF THE ASSOCIATION: THE ATTRACTION OF TALENT TO THE SECTOR, THE INCORPORATION OF KNOWLEDGE OF OTHER NON-RAILWAY BUSINESSES OR THE SPECIALISATION OF WORKERS FROM MAFEX MEMBER COMPANIES.

The Master in Railway Engineering is organised by the University of Cantabria and the Spanish Railway Association – Mafex. The Master has the support of SUM+LAB and the Laboratory of the Division of Materials Science and Engineering of the University of Cantabria (Ladicim) for its development in addition to PTV Group as a sponsor. The edition is completed with an important cast of collaborators, both logistic and teaching, who provide added value to the program and contents of the training offered.

The main objective of the master's degree, whose second edition be-

gan on October, and which had the participation, is to train professionals in the different areas of the railway sector. In this way, a curri-

cular itinerary has been designed under a multidisciplinary approach in order to complete the training of an industrial, telecommunications, electrical, civil engineer, a graduate in Science, business administration



or economics, covering the different facets of railway engineering as a whole.


From this perspective, the master aims to provide knowledge on issues related to rolling stock, installations and signaling, with the study of the behaviour of the railway superstructure, with the design and simulation of railway operations, with the management of human resources, considering the regulatory framework.

In this new edition, students will receive valuable training, providing knowledge on issues related to rolling stock, facilities and signalling, with the study of the behaviour of the railway superstructure, the design and simulation of railway operations, the management of hu-

man resources and the regulatory framework, among others. With the aim of adapting to the needs of the students, the master's degree, which will again have a year of duration, is organised into four modules, which can be taken independently, offering specific contents in each of the four major areas of knowledge in the sector. The completion of the 4 modules will grant the title of Master in Railway Engineering.

The subjects have once again been endowed with an eminently practical content, encouraging learning from experimentation related to real-life conditions and situations explained by professionals in the sector with extensive experience. These concepts are reinforced with the realisation of paid external internships

with a duration of six months in the collaborating companies of the master's degree.

All the speakers of the master's belong to companies of recognised national and international prestige in the railway sector. In addition, they will tutor the student in the development of their master's thesis, being able to expand their knowledge under their supervision in a much broader and more extensive way in the area of their interest. The high "know how" of all of them together with the scheduled visits and the aforementioned internship programme will help to acquire the necessary experience to focus their professional future on one of the most productive sectors not only of our country but of the entire world, the railway. 

Next Mafex open days on 13th December in Leioa (Vizcaya) and 14th December in Madrid


THIS INITIATIVE AIMS TO PUBLICISE THE WORK OF MAFEX THE SERVICES IT OFFERS AND THE SUPPORT IT PROVIDES TO EACH COMPANY TO HELP THEM IN THE PROCESS OF INTERNATIONALISATION, COMPETITIVENESS, INNOVATION, INSTITUTIONAL REPRESENTATION AND THE SEARCH FOR NEW BUSINESS AROUND THE WORLD. TO DO THIS, ATTENDEES WILL LEARN ABOUT THE SERVICES IT OFFERS, AS WELL AS THE PLAN OF ACTIVITIES THAT HAS BEEN DESIGNED FOR THE YEAR 2022.



Mafex's main objective is to serve the railway industry and defend the general interest of its 95 current partners. All this acting as a facilitating agent through the implementation of initiatives in internationalisation, innovation, competitive improvement, and institutional relations. Thus allowing to improve the competitiveness of the Spanish railway industry and boost the global presence of its members through cooperation and the use of joint capabilities.

In this new edition, it should also be highlighted the participation of Mafex partners such as Caf, Idom, Typsa and the Tekniker technology centre who will share their experience as members of the society and

will explain how Mafex supports them in different areas and issues.

More information about the day at mafex@mafex.es or by phone: 944 706 504. 

Mafex's main objective is to serve the railway industry and defend the general interest of its 95 current partners.



Incofer promotes to the Spanish railway industry the Electric Passenger Train project

Incofer (Costa Rican Railway Institute), through its President Elisabeth Briceño, and Engineer Mario Durán who is responsible for the project, visited Madrid on 15th October to hold bilateral meetings with those companies interested in participating in the execution of the Electric Passenger Train (TRP). This stay in Spain has been framed within an international trip that has included other destinations such as France and Korea.

The relationship with Incofer dates back to 2017, when they visited Spain to present their portfolio of projects within the framework of the VI International Railway



Source: Incofer

Convention. Since then, Mafex have maintained a fluid and close relationship with this entity, which has also been present at other events organised by Mafex, such as the Rail Live Congress or, given the impossibility of travelling as a direct

result of the pandemic, via webinars. On this occasion, Mafex has managed bilateral meetings of Incofer with the 13 companies interested in participating in the current tender of the TRP project, which is in the prequalification phase. 📌

FIEM approves a non-reimbursable line of financing for the definition of projects

In recent years one of the main demands of the sector has been to count on the possibility of offering technical assistance, engineering, and consulting services, etc. under the formula of donations to potential customers, and thus promoting competitiveness and the implementation of Spanish technology. This concern has been intensively addressed by Mafex through the Group of Experts on Financing and Trade Policy, created ad hoc, and whose collaboration along various meetings held with the Secretary of State for Trade or the drafting



and dissemination of the position note "Instruments to support internationalization through the design and structuring of railway projects" is highly appreciated. In this sense, the Spanish Government has recently approved a non-reimbursable fund of 50

million euros to be executed over the next 3 years - part of the Spanish Recovery and Resilience Fund - of which we would like to emphasise that studies will be a priority for countries in Africa and Asia, and in particular: Morocco, Algeria, Egypt, Senegal, Ivory Coast, Kenya, Vietnam, Philippines, Serbia, India, Bangladesh, Indonesia and Thailand.

Not with standing the foregoing, those financing proposals for studies in Brazil, Colombia, Ecuador and Peru will also be evaluated. 📌

Mafex joins CEOE's European Funds Task Force

Since this month of November, and coinciding with its launch, Mafex is part of the Task Force of European Funds that CEOE has created, focused on monitoring the execution of recovery funds, and through which from the Association we can capture detailed and updated information



European Commission website

regarding the progress in the execution of the same. The objective we pursue is to convey to our partners the most relevant information that is covered on in the monthly meetings of the group, including calls for grants and tenders for public contracts by the Next Generation fund. 📌



IDOM - Designing the Warsaw-Lódź High-Speed Line

IDOM

IDOM, as the leader of the consortium, has signed a development agreement with Centralny Port Komunikacyjny (CPK) to carry out the Technical-Economic-Environmental Study of the Warsaw-Lódź High-Speed Line, complementing the existing network, shortening travel times for passengers from all over Poland. This project is part of the rail component

of the Solidarity Transportation Hub (STH) and will provide access to the new airport.

During the signing, Marcin Warda, Director of IDOM Poland and Representative of the Executive Consortium, said "We are happy to be part of this ambitious project. This brings us closer to making major changes to the railway network in Poland."

In total, IDOM has designed over 7,000 km of railway infrastructure. When de-

veloping rail projects, the firm combines knowledge of all disciplines and expertise on the life cycle of railway projects. The most innovative technologies are used to produce resilient solutions for civil works, superstructure (track, electrification, signalling and communications), stations, rolling stock... To name but a few, IDOM has been the design leader of the projects such as the high-speed Rail Baltica, section 1 of the Mayan Train, and the Central Railway of Uruguay.

IDOM - designer of the new MRT-4 line of the Manila Transportation System

IDOM

IDOM will be the designer of Metro Rail Transit Line 4 (MRT-4) in Manila. The Department of Transportation (DOTr) has awarded IDOM the detailed design of the architecture and engineering of the new line, a project that addresses the design challenges of sustainable and inclusive transportation.

This mobility system, financed by the Asian Development Bank (ADB), will connect the cities east of the capital with certain areas of Rizal, improving the conditions of mobility and general well-being of the citizens of Manila along its 15.56-km route.

IDOM has developed over 1,500 km of metro and urban transport systems. This extensive international experience as well as the capacity of the design teams demonstrated on projects such as Metro-



Link, the first metro line in Dublin, of the tram/LRT network in Greater Copenhagen, means that IDOM is a multinational

firm of reference in resolving urban connectivity in technologically demanding environments.



Ardanuy & Padeco to design different stations belonging to the Bangalore Metro

ARDANUY INGENIERÍA

The Bangalore Metro Rail Corporation Limited (BMRCL) has awarded the joint venture of Padeco Co. and Ardanuy's subsidiary in India a consultancy contract for the design of the Doddajala airport station, as well as for the remodeling of the Baiyappanahalli station.

Both projects are part of the two-phase metro project for the city of Bangalore, the capital of the state of Karnataka, in in the south of India. The award (letter of acceptance) was communicated to the

two consulting and engineering firms on September 16 and indicated that the contract amounted to about 39,400,000 rupees (at the current exchange rate about 500,000 euros).

These actions will enable both stations to better serve the 57 kilometers of this metropolitan transport project in the Indian city, which is being carried out in two phases. The line is of great importance because it will connect the Central Silk Station (KP Puram) with the Kempegowda International Airport. The Doddajala station will be built next to the "Airport Une" phase, in order to feed the trains of this line with passengers. The tender was opened in May 2021 and

the technical bids were opened in June 2021. A total of 12 companies submitted different bids.

The candidates, in addition to Padeco and Ardanuy, were AECOM India, AYESA India, BARSYL, CEG - Cuatro SA JV, EGIS India, ENIA Design Pvt Ltd, Meinhardt India, MM SpA and STUP Consultants. The companies RINA Consulting S.P.A. and Tata Consulting Engineers JV had also applied, but were rejected in the technical evaluation process.

Once the works have been awarded, the companies Padeco and Ardanuy India have 36 months to carry out them out.



CAF Group awarded contract to refurbish 23 units on Cairo Metro Line 1

CAF

The state company NAT (National Authority for Tunnels), which is responsible for managing the Cairo metro, has

appointed CAF to refurbish 23 units which currently run on line 1 of the Egyptian capital city's metro network.

The project involves the complete refurbishment of the metro units, refurbishment of the new Kozzika maintenance

depot, and maintenance of the units for a term of two years.

The contract is worth almost €180M and will be financed with Spanish funds from the FIEM (Enterprise Internationalisation Fund).

Homologated supplier for the "T-mobilitat" project

CALMELL GROUP

Calmell actively participates in the development of the mobility project that the Generalitat de Catalunya will implement soon, a new validation system that will integrate all modes of transport in a single intelligent support, based on the use of contactless technology.

Calmell contributes, as approved manufacturer by the "Autoritat del Transport Metropolità de l'Àrea de Barcelona", with its knowledge and experience, acquired successfully over almost 50 years, in similar projects, as a specialist in RFID systems, nationally and internationally.

The project goal is efficient, ecological, and sustainable trip, Grupo Calmell firmly shares these values, incorporating more ecological and less polluting raw

materials into its manufacturing line and implementing measures to reduce the carbon footprint and strongly betting on the environment and innovation.



CAF Group's commitment to climate change

CAF

CAF Group joined the SBTi initiative (Science Based Targets Initiative) and Race to Zero, as part of its carbon neutrality strategy. This action is part of the initiatives of alignment against climate change and with the Paris Agreement, which strengthens the company's commitment to the challenge of climate change.

On the one hand, Science Based Targets (SBT) are composed of emission reduction targets with the highest scientific rigour as they are aligned with climate science and ensure that climate actions can be properly measured and verifiably

communicated. On the other hand, Race to Zero is a global campaign under the United Nations Framework Convention on Climate Change (UNFCCC), led by the High-Level Champions and the COP Presidency. This is made up of a coalition

of initiatives and stakeholders including businesses, investors, cities, universities, and other actors in the economy, which aims to mobilize and generate change towards a decarbonised economy before the COP26.



BELGORAIL now CERTIFER BELGORAIL

CERTIFER

Since its foundation in 2004, BELGORAIL has experienced a rapid development, becoming a significant actor in the railway sector, both nationally and internationally.

In 2012, the Branch in Spain was created and is currently one of the reference certification entities in the Spanish railway sector. In 2017, BELGORAIL joined CERTIFER Group, leader in testing, inspection and certification of railway transport. During these years, BELGORAIL has been working with CERTIFER subsidiaries sharing experience

and expertise to offer integrated services worldwide.

As part of this integration BELGORAIL now adopts the CERTIFER logo and brand and is now called CERTIFER BELGORAIL SA Sucursal en España.



We maintain our local organisation, accreditations and recognitions, thus ensuring the continuity of our services.

Belgorail now CERTIFER, first certification entity in Europe and third worldwide

CERTIFER

As a Group, CERTIFER offers the largest scope of services for all railway, metro and light-rail subsystems (Rolling stock, Infrastructure, Energy, Control Command and Signalling, Operation & maintenance,

Global system), based on our worldwide acknowledgements and accreditations: Notified Body, Designated Body, Assessment Body, Independent Safety Assessment, Entity in Charge of Maintenance, Urban Insertion, Audit & Certification of Management Systems, Independent Cybersecurity Assessment, test organisation & testing, on-board

ETCS Laboratory Services & Certification (TRY & Cert)... With a network of 650 highly qualified experts and a wide international presence (21 international locations) we provide our customers with both quality and reactivity, while prioritising our values of independence, impartiality, expertise and excellence.

CAF Signalling finishes the renovation of the Vicálvaro terminal

CAF SIGNALLING

CAF Signalling, the CAF Group's comprehensive solutions division for Railway Signalling Systems, has completed the remodelling work at the Vicálvaro freight terminal, which was put into service on 26 September. The renovation of the station has required an update of the signalling systems, in which state-of-the-art technology has been used.

The new ENCE Q4 has been brought into service, which controls all the objects in the



terminal, and new tracks have been installed, including modifications to the headboards.

Installation, software development, test validation and safety were carried out in record time for each phase of the project. During the improvement works, the Vicálvaro terminal remained operational at all times, so that activity was hardly affected.

CAF Signalling installs state-of-the-art technology on the Liège tramway

CAF SIGNALLING

CAF Signalling is making rapid progress on its tramway project in the Belgian city of Liège, now focused on the Atlas-Bressoux section. the CAF Group's comprehensive solutions division for Railway Signalling Systems has carried out an intensive testing session with client in Madrid, in which it has verified the proper functioning of the weak current systems (Centralised Traffic Control, SCADAs, SAE-IV, access and intrusion control systems, CCTV, WiFi, sound systems, etc.) to guarantee the safety of all the elements that will be installed in the Control and Command Post (PCM) of the operating building in Liège, the Bressoux CDMR.



The signalling system has also been tested with the latest version of ENCE Q4 interlocking, a product that integrates

state-of-the-art technology in the railway signalling sector.





Partnership with NoBos
CETEST

Within CETEST's client portfolio, apart from the rolling stock manufacturers who are supported by CETEST in the homologation of new vehicles, it is worth highlighting the growing collaboration with different notified bodies for railway certification (NoBo) and engineering companies. This collaboration is not limited to

the execution of accredited tests, but CETEST has proven to be a key partner to the investigation of specific problems that arise during service, vehicle life extensions or as technical consultancy offered by its experts.

For this, CETEST has expert profiles in the different fields of action: from structural tests in the laboratory (fatigue bogie, car-

body test, among others), to field test, e.g., dynamic behavior including instrumentation and calibration of wheelsets, brake and Wheel Slide Protection (WSP), EMC, current collection (including measurement of the interaction forces among pantograph and catenary, measurement of arcs and uplift), electrical tests (traction, energy consumption, etc).

CETEST in Turkey
CETEST

In November, CETEST will attend the Eurasia Rail exhibition in Istanbul. In recent years, CETEST has developed a great relationship with manufacturers and operators in Turkey.

At the laboratory in Beasain, different projects are being developed. For the RS manufacturers DURMAZLAR and TÜRASA (the new big Turkish manu-

facturer) various fatigue bogie tests are being executed, and for BOZANKAYA, some carbody strength tests have been carried out.

Regarding field tests on Turkish tracks, it is worth highlighting the collaboration with TCDD TEKNİK, the agency of the operator TCDD. With them, accredited measurements of dynamic behavior and current collection have been carried out on various HS lines in the country. Likewise,

CETEST has worked for the railway infrastructure builders DOĞUŞ YAPI MERKEZİ for the certification of the new Ankara - Sivas line. In this case, measurement of the track geometry including the calculation of equivalent conicity was carried out, as well as the measurements of the dynamic behaviour and current collection, for which the interaction between pantograph and catenary is analysed by measuring contact forces, uplift and number of arching.



TEKNICROSS anti-slip rubber pavement for level crossings
ELECTRANS

The companies ELECTRANS and TEKNİKUM join forces to offer the Spanish market, through exclusive distribution, the TEKNI-

CROSS anti-slip rubber pavement solution for level crossings.

TEKNİKUM has been manufacturing this solution in Finland for more than 30 years and commercializing it in the Nordic countries, Russia and Central Europe, with multiple

references and under the highest quality and safety standards, offering high durability even in the most demanding climatic conditions.

ELECTRANS is the national leader in the commercialization of this type of solution for more than 25 years, having the technical knowledge and the human and material resources necessary to offer an efficient and quality after-sales service through the different delegations that it has distributed throughout the peninsula.

TEKNICROSS rubber pavement for level crossings offers important advantages that involve the reduction of time and resources used during the entire life cycle of the product, as well as effective solutions to meet the requirements of each case.

We hope by this way to continue contributing to the improvement of accessibility and safety at level crossings to facilitate the mobility of all users.



INNOVACIÓN,
TECNOLOGÍA Y TALENTO
desde 1958

ICON Multimedia attracts talent by opening its doors to younger people

ICON MULTIMEDIA

At European Year of Rail, ICON Multimedia has opened its doors to the students to different Secondary Education centers in the region in order to encourage employability in the railway sector, especially in the digital area. This activity is within the ICON.

Talent action plan, which aims to attract technological talent to the company.

The Open Day took place during one week and consisted of a visit to the central offices for a more realistic approach to the work environment, where the young people were able to see first-hand its Digital Signage Solutions and Passenger Information Systems, as well as, the company's

work processes, history and business development

ICON Multimedia is committed to the employability of the students, participating in job placement programs, in collaboration with educational centres and universities, where the rate of incorporation to work, after their internships in the company, is higher than 70%.



ICON Multimedia implements its pis in the new Line 10 of Metrovalencia

ICON MULTIMEDIA

Ferrocarrils de la Generalitat Valenciana (FGV) will have the latest version of ICON Multimedia Passenger Information System, DENEVA, in the stops of the new Line 10 of Metrovalencia, which will connect the city centre, from Alacant station, with the district of Nazareth. This operation will be carried out through the installation of LED television screens which will show real-time communication of the service, such as schedules and waiting times, as well as other notices including incidents and recommendations.

This project thus joins the development already conducted in Lines 4, 6 and 8 of the tram network which, through DENEVA, allows the unification of different means of transport into a single system, opting for intermodality. The opening of Line 10 is scheduled for the first quarter of 2022.



LUZNOR makes introduction into the Amsterdam metro network

LUZNOR

GVB, the public transport company from the Dutch capital, will be using the LUZNOR rechargeable LED signalling torches

inside the new M7-metro vehicles. The LR-GVB torch uses a single high-efficiency high-power LED as the main light source. Besides, the torch includes a rear signalling beacon light with 10 red, 10 orange and 10 green LEDs. Moreover, the torch has three levels of constant lighting and

three types of intermittencies on the front part. LUZNOR developed an intelligent charger that indicates via remote control the presence of the torch and the recharging of the battery. With the addition of this new project LUZNOR increases its international presence in 25 countries.

MAINRAIL digitalise earthworks maintenance in ADIF lines in Cantabria

MAINRAIL

COPASA, the company responsible for embankments and cuttings of the metric gauge of ADIF in Cantabria, will implement MainRail platform to push the digitalisation of their railway maintenance operations management.

inspections and works done directly in this solution, using the mobile app synchronized a cloud system, analysing automatically KPI's and monitoring resources (materials, equipment's and workers).

With this new contract MainRail ends its first year of existence with more than 500 km of rail infrastructure within its platform, including references of track, electric system, infrastructure, and earth works maintenance.



Metrotenerife achieve the contract for the drafting of the preliminary project of the Palma de Mallorca tramway

METROTENERIFE

Metrotenerife has signed the contract for the drafting of the preliminary project for the operation and technical systems of the Palma de Mallorca tramway.

The Consorcio de Transportes of Mallorca chose the offer of the temporary consortium between Metrotenerife and Saitec for an economic amount of



116,000 euros. The awarding of this contract represents a new boost to the Tenerife-based company's trajectory in the national and international railway sector.

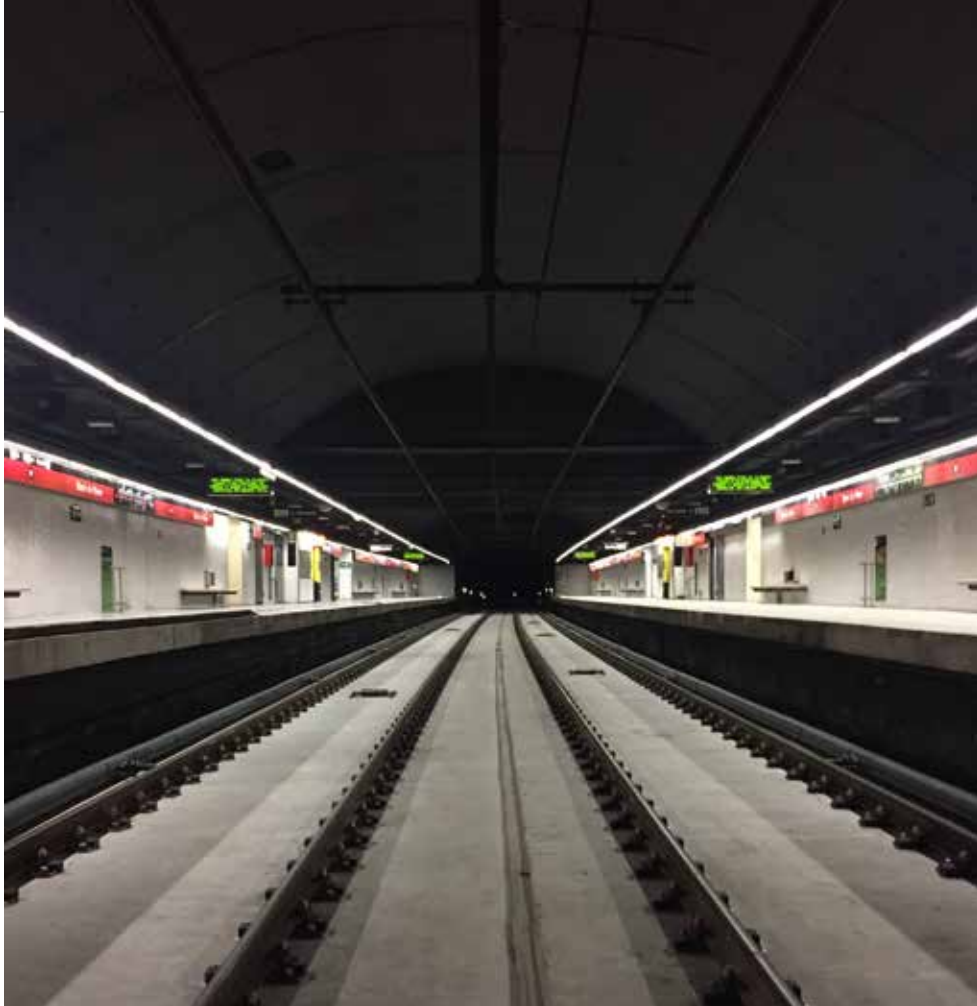
The company will focus on developing consultancy services related to the operation of the Mallorca railway system. It will also be in charge of defining the characteristics of the tram operation and its constituent elements in order to specify and establish commercial speeds, travel times, rolling stock, depots or terminals, among other aspects.

COMSA will carry out the maintenance of all Barcelona Metro lines

COMSA

CCOMSA has been awarded the contract for the maintenance of the railway superstructure of all the Barcelona Metro lines, with a duration of 2 years. The main tasks to be carried out are the preventive and corrective maintenance of track and switches and crossings, as well as drainage and filtrations.

The company is highly specialised in the railway sector, covering the construction and maintenance of trams, metropolitan railways and high-speed lines, as well as the development, implementation and integration of technological solutions in the field of telecommunications, safety systems, railway control and user information.



COMSA completes construction of the Odense tramway in Denmark

COMSA

COMSA has completed the construction phase of the tramway in Odense, the third largest city in Denmark. This project covers from preliminary design to commissioning and is one of the most im-

portant in recent years for the company, due to the complexity of the work and compliance with the highest standards of quality and sustainability.

The company has built more than 14 kilometres of double-track tramway between the districts of Tarup Centre and Hjallesø, 26 stations, 5 transfor-

mer substations and an operation and maintenance centre. It has also laid the catenary, carried out the signalling and telecommunications works.

COMSA is currently carrying out the verification of the system, as well as all the tests required for correct commissioning..



The new generation of HABD/HWD detectors has greater versatility

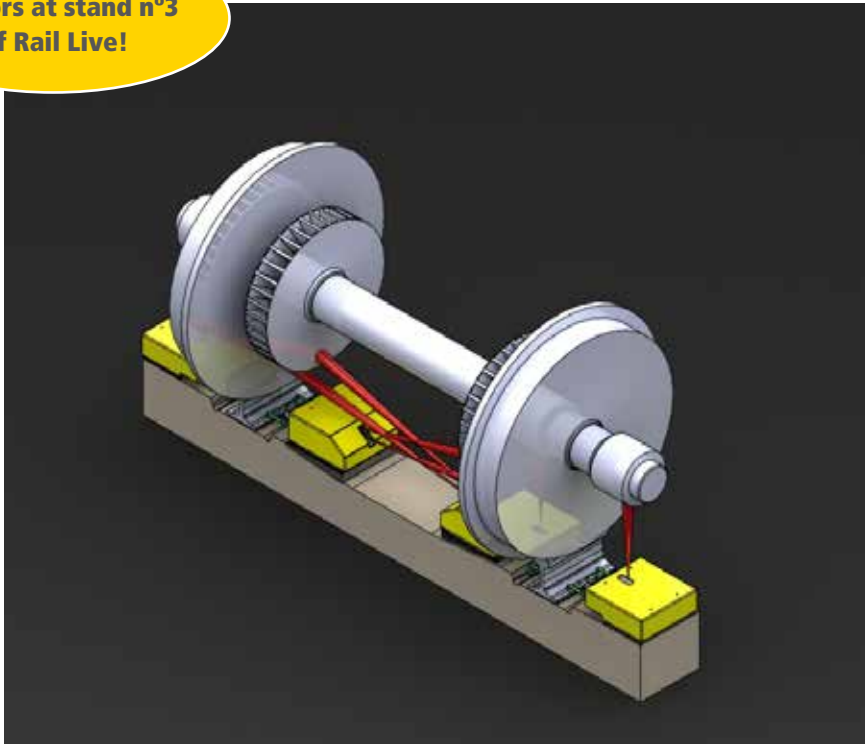
ITSS

IBERICA TECNOLOGIA EN SISTEMAS DE SEGURIDAD FERROVIARIOS SL (ITSS) is currently implementing a new generation of hot axle box/hot wheel detector (HABD/HWD)

ITSS is working on a substantial shift in the PEGASUS HABD/HWD devices. Following a review of feedback and the analysis by their engineering team, ITSS has stipulated performance and design in the PEGASUS-GENIUS that matches the needs of their customers.

The greatest technological and competitive leap for the customers lies in the installation: a new solution allows for temperature measurement readings to be taken in different monitoring areas (in Zone 1, as well as in Zone 2) but, most remarkable of all, is the design which allows for the device to be installed without the need for a hollow

Visitors at stand n°3 of Rail Live!



sleeper. This makes both the installation and dismantling by the railway manager very comfortable, cost efficient and affordable, along at any point of the network. ITSS is very proud to introduce the PEGASUS

GENIUS and it will bring a complete shake-up to the railway marketplace because of the quality of service, product features and considerable reduction in cost this solution will provide to its customers.



The experience of an operator at the disposal of your mobility projects

TECHNICAL ASSISTANCE AND ENGINEERING SERVICES

International and national projects

Railway engineering services

Technical assistance in Operation and Maintenance

- Clients' portfolio: operators and Transport Authorities in Europe, America, Africa and Middle East



An integral ticketing system on your customer's smartphone



SIMOVE
On-board Vehicle Speed Monitoring System

The solution to avoid accidents due to over speeding

Kimua Group expands its catalogue of products for the railway sector

KIMUA GROUP

To meet the needs of manufacturing and maintenance in the railway sector, the solutions and products available must be designed and supplied by a true specialist. The railway sector and the challenges in the field of load handling are no problem for a specialist like the Kimua Group.

For this reason, Kimua Group has developed machines for the manufacture of trains and their maintenance, thus completing an extensive catalogue of



solutions specific to the railway sector, ranging from welding tools to automatic working platforms.

The new solutions developed by Kimua Group offer the customer a range of

tilting machines, low bogies, one-way motorised trolleys, lifting jacks and dippers, with all the solutions being standardised, thus achieving a very fast delivery of the solutions and maintaining a very competitive price.

Kimua Group completes the first installation of the new generation of working platforms

KIMUA GROUP

Talgo chose Kimua Group to install the new line of working platforms at the Ribabellosa factory.

The new generation of automatic platforms created by Kimua is the result of

many years of experience and collaboration with clients such as Talgo, where Kimua Group has installed more than eight lines of working platforms.

The installation consists of two working platforms, with a total length of more than 20 metres and a total width of 17 metres. They share the central area, with an area of 100 square metres, maximising the space, being able to work on

two cars simultaneously and thus improving work flows.

The new generation automatically adapts to the height, width and geometry of the cars, thanks to pneumatic, hydraulic and electric drives. This flexibility makes it possible to work on any type of car, optimising the process and making the work safer and more ergonomic.



RENFE renews its simulators, putting itself at the forefront of new technology

LANDER

In 2006, RENFE relied on LANDER's innovative project to relocate training and install simulators in different cities throughout Spain. Such was the success of this

customisation, that in this time RENFE has maintained the same simulation system and has even extended it to new cities, betting on the same local training strategy.

In 2018 RENFE decided to undertake a partial update project, while maintaining its pioneering essence. In hardware, a

new design has been worked in accordance with the new image of the company, improving aesthetics, ergonomics, functionality and maintainability. In terms of software, it has been renewed to reflect the current state of the fleet, signaling and circulation lines, and systems such as ERTMS Level 2.

West Midlands trains (UK) already trains with LANDER driving simulators

LANDER

A priori, it seems difficult to imagine how from London you can get to enjoy some of the most idyllic landscapes in the country in a few hours. A significant number of these trains are destined for the Midlands, where the railway operator West Midlands Trains operates numerous services to cities such as Birmingham. Specifically, it will be the train drivers of these lines who from now on will be able to train in the modern driving simulators developed by LANDER.

This project is part of the joint work that West Midlands, a company formed by Abellio, JR East and Mitsui, have carried out with LANDER. The new team, a replica driving simulator, completes the long history of this franchise in the use of simulators.



CEIT leads the activities at the European level of “TD5.3 Smart freight wagon concepts” of Shift2Rail Freight Transport research line

CEIT
Within the framework of the FR8RAIL III project (Smart data-based assets and efficient rail freight operation) CEIT has carried out a field test campaign of two of its systems in Sweden (Västerås).

On the one hand, the performance of wireless communication systems based on LORA technology has been analyzed in a composition of 12 wagons in a static and dynamic environment, whe-

re, regardless of the wagon, a low rate of packet loss has been verified in both environments.

On the other hand, the brake monitoring system has been tested, which will enable the automation of the freight train preparation process, thereby reducing the time required and increasing safety.



Oriol Guixà, President and CEO of La Farga, receives The Wire Association International’s (WAI) Mordica Memorial Award

LA FARGA
Oriol Guixà has received The Wire Association International’s (WAI) Mordica Memorial Award. He was presented with the award in recognition of his contribution to the copper industry through his research and development (R&D) and innovation activity.

The 91st annual convention of the WAI was held on 26 and 27 October with a cycle of online conferences entitled “Industry 4.0”. Just like every year, the WAI presented the Mordica Memorial Award to an individual from the sector who has made an outstanding contribution to the copper and electric cables industry.

This year it was Oriol Guixà, President and CEO of La Farga, who received this recognition from his colleagues in the metal industry. The award highlights the important role that Guixà has played in the copper industry around the world.

When, in the 1980s, Guixà acquired the company alongside his father-in-law, he embarked on a personal and entrepreneurial project that continues to this day, which now involves his daughter, Inka Guixà. The company’s commitment, right from its very beginning, to working with recycled copper has made it a leader in this sector, and one of the main suppliers of sustainable copper solutions on the market.



During his acceptance speech, Oriol Guixà spoke of his delight at having contributed to the transition from an industry on the verge of closure, in the 1980s, to an industry that is now considered to be world-leading. He summed up his time at La Farga in four words: Copper, Adaptation, Commitment and Resilience. During his many years at the helm, the company has shown a constant commitment to talent, innovation and sustainability while adopting a long-term outlook.

After talking briefly about the history of La Farga, its technological developments, the tireless work of a team that has shown a constant belief in the project, its (occasionally risky) investments and its robust commitment to working with recycled copper, Oriol Guixà ended his address by thanking all the people who have supported him over the years. With this award, Oriol Guixà has cemented his legacy as a key figure in the metal and copper industry. It is a huge honour for the whole company.

CEIT, MainRail and Inycom will renew ETS’s rail track auscultation tools.

CEIT
The joint venture formed by the Technology Center CEIT and the companies MainRail and Inycom, has been awarded with the contract for the “Renewal of mechanized track auscultation tools” tendered by ETS (Basque Railway Network).

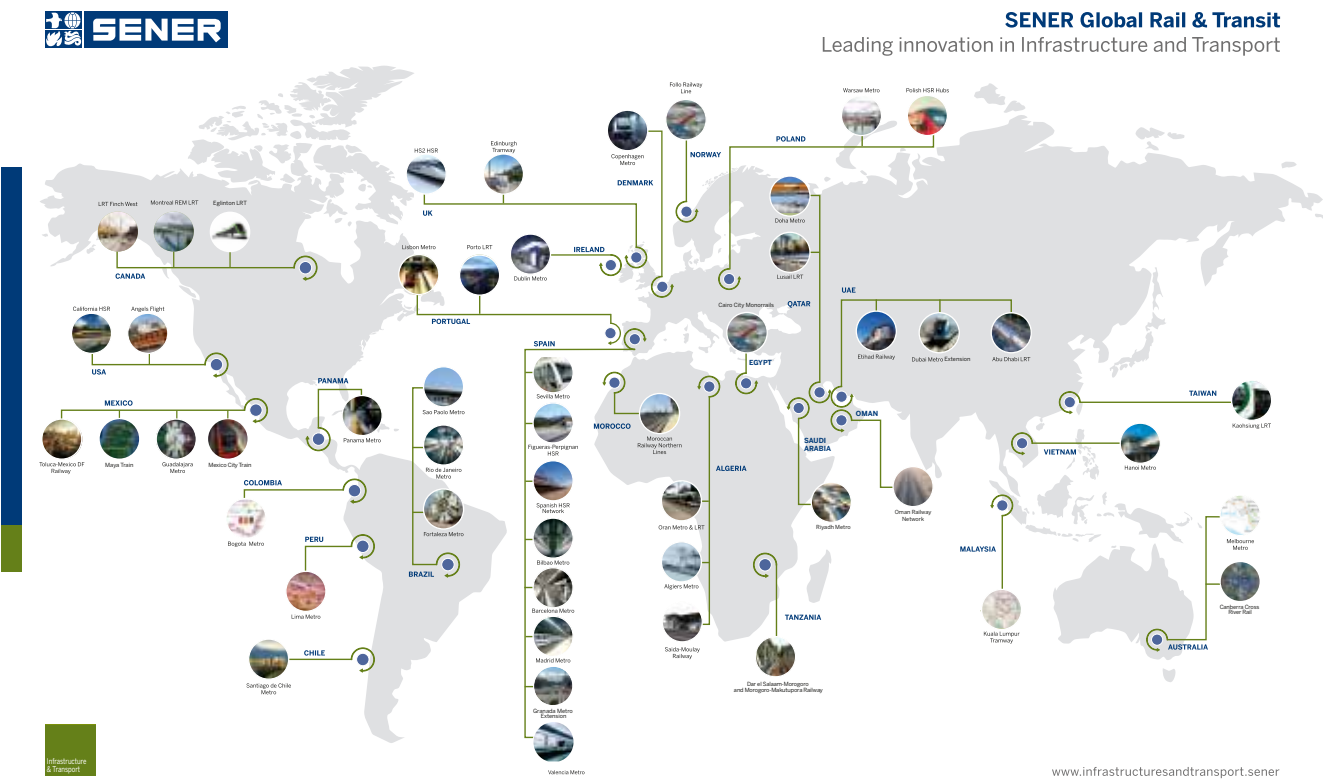
The contract (on signing process), includes the sensors and components installation for track analysis and a software platform capable of processing and visualizing the data obtained.

While CEIT will lead the selection and installation of sensors and components, MainRail will deploy its software platform



for data processing and visualization and Inycom will collaborate in the control and communication software development. The JV’s proposal also includes a pilot test

of MainRail’s predictive models that will allows to anticipate the evolution of ETS’s track assets.



SENER presents its cutting-edge technology in rail and urban transport systems at Rail Live 2021

SENER
SENER Infrastructure will show at Rail Live, in its own stand, its capabilities in railway and urban transport, with special emphasis on its technological contribution in three

fields: civil works (tracks, tunnels and viaducts); design, supply and integration of transport systems (electrification, power supply, signaling and communications); and station architecture, where it offers high value-added services. Among the railway projects that SENER will be exhibiting at its stand are: the Granada

metro extension, the Eglinton Light Rail Train in Canada, the Tren Maya in Mexico, as well as Line 1 of the Mexico City metro, the Cairo monorail in Egypt, the railway in Tanzania and the Cross River Rail in Brisbane, Australia. It will also offer advanced technological solutions such as RESPIRA® and the ACROT tunnel boring machine operation risk control system.

First Stadler contract in New Zealand

STADLER

Stadler and New Zealand Railways, KiwiRail have signed a long-term framework agreement with a first call off for the supply of 57 diesel mainline locomotives. The order value of the call off amounts to around 228 million €. They will be designed and manufactured at the Stadler plant in Valencia.

The new Co-Co narrow gauge locomotives will be used in freight

and passenger rail operations, mainly on the South Island. They will have two cabs and a powerful 3000 kW diesel engine that will, in many cases, allow KiwiRail to operate its trains with less locomotives than in the current services.

Following Stadler's focus on providing sustainable solutions for railway transportation, the locomotives will be compliant with the latest European emission standard

(Stage V). This results not only in a substantial reduction of nitrogen oxides and particulate emissions and in the consequential cost to environment and public health, but also in optimized combustion, lowering fuel consumption and CO2 emissions, in line with KiwiRail's plan to be emission-neutral by 2050.



Teltronic's TETRA system deployed in Sydney Metro wins award at ICCAs

TELTRONIC

"TETRA communications for metro trains in Sydney", project developed by Teltronic together with its Australian Partner, MCS Digital, was awarded as the Best Use of Critical Communications in Transport during the International Critical Communications Awards, the most prestigious awards in the field of critical communications worldwide.

The project involved the design, manufacture, installation, commissioning and validation services for the Operations and Maintenance (O&M) Radio System delivering mission critical voice and data for the Australia's largest public transport project.



The scope of the deployment includes TETRA radio system providing coverage to the full 36km rail corridor, Control centre solution, on-board radios and handheld

terminals, and the integration to 7 different interfacing systems including station PA, onboard PA, Passenger Emergency Intercom and signalling system.

Thales accelerates its ESG action plan

THALES ESPAÑA

Thales accelerates its action plan and raises its targets, with the following key objectives:

1. Fight global warming by aiming for "net zero" emissions by 2040: Thales has the objective of a 35% reduction by 2023, a 50% reduction by 2030, and "net zero" by 2040.

2. Increase diversity: confirms its goal of having at least three women on at least 75% of its management committees by 2023, and for women to account for 20% of the Group's most senior management positions.

At the same time, Thales will continue its outreach activities with educational establishments to raise awareness of the career opportunities for women in engineering and other technical fields.

3. Continue to meet the highest standards of ethical conduct and compliance, with systematic training and certification and the adoption of a digital ethics charter.

4. Increase the health and safety of all employees, with a targeted 30% reduction in workplace accidents by 2023



Thales signed a Framework Agreement and a Memorandum of Understanding with the Egyptian National Railway

THALES ESPAÑA

The Framework Agreement concerns the modernization of signalling and telecommunication, track rehabilitation and dupli-

cation of Qalyoub – Menouf – Tanta Line & Qalyoub – Shebin El Qanater – El Zagazig Line, two key priority lines for ENR, located in the Delta Region in Egypt.

The Memorandum of Understanding (MoU) is dedicated to the modernization of 2 interlocking stations located in Farz and Limon bridge. With this new

agreements, Thales strengthens its strong relationship with the Egyptian National Railway.

The signature of these agreements will mean an important improvement in the rail transport network in Egypt, which will be safer, more modern and faster.





Junta de Andalucía awards WSP Spain the design of a workshop building for the Alcalá de Guadaira tramway
WSP SPAIN

Junta de Andalucía has awarded WSP Spain the construction project corresponding to the infrastructure and facilities of

the workshops and depots of the Alcalá de Guadaira tramway and its connection with the tramway line through technical branches. This is one of the actions included in the Infrastructure Plan for the Sustainability of Transport in Andalusia. This new equipment will serve the rolling stock operating on the tramway line con-

necting the Pablo de Olavide and Montecarmelo stations in Alcalá de Guadaira. The project, co-financed by the European Regional Development Fund 2014-2020, must meet the requirements set by the European Union in terms of sustainability, adaptation and mitigation of climate change.

ADIF awards WSP Spain the rehabilitation of the iconic Plaza de Cataluña station in Barcelona
WSP SPAIN

ADIF has awarded WSP Spain the consultancy and technical assistance services for the drafting of the basic and construction project for the refurbishment of the Plaza de Cataluña intermodal station in Barcelona.

This is one of the nerve centers of the city: a multimodal interchange under the square of the same name that connects some of the city's backbone roads, such as Paseo de Gracia, Rambla de Catalunya, and the Universitat and San Pedro ring roads. It is also the terminus of Ferrocarrils de la Generalitat lines, a junction point for Barcelona's metro lines 1 and 3, and a transit point for several suburban and medium-distance lines. One of the goals of the project is to convert the station into a near-zero energy consumption building.



We continue improving infrastructures in Tunisia

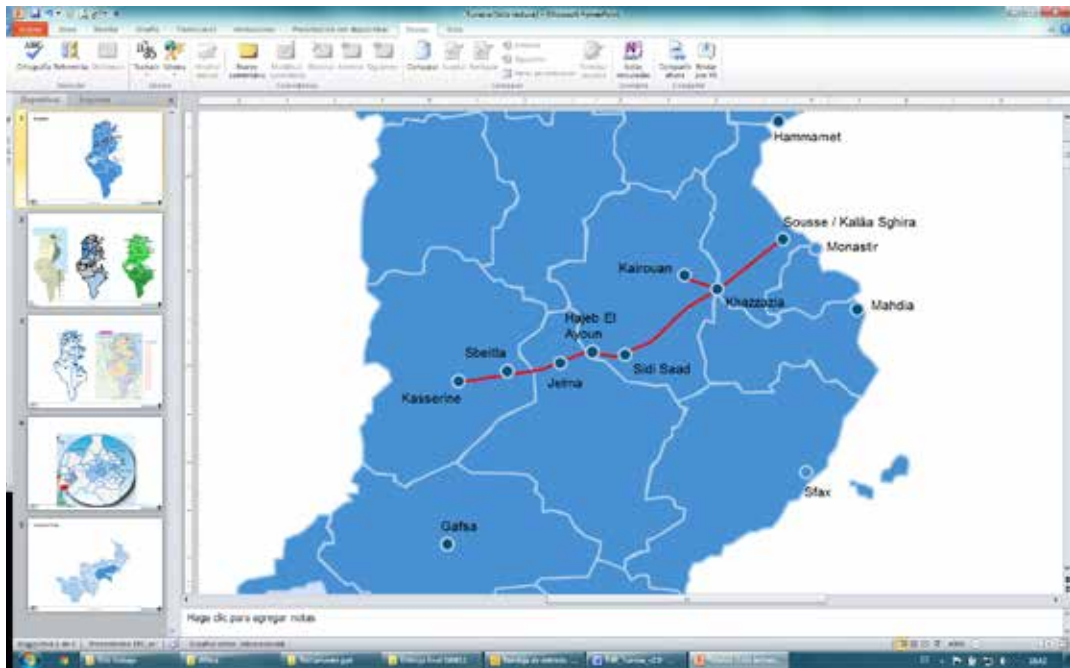
TPF GETINSA EUROESTUDIOS

The joint venture that includes TPF GETINSA EUROESTUDIOS and TRN TARYET has secured a contract to conduct the feasibility study and preliminary design for the reinstatement of the west section of Line 11 of the Tunisian rail network between Khazzazia and Kasserine. The client and financing body is the European Investment Bank (EIB) and the recipient of our services is SNCFT.

Line 11 played a major role in transporting ore from inland mines to the port of Sousse. However, rail traffic has been progressively reduced over time to its current state of almost total neglect.

Our aim is to analyze the technical and economic feasibility of the rehabilitation required on the line for mixed passenger and freight traffic, na-

rowing the existing gap between the developed coastal axis and the rural hinterland.



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The Power of Adaptability



Train control systems



Traction systems



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Energy storage systems

 LOCOMOTIVES

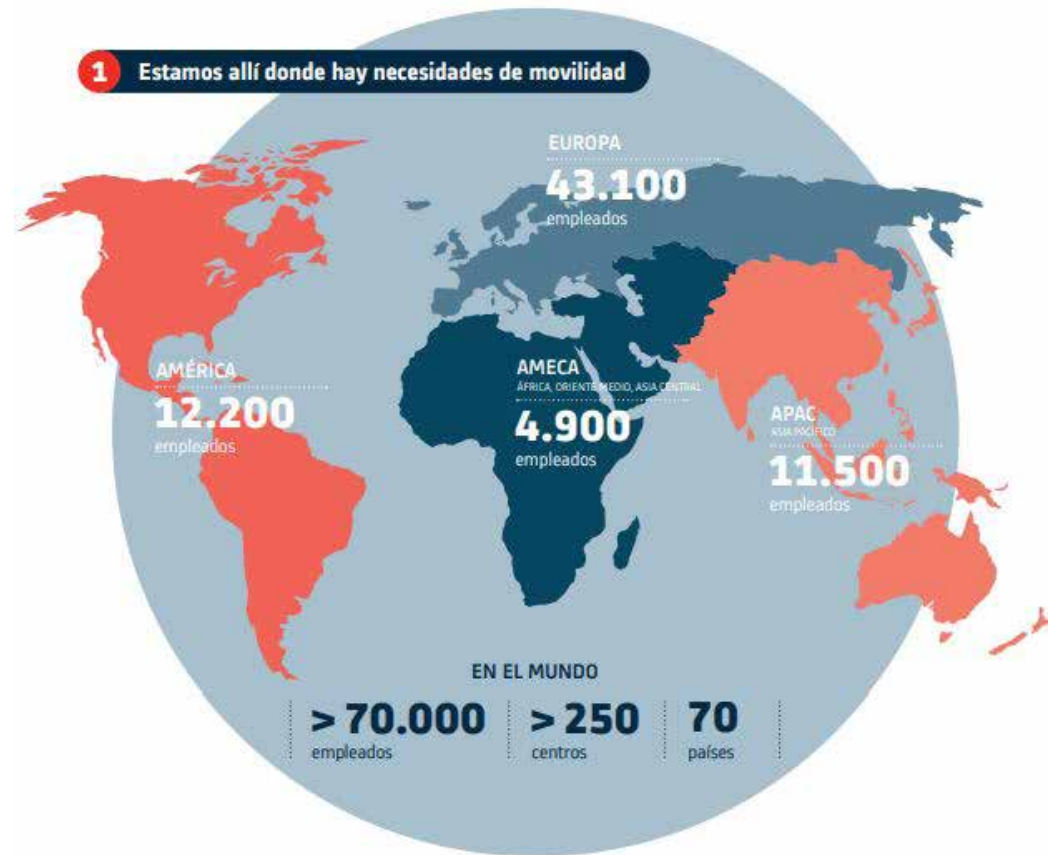
 REGIONALS

 SUBURBANS

 TRAMS

 METROS

 HIGH SPEED



Alstom presents its new smart and sustainable mobility solutions at Rail Live! 2021

ALSTOM
The Group, a world leader in its sector and with a broad industrial and technological presence in the national market, is bringing a full-scale model of its Metrópolis metro solution to the Madrid fairgrounds. The model reproduces the new subways for

TMB that the company is manufacturing at Alstom's industrial center in Santa Perpetua, Barcelona.

These new vehicles incorporate the latest advances in comfort, efficiency, and sustainability, with the highest level of recyclability (96.1%), energy efficiency, eco-design, and the highest degree of automation (GOA4) for driverless operation. Its design has also sought the best onboard comfort,

connectivity, and accessibility, with the collaboration of Fundación Once, among others.

In addition, different national and international representatives of the Alstom Group will be present at the presentations and meetings organized during Rail Live, to show its commitment to sustainable, inclusive, safe, healthy, and efficient mobility.

Alstom Group to create 200 jobs in Spain

ALSTOM
The Alstom Group has initiated an unprecedented hiring and growth plan in Spain. In order to continue its expansion plans and develop new projects and initiatives, Alstom Spain will make more than 200 new hires in the last quarter of the year. The new professionals will join the more than 3,000 employees who are already part of Alstom Spain and Portugal.

Of these new professionals that the company will add to its workforce in the next two months, more than a hundred will join the teams at the industrial center in Santa Perpetua de Mogoda (Barcelona), both to join the production workshops and to work in the areas of engineering, logistics, and

industrialization. In parallel, Alstom Spain is also reinforcing its teams in Madrid with another hundred new positions for its signaling and control of railway safety systems

division, mainly in the area of engineering and project management, for the national and international market. <https://www.alstom.com/careers>



New Rails Service Centre

ARCELORMITTAL

With this new in-house downstream facilities, the service center will enable ArcelorMittal Rails & Special Sections offers full solutions performance and reliability advantages for our customers.

The rail service center is designed to carry out on a surface of 6000 m2 a broad range of finishing operations on grooved, light, transport and crane rails. In the first phase, the service center will offer the following finishing services: drilling, bending, straightening and cutting. In a later phase, more services are planned. ArcelorMittal strategy of being a full-services and one-stop solution for our customers brings many benefits as one



single contact, package possibility, possibility to group standard rails with com-

plex finished rails, 'transformed rails' versus 'rolled' rails and package possibility.



Siemens Mobility to deploy an artificial intelligence-based traffic regulation system in Metro of Medellín

SIEMENS MOBILITY ESPAÑA

Siemens Mobility Spain is carrying out, together with Metro de Medellín, a pilot project to install Artificial Intelligence in the operation of this railway infrastructure in Colombia. To carry it out, the company will install, as a proof of concept, AIRO, a smart traffic regulation system, with the ability to run locally On-Premise, as well as in the cloud and which allows the

frequency of trains to be adapted to the passenger demand through an AI-based solution and obtaining real-time data from various sources, such as road traffic, weather conditions, or social events, in order to optimize recommendations for operators.

With the implementation of AIRO, Metro de Medellín will benefit from an efficient use of resources thanks to the real-time optimization of the operating fleet. This system will also enable a decrease energy and CO2 consumption,

as well as an inefficient operational costs. Based on internal simulations, it has been determined AIRO improves passenger-sit ratio. This project, which can be integrated with Rail9000 system from Siemens Mobility, or with any third-party system will also contribute to improve passenger satisfaction and safety, because they will be able to save waiting time at the station and will have alternative transport suggestions, such as bus in case of any emergency or service disruption.

CablesCom connecting the world

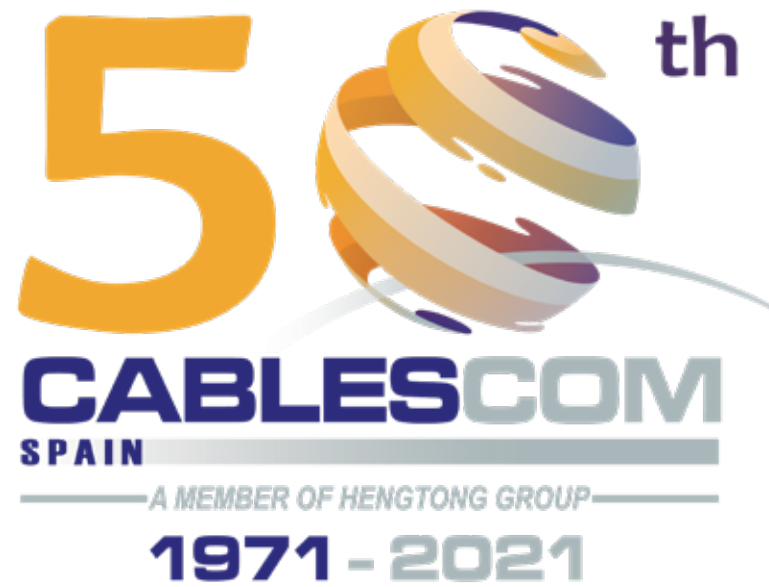
CABLESCOM

Cablescom's name has been closely linked with railway infrastructures since its inception. It was back in 1973, only two years after its founding, when Cablescom manufactured the first quad cables for RENFE.

The first long-distance cables in the Spanish railway network date back to the 1960s.

In 1982, RENFE installed the first fibre-optic cables, largely unknown at that time.

On 20th April 1992, coinciding with the Universal Exhibition in Seville, the new train that covered this route was put into service.



Cablescom was the first Spanish company to obtain the homologation of cables destined for Spanish high-speed lines.

To this day, CablesCom continues to be a benchmark in the manufacture of railway cables.



La sostenibilidad palanca de transformación de las pymes



CablesCom, part of Hengtong Group, a benchmark in sustainability

CABLESCOM

On 28th October, CablesCom, part of Hengtong Group, was represented by its HR Director Isabel Banzo in the Conference "Sustainability, a lever of transformation for SMEs". The conference was organized by the United Nations Global Compact Spain, the European

Union, and the Spanish Chamber of Commerce. CablesCom was invited as a benchmark company in Agenda 2030 working methodology and the practical application of Sustainable Development Goals.

In her presentation, Ms. Isabel Banzo reviewed some of the more relevant milestones in this matter, highlighting the main characteristics of Cablescom's

Sustainability Management System in the three dimensions that it encompasses:

Social, Environmental and financial. Finally, Ms. Banzo highlighted some of the concrete actions that are being carried out through the 5 main strategic lines that the company is working on in 2021 in terms of sustainability, and their impact on the 17 SDG's.



Ventilation solutions for tunnels, metro and railway systems

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CAF Turnkey & Engineering to modify the Cairo Metro Kozzika Depot

CAF TURNKEY & ENGINEERING

CAF Turnkey & Engineering (CAF T&E) will carry out the refurbishing work on the Kozzika Depot, as part of the CAF Group's general contract for the refurbishment of 23 rolling stock units of the Cairo Metro System (Egypt).

This marks the first CAF T&E project to be completed in this country. It will be specifically responsible for the design, management, and completion of the transformation work for the 19,800m2 area making up the Depot, adapting it to meet the rolling stock refurbishment work requirements. The work includes, amongst others, removing the catenary, converting the ba-

llasted track into ballast less track, fitting the compressed air system and carrying out electrical installation in the workshops. The contract the CAF Group has entered

into with the national company NAT (National Authority for Tunnels) also includes the maintenance work for this new work area for more than five years.



Sustainable and user experience focused solutions drive the growth of Revenga Smart Solutions

REVENGA

By 2021, the year of its 49th anniversary, Revenga Smart Solutions (RSS) will have deployed its solutions on AVE, train, metro and tramway lines in more than 30 countries. The company is currently growing strongly and has projects underway in 17 countries, with a presence, in addition to Spain, in Turkey, Colombia, Chile, Peru, Mexico, Uruguay, Egypt, Brazil, Algeria, USA and Ecuador.

In 2022, RSS will continue to grow. It will do so thanks to a project portfolio of more than 115 million euros and a growing demand for technological solutions that improve the experience of customers and operators; solutions prepared for the intelligent and integrated transport in which a growing world population, increasingly urban and with ever greater travel needs, will move. RSS responds to this demand with a portfolio of smart mobility solutions that are simple to manage, based on open platforms, secure and sustainable and that provide value to the traveler in the form of a more satisfactory experience. As a result,

RSS is today a participant in key projects all over the world, both for metros, railroads and roads & highways, as well as for terminals or stations in all modes of transport, from railroads to airports, ports and buses.

Thus, RSS's real-time information solution, TIPublic, contributes to improving the passenger experience on the many railway lines on which it is currently in service. The same applies to terminals and convoys where RSS's real-time payment platform, RT2P, operates. With access control, vending and ticketing, tolls, back-office and on-board validation equipment, RT2P helps users and operators to interact in a simpler and more efficient way. The XThings station control system also generates value by enabling real-time remote control of systems such as stairs and elevators, lighting, energy, voice and data, and the IT and telecommunications network.

RSS's integrated train and track inspection system, called RailXcan, analyzes hot boxes, flat wheel, dynamic weight, dragged objects, falling objects, broken rail, gauge, pantograph, wheel parameters and other parameters. The system, in operation at, among other sites, the Mar-

maray tunnel linking Europe and Asia in Istanbul, provides safety and thus improves the experience of travelers and users of the system itself.

In Europe, America and Africa, with 630 RailRox level crossings contracted and more than 200 already installed, RSS is working to increase the safety of people crossing railway tracks at stations and crossings. In addition, the system consumes less than 10W per crossing, enabling it to be deployed using solar panels. The same principle of savings and respect for the environment applies to RSS's Aguterm+ switch heaters, which ensure, thanks to energy optimization by modeling the switch and measuring a larger number of parameters (wind, rail temperature, etc.), that the switch remains operational at all times.

Finally, RSS's OpenSAE solution for fleet management and operational support, as well as the OpenITS solution for infrastructure and traffic management in tunnels, roads and tolls, enable RSS to contribute to greater integration in mobility management.

In short, RSS's solutions make an intelligent use of technology to move towards a safer, simpler, more sustainable and satisfactory mobility.



CAF Turnkey & Engineering is awarded the power and electrification maintenance contract for Granada Metropolitan Railway Network Line 1

CAF TURNKEY & ENGINEERING

The Public Works Agency of the Andalusia Government has awarded CAF Turnkey & Engineering (CAF T&E) the Power and Electrification Maintenance Contract for

Granada Metropolitan Railway Network Line 1.

CAF T&E will maintain the power and electrical infrastructure of this Light Metro system for three years. The contract comprises the maintenance of the traction substations, power supply substations, the dual track catenary running along more than 15km and the maintenance of the low-voltage facilities at the 26 stations along the tram system.

A monitoring system will also be fitted to record line electrical measurements for detailed mapping of the railway system's energy flows, consumption and losses.

This solution will facilitate proposing specific energy efficiency measures and calculating investment returns for each proposal. This system is similar to the one CAF T&E has already rolled out on the Zaragoza tram system, which has provided satisfactory results.

New traction system for multi-voltage EMUS

INGETEAM
INGETEAM supplies INGETRAC Medium power traction converters for Polish manufacturer PESA. Those Traction converters are being installed on multi-voltage EMUS (3kV DC / 25kV AC) to be operated on the Czech regional network, at maximum speeds of 160 km/h. First vehicle is ready to start homologation process.

INGETEAM will supply 14 medium-powered traction converters and auxiliary equipment. The traction converter, located on-roof, is composed by power modules based on 3-Level technology. The modular design has

been optimized to meet customer's requirements and newly-developed diagnosis tools have been included to ease maintenance tasks.



Ingeteam has done an innovation investment on traction systems for multi-voltage vehicles, that has been re-inforced with this project.

voestalpine Railway Systems JEZ and the new urban mobility

VOESTALPINE RAILWAY SYSTEMS JEZ
In today's world, urban mobility takes on a great role, given that it is one of the factors involved in the fight against climate change. A sustainable and ecological mobility in our big cities is a competitiveness and changing factor towards low CO2 emission means of transport.

voestalpine Railway Systems JEZ is the global solution company in the field of points & crossings both for urban mobility and for other means of rail transport, such as high-speed, mixed traffic, as well as heavy axle-load railways.

Within urban mobility, voestalpine Railway Systems JEZ has been a provider of solutions in all the subways and trams in Spain as in a multitude of urban systems in Latin America and Europe. As a global solutions provider, voestalpine

Railway Systems JEZ supplies points & crossings with their signalling and monitoring systems as well as an exhaustive installation and commissioning service.



nowadays, many European, American and Asian cities enjoy its advantages. Among its characteristics, we can mention a double security system given by the system of rail wheels in charge of guiding, the possibility of overcoming large slopes, great acceleration and braking capacity, which is important in case of stations close to each other, and a great ride comfort.

voestalpine Railway Systems JEZ has the necessary technology to provide complete solutions to these urban mobility systems on pneumatic wheels.

voestalpine Railway Systems JEZ is currently supplying complete points & crossings for the pneumatic wheel metro in Lyon (France) on its extension to the southern hospital.

The Paris metro (RATP) also has components for this type of turnouts manufactured by voestalpine Railway Systems JEZ, as well as the Santiago de Chile, Mexico and Montreal metros.

Urban mobility is evolving, and in recent decades, railway systems with pneumatic drive wheels have become more and more popular. These systems had their origin in the Paris Metro, and

ICF solves in record time failure of the Vilagarcía de Arousa - a Escravitude line

ICF
Railway signalling company ICF has solved a shunting problem that was causing delays on line 818 in Galicia, Spain, in just two months. Rust coating the tracks was causing shunting problems on the rails, which in turn was falsely showing track circuit occupancy, which forced the use of telephone blocking and the intervention of maintenance staff, resulting in delayed trains and increased occupational safety risks.

The Spanish Railway Infrastructure Administrator, ADIF, asked ICF to help solve the problem as a matter of urgency. The company managed to re-establish the service in a record time of two months, thanks to the installation of its AC-900 Axle Counter System, which detects the presence of the train regardless of the state of the track, has a SIL 4 safety level, and monitors the operation of the equipment remotely in real time.



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RAQUEL SÁNCHEZ | Minister of Transport, Mobility and Urban Agenda

"The railway will be the main protagonist of the direct investments included in the Recovery, Transformation and Resilience Plan"

Mafex Magazine: In July 2021, you began a new professional stage leading a ministry key for the industrial and economic recovery of the country. How would you assess these first months of work in the face of such a significant challenge?

Raquel Sánchez: El am very grateful for the trust placed in me for the performance of this work as a minister in such an important portfolio for our country as the Transport, Mobility and Urban Agenda is.

It is an exciting challenge and to lead a ministry with so much influence in the day-to-day life of so many people is always a challenge. Since I took

office, I have not stopped working on the pillars that I understand are fundamental to guarantee the fair recovery, the modernisation of our country, the generation of opportunities and the sustainable transformation of transport: housing and mobility.

To articulate this process, I consider essential to guarantee access to decent housing, promote urban regeneration and develop and implement a new concept of safe, sustainable, and connected mobility.

These objectives are fundamental not only for Mitma but for the Government, because they are also fundamental for our society. In addition, it

is the commitment of the Recovery, Transformation and Resilience Plan where in the Ministry we lead the two main investments: "sustainable mobility" and "actions in housing and urban regeneration".

Both investments total more than 20 billion euros, almost 30% of all investments of the Plan, of which in Mitma we manage almost 17 billion euros, a quarter of the total of it.

So, as I said before, from the first day I took office, I began to become aware of the work ahead of us and the exciting challenge in which we are all embarking in the ministry for the coming years.

Mafex Magazine: Mobility is one of the strategic lines of your ministry, an area with great weight in the Recovery, Transformation and Resilience Plan. What are the priority lines that have been defined to advance in sustainable transport with this historic investment?

Raquel Sánchez: As you know, on 30th April, we presented the Recovery, Transformation and Resilience Plan. This Plan is based on four transversal axes: ecological transition, digital transformation, territorial and social cohesion, and gender equality.

We have structured ten lever policies around these four transversal axes that in turn integrate 30 components and, in this line at MITMA we work mainly on 3 of them.

First of all, we work on a "Sustainable, safe and connected mobility shock plan in urban and metropolitan environments", in which we pursue the promotion of the decarbonisation of urban mobility and the improvement of air quality through different measures aimed at the core of the city itself and its infrastructures, as well as the promotion and optimisation of urban and metropolitan transport.

Another work component of the ministry is the "Urban Rehabilitation and Regeneration Plan", which is focused on the promotion of rehabilitation and improvement actions of the building park, both in urban and rural areas, within the strategic framework of the Spanish Urban Agenda.

And, thirdly, we are promoting "sustainable, safe and connected mobility", in which our main objectives are to advance in the development of European corridors as the main backbones of our mobility, providing it with greater capacity where necessary and contributing to reducing its carbon footprint by promoting more environmentally sustainable modes of transport.

And we are proposing this through the use of cleaner energy sources; improving logistics and intermodality through the development and modernisation of logistics terminals, ports, and access to them; and the digitalisation and sustainability of freight transport, through an aid programme that places freight transport companies among its potential beneficiaries to promote their digitalisation, the decarbonisation of transport and railway freight transport in particular.

Mafex Magazine: We are immersed in the European Year of Rail, an emblematic date that highlights the great prominence that this mode of transport will have in the coming years. What priority investments are planned to continue boosting their deployment in our country?

Raquel Sánchez: The railway will be the main protagonist of the direct investments included in the Recovery, Transformation and Resilience Plan. In fact, of all investments in mobility, the Ministry will directly execute 6.2 billion euros in the railway field.

At the beginning of November, the 2022 General National Budget passed the first round in Congress by a large majority. In them, MITMA has €16,286 million of total investment, of which 6.7 billion - more than 40% - are destined to the railway. A budgetary boost that will be reflected both in our long-distance network and the Cercanías.

And in this initiative, we pay special attention to the improvement of our conventional network for which we increase investments by 55% as we have to materialise a less carbonised, more efficient, close and diversified logistics, keys to the security, competitiveness and resilience of our industrial and foreign sectors.

In this way, 4 out of every €10 budgeted in the ministry will be dedicated

to advancing railway works, projects and actions. Railway investments that are going to transform into direct improvements for the citizens and also for the freight traffic. It will be a territorial and socioeconomic backbone that will be based on an expansion of services, connections and creation of new itineraries as we expand the network and complete corridors.

Mafex Magazine: The improvement of the urban environments in which the Government works also involves expanding and optimising public transport. What role will commuter networks, metro or tram systems play in these plans?

Raquel Sánchez: Cercanías is the most used railway service in our country, moving more than 500 million passengers annually and representing about 90% of all rail users. For this reason - due to its important role as one of the least polluting urban transport modes - within the mobility shock Plan in urban and metropolitan areas of the Recovery, Transformation and Resilience Plan, we have grouped a series of investments worth 1.6 billion euros that represent a change in the order of magnitude compared to those made in the last two decades.

In addition, railway services subject to Public Service Obligations (PSOs) have an essential role in the mobility, both of our main metropolitan areas and of the rest of the territory, as the numbers of users of these services demonstrate. We allocate more than 1.2 billion euros to them because we want to promote efficient, affordable transport to all, and make it more attractive to citizens.

Mafex Magazine: In terms of medium and long distances, your ministry is committed to projects to expand and improve railway infrastructure and the incorporation of new technologies to optimise operations and improve in aspects such as safety and

efficiency What is the roadmap for high-speed in a country that is already at the forefront in this area?

Raquel Sánchez: In recent years, important investments have been made in Spanish transport infrastructures that have made it possible to transform our business sector, making it a world reference.

In the railway sector, Spain excels in civil engineering works, signalling, safe and efficient management of railway traffic, rolling stock supply, operation, and maintenance. We have the largest high-speed network in Europe (with more than 3,621 km of track in service) and a very competitive industrial fabric.

We are also immersed in a great process of liberalisation of inland passenger transport that will revolutionise our sector and that will be a boost for this sector to continue moving forward.

In this context, our main roadmap is to complete the planned network for high speed, but also to prioritise complementarity and connectivity between networks, to get more out of the existing network; to focus on the maintenance and preservation of the network; go hand in hand in mobility and urban agenda, incorporating new trends in mobility; to commit to the culture of safety and digitally transform infrastructures ...

Mafex Magazine: Precisely we are in a moment of change after the entry into force of the liberalisation of passenger rail transport. How do you think this market opening has developed to date? How do you see this new scenario?

Raquel Sánchez: The railway in Spain has made a leap in quality and

performance in the last 25 years that place it as a benchmark for safe and sustainable mobility and allows a good positioning in the international markets of its entire industry. And liberalisation strengthens the sector. Strong investments in a high-speed network require the best possible operation and the greatest use for the benefit of the entire system, because, if the railway grows, the whole society wins, by reducing the negative externalities of the transport system.

In this context, Renfe began the democratisation of high speed in Spain with Avlo, its new high-speed service. A new service with which to attract new customers who, in many cases for price reasons, did not usually use high speed.

The railway has a future and, for that purpose, we must redefine it so that the new generations inherit a safe, fast, efficient and sustainable railway.

As I have already commented on other occasions, Avlo plans to expand its services to the Levante corridor and, with it, we hope to break the current mobility models between Valencia and Madrid and promote train trips between both cities with tickets starting at 7 euros per way.

Also, as a complement to the work that Renfe has been carrying out, from next year it is planned that Ouigo and ILSA will compete with the national company in various routes of our geography, which will allow us to take greater advantage of our high-speed infrastructures, which in

turn will mean an increase in mobility available to everyone.

Mafex Magazine: With regards to freight transport, another investment centre for sustainable recovery: Can you detail what plans you have to increase the presence of railway in logistics chains as recommended to Spain from Brussels?

Raquel Sánchez: Our plan in relation to railway freight, Plan Mercancías-30, involves launching the most urgent and necessary actions to activate this mode of transport, both nationally and internationally.

With this we intend to recover the traffic share lost in recent decades by the railway and for this we are focussing on favouring the increase of the goods transported and their integration with the different modes of transport through actions in the existing infrastructure, on the creation of new railway accesses to the main transport nodes, on the improvement of service, on the development of new management models of logistics terminals and, of course, on the financing of all of them.

As I mentioned recently, for example, before the end of this parliamentary term we will be able to connect the port of Tarragona and the entire Camp industrial cluster directly with the rest of Europe through the Mediterranean Corridor, a key advance for our factories to gain competitiveness.

Also, in the same period, two important services for a key sector such as the automotive in Spain will be finalised: the connection of Ford Almusafes with the port of Valencia and SEAT's possibility of directly and sustainably exporting its vehicles throughout Europe by railway.



And these are just a couple of examples since in the Budgets that we have presented for this 2022 we include 5,211 M€ for the entire Trans-European Network and for actions aimed at intermodality and logistics: railway access to ports, terminals, digitalisation of logistics chains and the actions included in our Plan Mercancías-30.

Mafex Magazine: From your ministry you also continue to work on two of the corridors of the Trans-European Transport Network (TEN-T): the Atlantic and the Mediterranean. How is its execution evolving? What benefits will they bring to freight and passenger traffic?

Raquel Sánchez: Some of our most important railway projects are linked to the development of the Trans-Eu-

ropean transport networks: the Mediterranean Corridor and the Atlantic Corridor.

The Mediterranean Corridor has increased its length by 233 kilometres since June 2018 after having put into service the AVE to Granada, the Alcudia-Moixent section, the Vandellós variant and the connection between Monforte del Cid and Beniel -corresponding to the AVE to Elche and Orihuela- where in addition to radically improving the Alicante connections, we have highlighted the first part of the AVE route to Murcia, and this allows us to continue with the works towards Almería and Granada.

In addition, we are in the process of awarding the change of width between Castellón and Tarragona, which will be one of the most rele-

vant actions for the development of the Corridor as a strategic axis for the promotion of railway transport and the socioeconomic development of the Mediterranean arc and its area of influence.

In turn, we have expanded the definition of the Atlantic Corridor to include Galicia and Asturias so that these Communities can benefit from funds for the improvement of networks.

In addition, in the field of goods, I would also like to highlight the actions we are carrying out for the improvement of the Bobadilla-Algeciras and Zaragoza-Teruel-Sagunto lines, where our objective is to electrify the two lines and provide them with the capacity to operate 750 m trains.

The examples I have given are by no means all the actions we have under way, but they undoubtedly constitute some of the most important challenges for the improvement and enhancement of the railway network. On this line, the funds requested from Europe to complete both requested corridors are comparable, and, in PGE 2022, the sum of the investments planned for both corridors amounts to 3.2 billion euros.

Obviously, the analysis of the momentum and progress of actions of the size of the corridors cannot be done year after year, but over a longer period. However, we are moving forward to meet the deadlines established in Europe in both Corridors.

And we make this effort with conviction, because we are aware that they will bring advantages to the Spanish society from many points of view. It will be beneficial both to improve long-distance travel, daily mobility and, of course, freight traffic. They will be axes of territorial and socioeconomic structuring.

The movement capacity of citizens will be greatly improved by providing

them with much better services, connections and frequencies than the current ones. They will also produce time reductions in key connections and the creation of new itineraries.

Companies will also have new connection, export and import systems, which will allow them to connect with European markets quickly, safely and sustainably; as well as with the different Spanish production centres and with the ports of the Spanish coast. And in addition, they will be able to do all this in a sustainable way.

We must not forget that the reduction of polluting gases is key to the 2030 goals. Road transport in Spain is the emitter of 25% of greenhouse gases and its reduction is a challenge to which both Europe and this Government are committed. It is a social need to move towards environmental sustainability, in which both Corridors will play a key role in which they will also contribute a reduction in congestion, accident rate and noise, especially in metropolitan environments.

Mafex Magazine: The commitment to the railway in our country has made us have a position of global leadership, with the support also of a very pioneering industry. Will your experience and solutions be key to advancing the pillars of the future of transport such as sustainability, digitalisation, and connectivity?

Raquel Sánchez: Spanish railway companies in the sector are present worldwide, offering innovative solutions, with standards of maximum safety and sustainability. In our railway ecosystem, today concepts such as safety, interoperability, sustainability, digitalisation ... in short, quality and competitiveness are indisputable protagonists.

As a result, we are witnessing the progressive maturity of the national

railway model in which our actors - the Ministry, the Railway Safety Agency (AESF), railway infrastructure managers, operators, manufacturers, vehicle and facility maintainers, etc. - are demonstrating an outstanding capacity that allows them to compete outside our borders with guarantees of success.

Mafex Magazine: In addition to being at a historic moment due to the large investments planned by your ministry, cooperation with other actors in the sector will also be key to achieving this new model of sustainable mobility. What role do you consider associations like Mafex play?

Raquel Sánchez: The work of associations like yours is commendable, and I cannot fail to congratulate you.

Your work of promoting national railway companies in forums that, due to our always committed agendas, we cannot attend institutionally, is essential to facilitate those exchanges of knowledge and information so necessary for the creation of new commercial ties.

Mafex Magazine: The year 2026 is the key date in the road map of the current ecological and digital transition of transport. Are you optimistic about the objectives that have been set? Can the great challenges that must be answered be achieved? Is it the time for the railway?

Raquel Sánchez: Indeed. Until a few years ago no one talked about replacing airplanes with trains, or eco-incentives or railway highways. Everything is in the process of change.

This year is the European year of the railway, but I risk predicting that perhaps more than the year we should talk about the decade or the century. There is already talk of hydrogen trains, of new locomotives (or four-wheel drive) capable of transporting more freight despite the slopes...

el drive) capable of transporting more freight despite the slopes...

From MITMA we have a very clear progress plan, and we are very optimistic about the results we hope to achieve. In this way, the actions we have planned will have a series of significant effects on economic activity and employment.

The development of European corridors, increased interoperability and intermodality will facilitate mobility and trade, increasing industrial competitiveness and allowing access to national and international markets in a more efficient way, which will bring associated increases in economic activity. Likewise, this development of the corridors will provide Spain with greater territorial cohesion both internal and external, shortening travel times and making them safer and more economically and environmentally efficient.

The promotion of efficient and sustainable transport methods, such as the modal transfer of road to rail, will contribute to reducing Spain's dependence on imported oil and reducing greenhouse gas emissions. In addition, boosting railway will contribute to reducing another series of negative externalities associated with road transport, such as congestion, noise or accident rate.

And finally, the incorporation of digitalisation and new technologies into the transport sector will result in greater competitiveness and complementarity between modes, as well as the transmission of information linked to both travellers and the logistics chain.

The railway has a future and, for that purpose, we must redefine it so that the new generations inherit a safe, fast, efficient and sustainable railway. Along these lines, a collective push is necessary so that the Spanish railway system lives up to the expectations of its users.



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RAILLIVE!



Dear Colleagues,

As Managing Director of Terrapinn and President of the Spanish Railway Association (Mafex) we are pleased to welcome you to Rail Live! 2021, which will take place in Madrid (IFEMA) from 30th November to 1st December 2021 in this fourth edition.

We are proud to be the organisers of a this railway event, in Spain, that has consolidated in an international benchmark attracting operators, manu-



facturers, and suppliers of the global railway sector.

Over the past year, we have worked together over an extensive programme of two days of simultaneous conferences with more than 200 speakers.

The forums will focus, on key aspects such as: digitalisation, advances in control systems, improvements in mobility and associated services, financing, smart infrastructures, goods, cybersecurity and mega projects among many others.

On the other hand, the exhibition area will bring together more than 180 companies, organisations and 20 start-ups unveiling the latest in-

novations and technological developments that will revolutionise the sector of the future to the more than 3,000 expected attendees.

We want to take this opportunity want to thank the sponsors, collaborating entities and the whole industry that have supported and worked in the organisation of the event to make RailLive! 2021 a benchmark forum.

We are confident that this new edition will be of interest to you and your participation will contribute to the success of Rail Live! 2021.

Yours faithfully,

Yours faithfully,

Sean Willis – Víctor Ruiz



RAILLIVE! 2021

A global event focused on innovation, sustainability, and the future of railway

RAIL LIVE! 2021 CELEBRATES A NEW EDITION FROM 30TH NOVEMBER TO 1ST DECEMBER, WHERE THE MAIN REPRESENTATIVES OF THE INTERNATIONAL RAILWAY SECTOR.

November has a special appointment with the railway. The main railway event of the year brings together the main representatives of the international railway sector on 30th November and 1st December. Under the slogan "Technology, innovation and strategy for the railway supply chain", this professional platform will evaluate an industry with great growth prospects in the face of increasing global investments in the area of sustainable mobility.

Rail Live!, organized by Terrapinn in collaboration with Mafex, reaches a new record in the number of participants, exhibiting companies and presentation of services. It is expected that thousands of people from more than 25 countries will be able to join the event.

In addition, more than 200 speakers will present the most relevant transport projects that are being conducted around the world, as well as the developments that are being made in rail-

3000
ATTENDEES

200+
SPEAKERS

180+
EXHIBITORS

8
CONFERENCE
TRACKS

25
COUNTRIES
REPRESENTED

lway networks, both on main lines and in urban systems.

This international platform will focus on conducting an in-depth analysis of the great transformation that the railway is experiencing through discussion about the most critical aspects of future developments. Administrations, companies, operators, and experts share experiences once again in a forum where this year aspects such as R&D, sustainability or safety will carry a very special weight.

Broad institutional support

As in all previous editions, it has the support of numerous collaborating entities such as the Railway Infrastructure Administrator (Adif), Renfe Operadora, Ices Spain Export and Investment, the Spanish Railway Foundation (FFE), the Spanish Railway Technological Platform (PTFE), Community of Madrid, Madrid Metro and Madrid City Council.

In addition to having the support in its dissemination from entities such as the European Railway Supply Association (UNIFE), European Railway Infrastructure Managers (EIM), Shift2Rail and IN-MOVE by Railgrup.

This year the slogan of Rail Live! is: "Technology, innovation and strategy for the railway supply chain".



Topics and trends

This event has established itself as one of the main forums on the present and future of the railway sector. For two consecutive days, there will be a debate on the great

challenges facing the sector with the unstoppable growth of new developments, the need to commit to environmentally friendly mobility and the new scenario in the race for decarbonisation.

RAIL LIVE! COVERS THE BIGGEST GLOBAL RAIL PROJECTS FROM AROUND THE WORLD.



Conference

The event will feature an extensive exhibition for delegates to engage directly with the industry's leading solution providers.

The allocated area will have the representation of all subsectors: consulting and engineering services; technology providers; rolling stock manufacturers; and telecommunications, signaling and safety companies, among many other fields. Visitors have a new opportunity to learn about the latest trends, products and related services in areas as diverse as new materials, smart maintenance systems, the Internet of Things (IoT), data analysis and digital construction methodologies.

Among the exhibitors it will also be possible to know the complete activity of Mafex, which will have its own stand in the fair located at number 70 of the exhibition map.

Exhibition

The event will feature an extensive exhibition for delegates to en-

gage directly with the industry's leading solution providers.

The allocated area will have the representation of all subsectors: consulting and engineering services; technology providers; rolling stock manufacturers; and telecommunications, signaling and safety com-

panies, among many other fields. Visitors have a new opportunity to learn about the latest trends, products and related services in areas as diverse as new materials, smart maintenance systems, the Internet of Things (IoT), data analysis and digital construction methodologies.



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by Railgroup

ShiftRail

unife

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PLATINUM SPONSOR
CAF GROUP

PLATINUM SPONSOR
Talgo

PLATINUM SPONSOR
Ingeteam

ENGINEERING PARTNER
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For two consecutive days, the great challenges facing the sector with the unstoppable growth of new developments will be addressed.



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SIEMENS

A complete conference agenda to discuss the future of the sector



Once again the Rail Live! conference counts with the key players in the railway sector: senior officials of public administrations, railway operators, infrastructure managers and members of associations and entities linked to the world of rail transport. Many presentations by technology providers, manufacturers, consulting, and engineering services will also be included. During two consecutive days, more than 200 experts from around the world will analyse in detail the challenges

and opportunities of the railway, as well as the investments planned to continue with its implementation, in addition to the innovative solutions developed by the industry.

Rail Live! 2021 is a highly anticipated event for the entire industry, which takes place at an essential moment of transformation of the sector. With this international reunion, the face-to-face agenda is resumed after the pandemic, taking all the corresponding health measures.

Official opening

This professional platform, which has already become an international benchmark as a focus for analysis of the sector and trends, will begin on 30th November in Madrid. Immediately after the welcoming words to be done by the director of Terrapinn, Sean Willis and the president of the Spanish Railway Association (Mafex) Víctor Ruíz, as organisers of the event. The opening ceremony will be held by the Minister of Transport, Mobility and Urban Agenda, Raquel Sánchez.

Matchday 1, 30th November

The agenda of the first day of the congress has more than 71 conferences that will cover various topics of special relevance. The invited experts will talk about aspects related to energy, Mobility as a Service, the integration of different modes of transport, as well as station financing, cybersecurity, infrastructure maintenance, artificial intelligence, automation, climate neutrality, etc. To know all the details of these, the highest ranked representa-

SPEAKERS

NAME	POSITION	COMPANY
► Manuel Fresno Castro	Chief Financial Officer	ADIF
► Juan Pablo Villanueva Beltrami	General Director of Adif AV and Construction General Director of Adif	ADIF
► Jesús María Campo Campo	Dirección de Negocio y Operaciones Comerciales	ADIF
► Miguel Rodríguez-Plaza	Head of R&D projects	ADIF
► María Luisa Domínguez González	President	ADIF
► Inés Vadillo Cortazar	R&D Project Manager - Strategic Innovation Directorate	ADIF
► David Villalmanzo Resusta	Head of R&D&I Strategic Analysis	ADIF
► Ignacio Sanz Junoy	Passenger Stations Directorate, Deputy Commercial Manager	ADIF
► Manuel Martínez Cepeda	Director of Commercial Exploitation	ADIF
► Julio Caballero Sánchez	Director Gerente	Agencia de Obra Publica de la Junta de Andalucía
► Ángel Muñoz Hernández	Jefe de Servicio – Área de Material Rodante	Agencia Estatal de Seguridad Ferroviaria
► José Miguel Monteagudo	Director General	Agencia Valenciana de Seguretat Ferroviaria
► Eneida Elezi	Foreign Affairs responsible officer	Albanian Railways-Ministry of Infrastructure and Energy
► Azamat Baidautov	Deputy Head of Sustainable transport development department	Almaty LRT project (Almatyelectrotrans LLP)
► Eddy Thesee	VP products&solutions cybersecurity	ALSTOM
► Jaime Borrell Botella	Business Development & Marketing Director Spain and Portugal	ALSTOM
► Leopoldo Maestu	MD Alstom España y Portugal	ALSTOM
► David Moszkowicz	Director Innovation Center	ALSTOM
► Javier Hinojal	Business Development and Public Affairs	ALSTOM
► Stefan Graf	Regional Sales Manager	Amberg Technologies
► Roberto Chinarro	Rail Survey Manager	Amberg Technologies
► Jean Robert Laarhoven	Commercial Director	Amurio Ferrocarril Y Equipos SA
► James Brown	Decarbonisation Manager	Angel trains
► Maria-Jose Sanchez	Commercial Rails, Piles And Special Sections	ArcelorMittal
► David Alvarez	Rail Program Leader	ArcelorMittal
► Diego Manzano	R&D Engineer	ArcelorMittal
► Juan Jose Gainza	Product Development Manager - Rail	ArcelorMittal
► Frederic Goujon	Product Manager	ArcelorMittal
► Olivier Vassart	Chief Executive Officer	ArcelorMittal Stelience®
► Mike Cooper	CEO	Arriva Group
► Yonatan Rabinovitch	Partner Marketing Manager	Astera
► Sophia McIntyre	Ambassador	Australian Ambassador to Spain
► Borja Carabante	Delegado del Área de Gobierno de Medio Ambiente y Movilidad	Ayuntamiento de Madrid
► Barak Kirschner	CEO	BLK & Company
► Florian Kappler	Program Lead	BLS AG
► Eva Kreienkamp	CEO	BVG Berliner Verkehrsbetriebe
► Marc Valette	Director Of Innovation	C.F.L. Multimodal
► Luis Fernández De Barrena	Business Development Manager - Digital Services	CAF
► Javier Martínez Ojinaga	CEO	CAF GROUP
► Mikel Larremendi	ATO solution manager	CAF Signalling
► Raúl Costa	Commercial & Bids Director	CAF Signalling
► Aritz Molinuevo	Technical Manager	CAF Turnkey & Engineering
► Brian Kelly	Chief Executive Officer	California High Speed Rail Authority
► Jorge Iglesias	Technical Manager	CEDEX
► Unai Alvarado	Director, Railway	Celt
► Christian Schlehüser	Convenor TC 9XVWG 26	CENELEC
► Wolfgang Feigl	Head of Department for Transport	City of Graz
► Mario Rivera	Project manager, Uppsala light rail	City Of Uppsala
► David Pérez García	Consejero de Transportes	Comunidad de Madrid
► Pedro Pinto	Business Development Director	Cooltra
► Nicola Small	Senior Rail Programme Manager	Coventry City Council
► David Meinel	Branch Office Manager	DB E.C.O. Group
► Jörg Marienhagen	Director Mobility Consulting	DB Engineering & Consulting
► Jens Bergmann	Board Member	DB Netz AG
► Volker Hentschel	Board Member	DB Netz AG
► Revantha Rodriguez	Senior Corporate Finance Advisor	Department for Transport
► Tobias Fischer	Head Of Rolling Stock Technology	Deutsche Bahn AG
► Ralf Marxen	Head of Technical External Affairs	Deutsche Bahn AG
► Javier Moreno	Technical Manager	E.I.M.
► Thomas Chatelet	ERTMS Project Officer	E.R.A.
► Laia Garriga Mas	Responsable Negocio Sector Ferroviario	E.U.R.E.C.A.T.
► David Cuesta Gomez	Lead Engineer	ERTMS Users Group
► Terry Bills	Global Transportation Industry Director	Esri
► Armando Carillo Zanuy	Secretary General	Eurnex
► Donald Mishaxhiu	Associate Director, Senior Banker Infrastructure Europe	European Bank for Reconstruction and Development (EBRD)
► Kristian Schmidt	Director Land Transport	European Commission
► Marcial Bustinduy	Transport Sector Specialist	European Investment Bank
► Monika Heimig	Executive Director	European Rail Infrastructure Managers Association
► Eduardo Díaz	Head of Unit	European Space Agency
► Jayne Yeo	Safety and Operations Unit Project Officer	European Union Agency for Railways

tives have been invited, both from public administrations and railway network operators, as well as from specialist companies in each of the sub-sectors who will present their latest developments.

The sections are organised in major themes that cover all aspects related to infrastructure, operation, safety, implementation of new technologies, personalised passenger services, intermodality, digitalisation, energy efficiency, security, or environment, among other aspects.

The panel will begin with a round of interviews with presidents and senior officials of companies in the sector, which will give a complete vision of how the sector is and where it is heading. Among such companies are Renfe, Adif, Ouigo and Arriva along with CAF, Talgo, Ineco, Ingeteam and Alstom.

This section will discuss the new opportunities presented by the liberalisation of passenger transport, how the horizon has changed after this new stage, as well as the future of mobility and what are the next steps in terms of public transport or the most relevant projects in terms of infrastructure in Spain.

Following that opening, the rest of the conferences will focus on a wide range of case- study presentations which will cover topics such as energy, integrated mobility, station financing and cybersecurity. For example, attendees will be able to know, how the future of 5G is in the metro, the digital transformation in railway infrastructure or how R&D projects such as Shift2Rail are driving the future of signalling and control systems. It will be followed by presentations on how the integrated designs of public space and bicycle areas in the stations are documented, as an example of intermodality in urban areas, the challenges of the infrastructure and rolling stock hydrogen related, or

SPEAKERS

NAME	POSITION	COMPANY
► Ian Horseman Sewell	Managing Director	FCP
► Fabian Kirschbauer	Head of ETCS Lab	Federal Railway Authority
► Albert Tortajada	Infrastructure Director	Ferrocarrils de la Generalitat de Catalunya
► Pablo Pastega Milans del Bosch	MD FlixBus Spain & Portugal	Flixbus / Flixtrain
► Holger Busche	Scientific Advisor	Fraktion Bündnis 90 / Die Grünen
► Deep Desai	COO	Frauscher Sensoric GmbH
► Christoph Goetze	Head of Sales Europe Central	FREQUENTIS
► Angeles Tauler	Gerente PTFE-Subdirectora Estrategia, Innovación y Formación	FFE - Fundación De Los Ferrocarriles Espanoles
► Daniel Quintero Martinez	Railways Director	Globalvia
► Mimmi Mickelsen	Tram Security Expert, Trafikkontoret	Goteborgs Stad
► Diana de Bernardy	Head of Industrial Markets	GS1 FRANCE
► Alexander Horch	Vice President Of R&D And Product Management	HIMA Group
► Diego Lopez Gracia	Sales Manager Strategic Projects	HISPASAT, S.A.
► Edmund Butcher	Rail Business Development Manager	HS1
► Mark Thurston	Chief Executive Officer	HS2
► Michail Stahlhut	Managing Director	Hupac Intermodal Sa
► Jose Maria Blasco Ruiz	Director	ICEX España Exportacion e Inversiones
► Elisa Carbonell	Directora General de Internacionalización de la Empresa	ICEX España Exportacion e Inversiones
► Alberto Alonso	BIM Management	IDOM
► Maria Concepción Ortega Ortiz	Global Market Infrastructures Director IDOM	IDOM
► Julio Gómez-Pomar	Chairman	IE Center for Transport Economics & Infrastructure Management
► Beatriz Rios	Reporter & Journalist	Independant
► Juan Antonio March Garcia	Rail, Urban & Interurban Transport Director	INDRA
► Javier Pozo Barbera	Technical Manager	INDRA
► Carmen Librero	Chairwoman	INECO
► Antonio Sancho Hernandez	Architect	INECO
► Raquel Alonso Martinez	Architect	INECO
► Alfonso Lorenzo Barba	Expert Engineer in Railway Signalling Systems	INECO
► Juan Luis Monjarás Torres	Engineer	INECO
► Pieter Verlinden	Team leader Data Science and Predictive Analysis	Infrabel
► Adolfo Rebollo	Chief Executive Officer	Ingeteam, S.A.
► Eider Zabala	Product Technical Manager Traction Business	Ingeteam Power Technology S.A
► Scott Congdon	Market Development & Partnership Management, Land Mobile	Intelsat
► Chen Geva	Head of Infrastructure Projects and PPP	Israeli Ministry Of Finance
► Pavel Popov	The Head of Center	J.S.C. NIAS
► Carsten Wiebers	Global Head Aviation, Mobility And Transport	KfW IPEX-Bank
► Daisy Chapman-Chamberlain	Rail lead	KTN
► Antanas Kedy	Head of Cyber Security	Lithuania Railways
► Andy Lord	Managing Director	London Underground
► Carl Williams	CEO	LRSSB
► Mindaugas Bereiša	Head of Innovation Department	LTG - LINK
► Diego Galar	Professor of Condition Monitoring	Lulea University
► Carlos Romero	Managing Director	Madrid Aerospace Cluster
► Víctor Ruiz	President	MAFEX - Spanish Railway Association
► Pedro Fortea	General Director	MAFEX - Spanish Railway Association
► Jorge Rodriguez	CEO	MainRail Solutions
► Pedro Pablo González	Responsable de división de material móvil	Metro de Madrid
► Julia Maria Calonge	Jefa de Proyectos	Metro de Madrid
► Jorge F. BLANQUER JARAÍZ	Responsable Área de Obras, Infraestructuras y Accesibilidad	Metro de Madrid
► Angel Ferrer Serrano	Responsable de Área de Control y Planificación de Operación	Metro de Madrid
► Carlos Barroso	Coord.del Centro de Desarrollo y Conformidad e Ingeniería de Venta y Peaje	Metro de Madrid
► Carlos Zorita Pérez	Responsable del Servicio de Infraestructuras y Estaciones	Metro de Madrid
► Monica Mariscal Contreras	Responsable del Servicio de Responsabilidad Corporativa	Metro de Madrid
► Fernando Rodriguez Mendez	Director of Operations	Metro de Madrid
► Silvia Roldan	Chief Executive Officer	Metro de Madrid
► Antonio Martinez	Coordinación de Seguridad Informática y Ciberseguridad	Metro de Madrid
► Raquel Calvo Aller	Responsable de Área de Gestión Operativa de Líneas	Metro de Madrid
► Jorge Maroto Gómez	Managing Director & O&M Director	Metro de Sevilla
► Víctor Dominguez dos Santos	Chairman of the Board of Directors	Metropolitano de Lisboa
► Teresa Benet	International Business Development	Metropolitano de Tenerife
► Carlos Esquivroz	Chief Executive Officer	Metros Ligeros de Madrid
► Pablo Oromi	Project Manager, Civil Engineer	Metrotenerife
► Jose Antonio Ondiviela	Industry Director at Microsoft Western-Europe for critical infrastructure	Microsoft Corporation
► Johan Torfs	Industry Executive	Microsoft Corporation
► Raquel Sánchez Jiménez	Minister	Ministry of Transport, Mobility and Urban Agenda
► Martin Frobisher	Group Engineering Director	Network Rail
► Simon Coulthard	Head of Light Rail Knowledge & Development	Network Rail
► Matt Weingarh	Principal Innovations Engineer	Network Rail
► Iain Greer	Head of Delivery, Intelligent Infrastructure programme	Network Rail
► Stefan Kirch	Magrail Business Development Director	Nevomo

how strategic plans are developed with a focus on new stations and with more passenger services.

It will later be shown how the application of technology and artificial intelligence serves to effectively prepare for the disruption via new concepts such as mobility as a service, wireless communication technologies and their benefits or the maintenance of infrastructures with digital platforms.

The first day of the conference will also cover the latest innovations of the industry related to pre-assembly of tracks, rail for a longer useful life of the networks, the sustainable construction of stations, the ATO on-board, the experimentation of ATO on ETCS or the implementation of global railway digitalisation programmes.

The speakers will also address other issues of interest, including how to



The conferences will combine the interventions of representatives of the administrations and the most prominent companies in the sector.

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with lines and curves



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reduce electricity losses in energy distribution networks, the opportunities offered by satellite-based solutions, new fuels (hydrogen and batteries) and developments in rolling stock, integrated traffic systems, freight train diversion, new implementations in control rooms, ventilation systems, digital twins, accessibility, automation or the integration of the railway into multimodal mobility and its new digital models.

During the 30th November sessions, the theme will also focus on energy-efficient solutions and more environmentally friendly traction technologies for LRV and metros, the ergonomic design of the new toll system and automatic sales aligned with the digital strategy of the station 4.0, a comparison of human and automated driving, advances in aspects such as the detection of rockfall, technological innovations in train-tram projects or the reduction of the costs of signalling renovations. Predictive systems for a secure infrastructure, the challenges of cybersecurity and its standards, electrification, etc.

On the other hand, there will also be a space to talk about issues related to financing and concessional models. The day will end with a review of some of Europe's largest metro systems and their role in improving mobility and reducing citizens' dependence on private transport.

Attendees will be able to learn about the advances of the industry and railway investment plans.

SPEAKERS

NAME	POSITION	COMPANY
► Przemek Paczek	Co-Founder & Chief Product Officer	Nevomo
► Richard Aaroe	Chief Executive Officer and Chairman	NGRT
► Stefan Weidmann	Head of Sales Transportation Europe	Nokia
► Filippo Gaggioli	Digital Industries - Portfolio Expert	Nokia
► Angela García Maraver	Head of Product Engineering	NRF
► Esmé Kalshoven	Ertms Program Director	NS
► Tami Buller	Tel Aviv Metro Planning and Design Director	NTA Tel Aviv Metro
► Gerald Schinagl	Digital Innovation Manager	ÖBB Austrian Federal Railways
► Gregor Fleischmann	Project Office - BIM	ÖBB Infrastruktur
► Hector Barrio	General Manager	Ostirion
► Sergio Barcena	Director of Operations Planning and Maintenance	Ouigo España
► Hélène Valenzuela	CEO	Ouigo España
► Félix Pérez Gayol	General Manager	Pandrol
► John Porill	Head of New Product Development	Pandrol
► Jan van der Heide	Sales and Business Development	PILZ
► Gerhard Moser	Senior Manager System Integrations	Pliz GmbH
► Christoph Lorenzutti	COO	PJ Monitoring
► Óscar García Muñoz	Coordinador de Accesibilidad	Plena Inclusión Madrid
► Astrid Bunt	Director Of Stations	ProRail
► John Voppen	Chief Executive Officer	ProRail
► Mette Janssen	Development Manager	ProRail
► Van Lidwien Kessel	Project leader stations	ProRail
► Justus Hartkamp	Director International Affairs	ProRail
► Karel van Gils	Director Innovation	ProRail
► Álvaro Rodríguez	Planning and Development Director	Puertos Del Estado
► Mark Grisdale	Sales Manager UK&I	Qognify Ltd
► Alex Burrows	Managing Director	Rail Alliance
► Andy Billington	Innovation & Sustainability Director	Rail Baltica
► Agnis Driksna	CEO & Chairperson of Management Board	Rail Baltica
► Jan-Wick Kranenburg	Ceo	Rail Connected
► Jonathan Chatfield	Head Of Policy	Rail Delivery Group
► Bertrand Minary	Chief Innovation And Digital Officer	Rail Logistics Europe
► Enric Tico	President	Railgrup
► Kaspars Briškens	Head of Strategy and Development	RB Rail AS
► Joaquín de Moral Salcedo	Director General de Renfe Mercancías	RENFE
► Sonia Segade Blanco	Head of Technological Transformation	RENFE
► Rubén Leónor Bravo	Strategy Director	RENFE
► Inmaculada Gutiérrez	International Director	RENFE
► Laureano Fernández	Responsible For The Transport And Mobility As A Service	RENFE
► Irene Donaire	Head of Energy Efficiency	RENFE
► Sonia Araujo Lopez	CEO of Renfe Viajeros - Passengers	RENFE
► Gloria del Ser	Rbale Material et maintenance MF	RENFE
► Manel Villalante	Chief Strategy And Development Officer	Renfe Operadora
► Alexey Ozerov	Head Of International Cooperation Department, Jsc Niliis	Russian Railways
► Radek Cech	Director of international affairs department	S.Z.D.C.
► Kaspar Tobler	Project Manager Telematics	SBB Cargo
► Thomas Sutter	Manager	SBB Infrastructure
► Guillem Peris-Sayol	Lead Project Manager RESPIRA	Sener
► Anwar Almojarkesh	Co-Founder And Chief Executive Officer	SensoRail
► Manuel Alarcon Espinosa	IPS Programme Manager	Shift2Rail Joint Undertaking
► Giorgio Travaini	Head of Research and Innovation	Shift2Rail Joint Undertaking
► Carlo Borghini	Executive Director	Shift2Rail Joint Undertaking
► Karolina Korth	Chief Digitization Officer and Head of Strategy for South-West Europe	Siemens
► Yuka Saeki Cardona	Product Manager	Siemens Mobility
► Sergio Iglesias	Business Development Professional	Siemens Mobility GmbH
► Maximilian Kaiser	International Sales Manager	Siemens Mobility GmbH
► Stéphane Callet	Director Signalling Projects	SNCF
► Valentin Barreau	Train Localisation team leader	SNCF
► Hans Cruise	Director	Spårvagnsstäderna
► Jiri Merta	Head of the HSL technical preparation unit	Sprava železnic, statni organizace
► Mar Rivas	Marketing Manager	Stadler Rail Valencia SAU
► Mariano Martí Alonso	Sales Vice-president / Commercial Manager Locomotives	Stadler Rail Valencia SAU
► Radosław Kantak	Member of the Board	STH
► Einar Schuch	Regional Director	Swedish Transport Administration
► Jack Schneider	Programme Leader Ato, Smart Rail 4.0	Swiss Federal Railways SBB
► Daniel Eckenstein	Asset Manager - Track	Swiss Federal Railways SBB
► Oscar Playa	Director de Metro	T.M.B. - Transports Metropolitans de Barcelona
► Gonzalo Urquijo Fernández de Arcoz	CEO	Talgo
► Enrique Riesco	Comercial Director EU & CIS	Talgo
► Jose Antonio Marcos Alberca	Head Manager Smart Maintenance Engineering	Talgo



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

ArcelorMittal's main trending topics for railway:

- **RailCor[®]** a new range of Corrosion Resistant Rails: a completely new range of corrosion resistant rails available in 4 specific solutions 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 available.
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- **Increasing the service life of rails:** with the most appropriate solution related to different applications; LCV (Low Carbon Vanadium) for tramway or new hardness grades for heavy haul rails.

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Second day, 1st December

The morning of day two will address the main challenges in the construction and delivery of effective infrastructure projects. The events will begin with a conference on the vision of the future of rail in Germany which will be followed by experts sharing a joint proposal on how to develop rail networks that are as safe and digitally agile as possible. The next intervention, which will also feature several experts together, will focus on innovative technologies that are transforming mobility design.

Round tables

Following these expert panels, the sessions will be divided into interactive round tables that will give delegates the opportunity to engage in small-scale discussions. Alongside the numerous conference topics on Rail Live! this attractive model of communication between attendees is presented and which has been designed so that they can delve into those topics that are of interest to them. The roundtables will provide

SPEAKERS		
NAME	POSITION	COMPANY
Emilio Garcia	Director de I+D	Talgo
Mark Davis	General Manager	TfL London Trams
Henrik Plougmann Olsen	Chief Executive Officer	The Metro Company Metroselskabet 1 - S
Manuel Arauco	General Manager, Spain	TIER
Martin Fenner	Director	Tilt Consulting
Jessica Outeriño	Directora de Planificación Estratégica de Metro	TMB - Transports Metropolitans de Barcelona
Ana Moreno	General Manager	Tranvías de Zaragoza
Steve Duckering	Head of Operations	U.K. Tram
Pierre Tane	Head of Digital Modelling	UIC
Jean-Michel Evangelhelou	Director Telecom & Signalling	UIC
Marta Garcia	Technical Affairs Manager	UNIFE
Jose Bertolin	Technical Affairs Manager	UNIFE
Nicolas Furio	Head Of Technical Affairs Unit	UNIFE
Stefanos Gogos	Technical Affairs Manager	UNIFE
Stuart Hillmansen	Senior Lecturer	University of Birmingham
Richard Thomas	Industrial Fellow	University of Birmingham
Paul Plummer	Professor	University of Birmingham
Pietro Tricoli	Reader in Power Electronics Systems	University of Birmingham
Joao Pombo	Professor of Railway Technology	University of Huddersfield
Jure Miloković	Vice President Rolling Stock	V.D.B. German Railway Association
David Barragan	Business Development	voestalpine Railway Systems JEZ
Juan Vicen	Co-Founder And Chief Marketing Officer	Zeleros
Luis Javier Diaz Valdes	Head of Project Management Office	Zitron
Ana Belen Amado	Responsible of CFD and Virtual simulation	Zitron

an environment of proximity to allow delegates and sponsors to discuss and learn about new solutions in the industry.

The topics that will be discussed will be of great breadth, from digital diversion systems to the new generation of ETMS, through the analysis of the decarbonisation strategy of the transport sector and the challenges and opportunities for freight transport in the Iberian Peninsula. It will

also discuss how to measure the benefits of digitalisation in the railway industry and will be able to learn more about the European EULYNX initiative on signaling, the advancement of Hyperloop, IMS technology (Inertial Measuring System), the 4.0 industry, resilience in infrastructures, the keys to the success of the partnership in mobility as a service or innovative steel solutions for the railway industry.

Following these small group meetings, the presentations will focus on current events related to the new

generation of telecommunications networks and the development of FRMCS (Future Railway Mobile Communication System), the opportunity to take advantage of reliable and integrated infrastructures with innovative applications and the development of holistic models to optimise innovation and reduce costs. There will also be a space to talk about the future of operators such as Renfe, the role of the new railway safety agencies in isolated networks other than the RFIG, light metro, long-term plans to develop a more sustainable transport, improvements in digital transformation, digitalisation in the field of goods or intermodality. All these topics will be accompanied by a more detailed analysis on new advances and improvements in safety, the application of BIM methodology, the importance of sharing data to reduce risks in the management

The sessions will be divided into interactive round tables that will give delegates the opportunity to engage in small-scale discussions.

of networks, intelligent infrastructures, implementation of ERTMS, aerodynamic enhancements in railway circuits, the challenges of the internationalisation of the industry, the present and future of track maintenance, the contribution of light rail to the environment, automation, advances in noise-reducing products, anti-corrosion, control centres, etc. There will also be a chance to discuss and make references to large projects such as the high-speed in

California, the Czech Republic, and Baltic countries (Rail Baltica), planned investments in Australia, the Tel Aviv metro, multimodal transport in Poland.

The wide variety of conferences included in this second day aims, as on the first day, to make as detailed analysis as possible of how the railway sector stands in the world, the challenges it faces, the opportunities that come from the hand of technological advances, as well as the inno-



Rail Live! has become a professional platform of reference in the railway sector.



ventions, products, and services that the industry is providing to promote network modernisation projects and the construction of new infrastructures, both passenger and freight.

Forum: Spanish symposium

As a novelty during this edition, the event announces the celebration of a Spanish symposium within the general programme, starring the main entities sponsoring the event where different topics of interest will be discussed.

Among them, Adif's vision of the stations as centers of the new sustainable urban mobility. Digital transformation and improvement of the traveler experience. Renfe will refer to Mobility-as-a-Service, goods, and internalisation.. Metro Madrid will present its strategic vision with a focus on citizen accessibility.

Mafex and the Spanish Railways Foundation – Spanish Railways Technological Platform will jointly present a discussion on what the railway and its industry need to become the true central axis of the mobility of the future. Finally, Ixex Spain Export and Investments will close the forum by sharing its railway strategy with a focus on key markets and how this financing will be executed.

Represented companies and institutions

Among the companies that will present their solutions and advances during these two days of congress are: Amurrio Ferrocarril y Equipos, Angel Trains, Arcelormittal, Alstom, Arriva Group, AS Operail, BLK & Cmpany, BLS AG, CAF, CAF Turnkey & Engineering, CAF Signalling, California High Speed Rail Authority, C.F.L. Multimodal, Cooltra, Fraktion Bündnis 90/Die Grünen, Frauscher Sensonic GmbH, Frequentis, Flixbus/ Flixtain, Hima Group, Hispasat, Hupac Intermodal Sa, IDOM,

Ineco, Indra, Globalia, Glovalvia, Ingeteam, Intelsat, KTN, LRSSB, Main-Rail Solutions, Microsoft corporation, Nevorno, NGRT, Nokia, Sener, Ouigo Spain, Qognify Ltd, Siemens Mobility GmbH, Pilz, Pandrol, PJ Monitoring, Talgo, Tier, Sener, Stadler Rail, Voestalpine Railway Systems, Zeleros or Zitron.

There will also be a wide representation of administrators, operators, agencies, institutions, and universities from many countries. Among them Albania, Germany, Austria, Belgium, Denmark, France, Great Britain, Spain, Holland, Lithuania, Portugal, Czech Republic, or Switzerland, among others. It will be represented by: Adif, Agencia de Obras Públicas de la Junta de Andalucía, Agència Valenciana de Seguretat Ferroviaria, Albanian Railways,

Almaty LRT Project (Almatyelectrotrans LLP), ATM, BVG Berliner Verkehrsbetriebe, BLS AG, California High Speed Rail Authority, CEDEX, CENELEC, CEIT, City of Graz, City of Uppsala, DB E.C.O. Group, DB Netz AG, Ralf, Deutsche Bahn AG, Coventry City Council, Department of Transport of the Government of Great Britain, ESRI, ERA, ERTMS Users Group, European Commission, European Investment Bank, European Rail Infrastructure Managers Association, European Space Agency, European Union Agency for Railways, EURNEX, Federal Railway Authority, FGC, Spanish Railways Foundation, Australian Government, Göteborgs Stad, GS1 France, HS1, IE Center for Transport Economics & Infrastructure Management, Infrabel, ICEX Spain Export and Investments, Israeli Ministry of Finance, SC NIIAS

(Research Institute), KfW IP EX-Bank, Lithuanian Railways, LTG-LINK, London Underground, LRSS, Madrid Aerospace Cluster, Mafex, Madrid Light Rail, Madrid Metro, Seville Metro, Tenerife Metropolitan, Lisbon Metro, NTA Tel Aviv Metro, Network Rail, OBB, ÖBB Infrastruktur, Plan Inclusion Madrid, Rail Baltica, Prorail, Puertos del Estado, RB Rail AS, Rail Delivery Group, Rail Logistics Europe, RENFE, SBB Cargo, SBB Infrastructure, SNCF, Správa železnic, Shift2Rail Joint Undertaking, Swiss Federal Railways, Solidarity Transport Hub, S.Z.D.C., TfL London Trams, Zaragoza Trams, The Metro Company Metroselskabet I – S, TMB, UIC, UNIFE, Birmingham University, U.K. Tram, University of Huddersfield, University of Lulea and V.D.B. German Railway Association.



EUROPEAN YEAR OF RAIL 2021

An event included in the calendar of activities of the European Year of Rail 2021

Rail Live! 2021 is one of the main reference events that are included in the agenda of the European Year of Rail, a key date designated by the European Commission in order to promote its use and highlight the weight that this means of transport has in the mobility strategy in the Union, both of people and goods, as well as in the large investments planned for the coming years.

The pooling of all the experts who will be present these days in Madrid on this professional platform will serve to have a complete vision of the moment that the sector is going through and the lines of action planned to achieve the objectives of the Green Deal.

Rail Visionary Awards

Rail Live's agenda of activities! 2021 also includes awards that want to recognise the advances of SMEs in the sector and their commitment to technology and R&D.

The Rail Visionary 2021 awards were born with the aim of rewarding innovative and disruptive solutions to face the challenges (digital mobility, maintenance digitalisation, Doctor Train and multimodal platforms) that will set trends in the railway mobility sector over the coming years.

The initiative, organised by IN-MOVE by Railgrup, Mafex and Terrapinn, also has the support of Renfe and Eurecat.

An agenda with all current topics

THE CONFERENCE COVERS A WIDE VARIETY OF TOPICS TO LEARN ABOUT THE PRESENT AND THE FUTURE OF A THRIVING SECTOR WITH LARGE PROJECTS UNDER WAY.

ENERGY AND ENVIRONMENT

One more year, sustainability is one of the key themes that part of the debates of the Rail Live! conference focuses on. The important role of the railway on decarbonisation of transport and the reduction of emissions will be analysed during these days by international experts.

This year special attention will be paid to all aspects related to the implementation of the hydrogen train and other alternative fuels, the different strategies of operators and administrations to advance in the fight against climate change, electrification, and modernisation of networks to gain in energy efficiency, new components, etc.

METRO AND LIGHT RAIL

The implementation of new metro and light rail networks, as well as the modernisation and expansion of many of the existing ones, continues to advance around the world.

Aware of the growth of this type of systems, as well as their role in urban mobility, the Rail Live! participants will discuss numerous aspects in this regard such as the new solutions that are introduced in the market to improve services, the implementation of new technologies, the innovations in rolling stock to

provide more accessible, efficient and safe trains, the main projects in the world, etc.

This edition will feature numerous examples of cities and metropolitan areas such as Almaty (Russia), Graz (Austria), London (United Kingdom), Uppsala (Sweden), Tel Aviv (Israel) or Barcelona, Madrid, Seville, Tenerife, and Zaragoza in Spain, as well as cases of implementation of tram-train systems such as the Cádiz Bay one.

SMART STATIONS

The design of a connected, digital and intermodal transport model has driven the development of a new concept of smart stations, where the weight of technology allows to provide a better passenger service and advance in aspects of security, real-time information, control centres, ticketing, etc.

Among other aspects, special attention will be paid to how the implementation of new disruptive technologies is carried out, as well as the benefits and challenges it poses to create an integrated and passenger-based environment. All these aspects will be analysed at the Rail Live! conferences.

SMART INFRASTRUCTURES

New technologies, developments in materials and industry solutions make it possible to talk about smart infrastructures. The role of all these developments will be detailed in a wide range of presentations within Rail Live! An extensive topic that covers aspects such as innovations in track pre-assembly, in diversions for freight trains or in holistic real-time monitoring with artificial intelligence (AI). In addition, this edition will present the most innovative systems for the detection of rockfalls in the Spanish infrastructure, developments in predictive maintenance, remote access solutions for safe operations in railway systems, as well as the development of bespoke products (for anti-corrosion, antinoise, anti-stray, etc.) for this type of infrastructures.

There will also be an analysis of how Artificial Intelligence contributes to the performance and costs of asset management, the digital twin, and the development of Magrail technology for the Hyperloop. Another aspect included in the programme focuses on examples of how the digital programme is being implemented in the United Kingdom, the network maintenance solutions in Lithuania, the innovation in the Tenerife metro, or the implementation of the high-speed line to Galicia. There will also be a discussion on how the industry can address the challenges of interoperability, standardisation, and international traffic

SMART CONSTRUCTION

Technological advances have also had a very positive impact on the construction and modernisation of railway networks. Collaborative working methods such as BIM represent a very relevant step in transport projects, which face the new challenges with more powerful tools to achieve safer, more resilient infrastructures according to new mobility needs. All this will be discussed in detail in this edition of this conference.

MEGA PROJECTS

The progress made by the railway around the world continues to grow steadily. Proof of this are the large investments made to expand the transport of passengers and goods. Rail Live! will dedicate a series of specific sessions to the mega projects that are currently being carried out on several continents. Among them, the high speed of California, and that of the Czech Republic and the Baltic States (Rail Baltica).

FINANCING

In this edition will also be an analysis of the large investments that will be made in Australia, of more than 110 billion dollars on transport in the next ten years. Likewise, there will be a discussion about the opportunities offered by the Next Generation funds for the development of railway infrastructures in Spain, the results of public-private collaboration in transport projects or examples of how systems such as the Tenerife metro, the Tel Aviv light rail or how multimodal node initiatives are developed in countries such as Poland.

THE DIGITAL RAILWAY

The digital transformation and all the benefit it brings to the development of a safer, more reliable, comfortable, and connected railway is another of the main points of the RailLive! 2021.

This block will explain the advantages of using artificial intelligence, wireless communication technologies and the opportunities offered by satellite-based solutions. There will also be presentations on the automation of traffic control, the application of data to optimise the maintenance of rolling stock, the homogenisation in standards to accelerate digitalisation, the development of hybrid communication networks, prescriptive analytics based on intelligent asset management systems, the BIM methodology or how digitalisation achieves great aerodynamic improvements in railway circuits, among numerous other topics.

CONTROL OF TRAINS AND COMMUNICATIONS

Safety in railway traffic is one of the key points, and especially important, in the operation of the networks. All topics related to the control of trains and communications also have specific panels this year at the conference.

They will expose how future systems are designed and implemented, how operations are defined with automatic train driving or digital implementation in traffic management. There will be examples of the development of

ERTMS in Albania, of experiments such as ATO on ETCS, the ETCS laboratories in Germany, the digitalisation of traffic operations in the Netherlands or the establishment of a CCS on board architecture in France, among other aspects. More details of the operational control centre of Madrid Metro, in Spain, will also be given. In addition, another point that will be analysed is how the deployment of ERTMS through railway research laboratories is being accelerated.

GOODS

In addition to the large number of conferences dedicated to passenger transport, goods also have their prominence in the Rail Live 2021! conference. Topics such as digitalisation and the implementation of new technologies will be the focus of the debate, as well as the analysis of such important

challenges as doubling the figure of goods transported by railway in Europe by 2030, the boost to intermodality or the measures to become a more sustainable mobility alternative. These panels also include examples of how the transformation of the sector is carried out in countries such as France.

INTEGRATED MOBILITY

The conference will host one of the main changes in mobility: the integration of different modes of transport. A challenge that will be analysed by the different experts who present this year at the conference.

These sessions will offer the opportunity to see how progress is made in the proposal of a comprehensive passenger service that covers their journey "door to

door". They will also explain the advance of new concepts such as "mobility as a service" where the traveller is the centre and where a multimodal combination is very necessary. In this combination all possible means are integrated (bus, bike, train, self-driving vehicles), being fully connected and offering a highly competitive alternative for the user to opt for shared transport as opposed to a private vehicle.

CYBERSECURITY

Cybersecurity is one of the fields where more advances are made in transport. In this edition of the conference, industry experts, representatives of railway operators and communication companies will undertake a complete review of how the operation of the different networks is managed in order to make

them as safe as possible and with the aim of avoiding incidents.

All these systems currently have the additional advantages provided by new digital developments and the implementation of state-of-the-art technology.



An exhibition filled with innovation and with the most avant-garde solutions in the industry

The Rail Live 2021! exhibition comes loaded with new features. It is an area that brings together the main solution providers of the global railway industry. It will be a meeting point for delegates and professionals to learn first-hand about the latest technological developments of the most cutting-edge companies, as well as the wide and specialised range of solutions and products that will respond to the demands of the new transport systems. This year more than 180 exhibitors

THE RAIL LIVE! EXHIBITION ZONE COMES LOADED WITH NEW FEATURES. IT IS AN AREA THAT HAS BEEN RESERVED SO THAT PROFESSIONALS IN THE SECTOR CAN KNOW FIRST-HAND THE WIDE RANGE OF INNOVATIVE PRODUCTS AND SERVICES THAT THE INDUSTRY HAS DEVELOPED. IN ADDITION, THIS YEAR A WIDE RANGE OF TECHNOLOGICAL ADVANCES WILL BE PRESENTED.

from all subsectors of the railway chain will be attending, from companies with consulting and engineering services to technology providers, also including rolling stock manufacturers and the ancillary industry and com-

panies from the world of telecommunications, signaling and safety. This wide sample highlights the great commitment of the industry to R&D and to share all its advances in order to achieve railway transport net-



This year more than 180 exhibitors from all subsectors of the railway chain will be present in the exhibition area.



Visitors will be able to learn about the most advanced solutions in the industry to achieve a sustainable, safe, efficient and digital railway.

works with the highest standards of safety, comfort, efficiency, and energy savings.

For the more than 3,000 visitors it is an opportunity to learn first-hand about the latest trends in fields as diverse as new materials, innovative systems in intelligent infrastructure, state-of-the-art technology for the management and maintenance of passenger and freight lines. Solutions linked to digitalisation such as the Internet of Things (IoT), data analysis with Artificial Intelligence (AI) and new construction methodologies such as BIM will be very present.

COMPANY	STAND
ACKSYS	135
ACOSTA INGENIEROS SL	79
ADIF	139
ADVANTAGE AUSTRIA	76
ALFA UNION	46
ALLREAD	51
ALSTOM	98
ALTERIA AUTOMATION	519
AMBERG TECHNOLOGIES	134
AMURRIO FERROCARRIL Y EQUIPOS SA	24
ANAMET EUROPE	35
ANGST+PFISTER	96
ANSYS	128
AOP JUNTA DE ANDALUCIA	158
APP CONSULTORIA DE GESTION DE PROYECTOS	121
AQUAFRISCH SL	68
ARCELORMITTAL	51
ARRIVA	29A
ARTECHE	18
ASISTOBE	52
ASOCIACION COLEGIO DE HUERFANOS DE FERROVIARIOS	127
ASSA ABLOY GLOBAL SOLUTIONS IBERICA, S.L.	148
ASTERRA	11
ATTENSYS	514
AUTODRIVE SOLUTIONS	513
CAF	65
CEIT	71
CENVAL, S.L.	84
CITEF - UPM	63
CO AX VALVULAS	75
COLWAY	13A
CONECTORES Y CABLES VAHER S.L.	89
CONNECTED RAIL	517
CUNEXT COPPER INDUSTRIES	132
DAMM CELLULAR	59
DANOBAT	57
DELKOR RAIL	79
DIT/RIA	64
DYNAMIC CROWD MEASUREMENT	54
EDILON)(SEDRA	92
EMBEVER	59
ENEKOM	1
EQUIMODAL	87
ERCI	161
ESRI	137
ETAP	107
EUROPEAN SPACE AGENCY	104
FLANKERTECH	14
FLEETSHIELD	54
FLEXIX	95
FLIP UP SEAT	520
FORTY INDUSTRIES	498
FRAUSCHER	109
FUNDICIONES DEL ESTANDA	298
G.M.V.	42
GALGUS	115
HEICO FASTENERS, S.A.U.	47
HEXIS	93
HIMA PAUL HILDEBRAND GMBH CO KG	141
IBÉRICA TECNOLOGÍA EN SISTEMAS DE SEGURIDAD FERROVIARIOS	3
ICEX	133
IDOM	53
ILME S.P.A.	94
IMPREGNA	131
INDRA	66
INECO	45
INGENIERÍA VIESCA	83
INGETAM POWER TECHNOLOGY S.A	23
ININDEX	512
INTEGRA NETWORK	91
INTERNACIONAL HISPACOLD SA	17
IRECFER	136
KES SYSTEMS & SERVICE (1993) PTE LTD	49A



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COMPANY	STAND	COMPANY	STAND	COMPANY	STAND
KIMUA	48	OSTERION	S21	SIEMENS MOBILITY GMBH	80
KLÜBER LUBRICATION	21	OTIV	S8	SOMTECH LTD	155
KVSZ	15	PANDROL	110	STADLER RAIL	52
KYLAND TECHNOLOGY EMEA GMBH	72	PANORAMA ANTENNAS	8	SUPRASYS	S18
LA FARGA YOURCOPERSOLUTIONS, S.A.	6	PFISTERER	154	TALGO	22
LINSINGER	101	PILZ	82	TELDAT	77
LPA GROUP PLC	12	PREDGE	114	TERRAPINN	61
LUZNOR DESARROLLOS ELECTRONICOS SL	30	PROJECT CONTROL TOOLS	S11	TICTAP - SIMPLY CONNECT	S3
M.G.N. TRANSFORMACIONES DEL CAUCHO SA	2	PTFE	118	TRAFAG, S.L.	73
MAFEX	70	QOGNIFY GMBH	27	TRENOLAB	88
MASATS SA	56	RADWIN	85	TYPSA	4
MATRIX ELECTRONICA SL	72	RAIL VISION	138	UNIFE	159
MEDIA MICROCOMPUTER	5	RAILCOMPLETE AS	20	URBANHAWK	S10
MEGGER	117	RAILGRUP	112	VANGUARD	S5
MIERES RAIL	26	RAILWAY GAZETTE	120	VDB	33
NETASELCOM	7	RB RAIL AS	74	VECTOR INFORMATIK GMBH	103
NEVOMO	102	RENFE	67	VEM SACHSENWERK GMBH	38
NGRT	69	REVENGA SMART SOLUTIONS	25	VIA LIBRE	119
NOKIA	81	ROUTE CONNECT	S6	VOESTALPINE RAILWAY SYSTEMS JEZ SL	44
NORD-LOCK IBERIA, S. L.	100	ROXTEC ESPAÑA	28	VOGELSANG	106
NOVAFIND	129	SCHWIHAG	108	WIKOV	43
NOVATRONIC SISTEMAS SL	19	SENCEIVE	9	WINDOW SEATER	S7
NRF	36	SENER	50	ZELEROS	16
NTAFILM	78	SENSO RAIL	S16	ZITRON S.A.	97
NXRT	S15	SHIFT2RAIL JOINT UNDERTAKING	160	BDV	41
O9 DIRECTO INDUSTRIA	151	SICE	60		



SHOWCASE YOUR PRODUCTS AND SOLUTIONS

The visit to the fair is a great opportunity to find new suppliers, establish new contacts with the most outstanding professionals in the sector and learn first-hand about the solutions in which work is undertaken to build the railway of the future: connected, safe, efficient, digital, and sustainable.



NETWORKING AREA



NETWORKING APP



BRANDING



Mafex has its own stand. In this space, it will share the extensive activity carried out in terms of representation, support, and promotion of a cutting-edge industry.

Mafex, present at the fair

Among the large number of exhibitors represented is also the Spanish Railway Association (Mafex), which has its own stand, number 70. In this space, it will share the extensive activity carried out in terms of representation, support, and promotion of a cutting-edge industry, which is already a reference in the world.



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POLIKEA S.A. will develop large-sized composites through an intelligent infusion process within the ePROMAT project

The ePROMAT project (ZE-2020/00044) is a Strategic Hazitek project that began in 2020, and which is led by the company Polikea S.A., leaders in composite materials for more than thirty years. In addition, 8 other Basque companies participate: Abeki Composites SL, Danobat S Coop., EKIDE S Coop., Goiti S. Coop., INKATEC Automatización y Robotica SL, Oliver Design, Sisteplant SL, Composites Quimibber, the Spanish Railway Association (MAFEX) and 2 technology centers: GAIKER and IDEKO, members of the Basque Research & Technology Alliance (BRTA).

The ePROMAT project aims to develop an intelligent resin injection

THE EPROMAT PROJECT AIMS TO DEVELOP AN INTELLIGENT RESIN INJECTION PROCESS (RTM AND INFUSION) FOR THE MANUFACTURE OF LARGE COMPOSITE STRUCTURES.

process (RTM and Infusion) for the manufacture of large composite structures, which allows optimizing the manufacturing time of large-sized composites, ensuring their quality and reproducibility.

The introduction of polymeric matrix composite materials in large structural parts, in airplanes, buses, trains and wind turbine blades has significantly boosted their efficiency, mainly due to the possibilities

they offer in reducing the weight of the components, which it implies savings in fuel and a decrease in the environmental impact.

For this reason, new developments in composite parts manufacturing processes must seek to balance costs, the level of investment required and productivity, especially in the case of large parts.

To respond to these needs, both

RTM (Resin Transfer Molding) and infusion are expected to be the majority processes in terms of value and volume in the manufacture of composites due to the low cost of the tooling and the ability to make complex geometries and large pieces.

One of the great limitations of these processes is that they are not very automated, so there is little control during processing, and the reproducibility of the pieces cannot be ensured. This implies the need to monitor and control the process for its optimization (modification of the process conditions depending on the geometry of the part, type of reinforcement or resin) by means of sensors integrated in the molds that are capable of controlling temperatures, to control the cycle time and the appropriate moment for demoulding the part, and resin flow to control the total filling of the part and with it the absence of dry areas and defects.

One of the final applications to which the project is oriented is the development of bathroom modules for the naval sector, which are essential elements in long-haul ships. These elements, in addition to complying with the technical specifications required in each case, must be elements with a specific aesthetic in line with the means of transport in which they are going to be located and must be as light as possible.

The bathroom modules can be modular elements composed of an aluminum structure on which the composite panels are mounted, which make up the walls, floor and ceiling of the module. The different parts of the module are joined by fixing hardware and hardware.

The project approach is to develop a functional demonstrator of a bathroom module based on lightweight sandwich panels with greater rigidity than monolithic



The project approach is to develop a functional demonstrator of a bathroom module based on lightweight sandwich.

composite, lower weight (weight reduction of approximately 20 - 30%), good behavior against humidity and good behavior in front of the fire.

GAIKER as an expert both in the development, characterization, transformation, product development and characterization of composite

materials as well as in resin injection processes, has a fundamental role in different tasks of this project, especially when defining monitoring and control of the processes, developing lightweight sandwich panels with good performance by infusion, for use in different pieces of walls, floor or ceiling of the bathroom module for the naval sector.



Carbon Footprint Reduction for Train Wash Plants



NEW TAB DETERGENT FOR AQUAFRISCH WASHING MACHINES.
JUST BY ADDING WATER!

In order to reduce the environmental impact of train washing, Aquafrisch together with the Swedish company "Surface Products" has launched a new tab detergent for washing rolling stock that combines efficiency and respect for the environment.

One Tab Pro guarantees optimal cleaning for trains, subways, trams Its distribution in tablets produces a huge advantage over the traditional distribution of liquid detergent packed in plastic containers:

- 1. Drastic reduction of storage space

- 2. Easy handling and dosage
- 3. Removal of plastic containers as well as their transfer and transport.
- 4. Drastic minimization of transport costs

The comparative studies carried out in 2020 by the Swedish Environmental Protection Agency, between liquid detergents and One Tab Pro tabs, were conclusive:

- Liquid detergents: The transport and packaging of 20 tanks of 200 liters with chemical

products, generates 372 kg of CO₂

- One Tab Pro: 80 boxes of 4 kg each, only produce 15 kg of CO₂.

Result: a reduction in the environmental impact of greenhouse gases CO₂ by 95.9%.

One Tab is distributed in a different format depending on the dirt to be treated: acid tablet for cleaning capable of dissolving oxides and brake dust, alkaline tablet to remove dirt particles and insects, neutral tablet to, in addition to cleaning, add a brighter finish or the wax tablet that repels water and facilitates faster drying.

One Tab Pro is a non-corrosive detergent, completely free of VOC (Volatile Organic Compounds), these characteristics make it an effective product both in cleaning trains and in caring for the environment.

The European Up2Date project will have a railway application

CAF Signalling, the CAF Group's comprehensive solutions division for Railway Signalling Systems, contributes its experience and knowledge of the railway sector to the Up2Date project (<https://h2020up2date.eu/>), an R&D initiative within the European Union's H2020 programme, which seeks to achieve the remote and secure loading of different applications in high-performance embedded systems.

The project is based on secure communications, monitoring of the different partitions and the definition and supervision of "contracts" that guarantee the availability of the resources required by each of these applications.

In this sense, CAF Signalling is working to apply this system to the railway

CAF SIGNALLING IS WORKING TO APPLY THIS SYSTEM TO THE RAILWAY SIGNALLING SECTOR AS ONE OF THE INDUSTRIAL USE CASES THAT WILL HELP TO GROUND THE PROJECT'S RESEARCH

way signalling sector as one of the industrial use cases that will help to ground the project's research. In this way, it is guaranteed that the academic level transcends to the execution and utility in the industry.

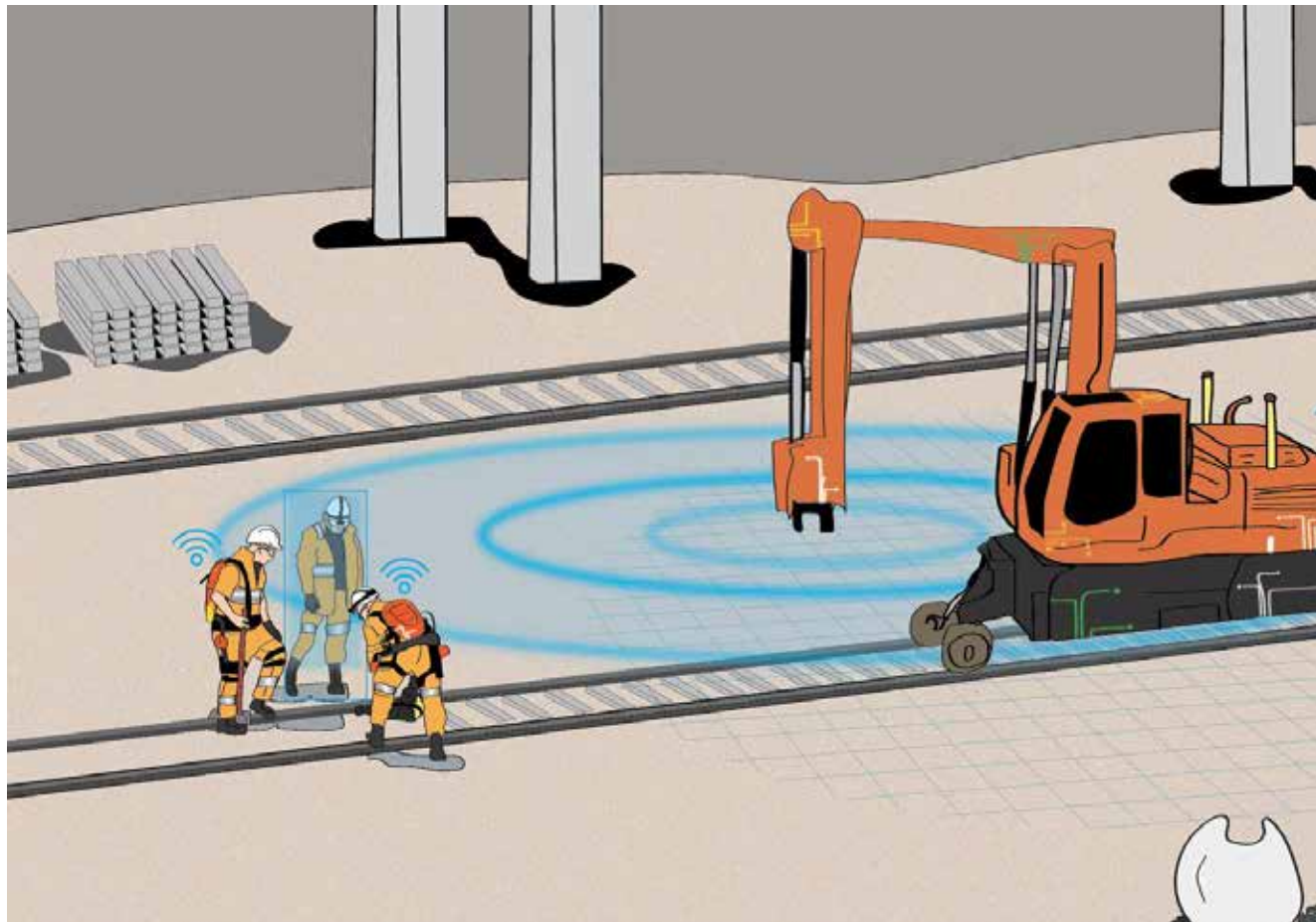
The specific objective of its implementation in the railway area consists of being able to update all the signalling equipment on a railway line (interlockings, ERTMS equipment, etc.) from a single point, safely and in the shortest possible time.

This methodology will therefore make it possible to reduce the cost and time of upgrades, which means making better use of and minimising maintenance bands.

The Up2Date initiative started in 2020 and will end in the last quarter of next year. Technology companies (TTTech [Austrian], IAV [German], Marelli [Italian] and CAF Signalling [Spanish]) and research centres (Ikerlan and BSC [Spanish] and OFFIS [German]) are collaborating in the project.



STREAM, new technologies for railway inspection and maintenance



STREAM is a European project within the framework of the Shift2Rail programme that aims to develop 2 innovative technologies to improve railway inspection and maintenance operations.

The goal is to renew working methods through the modernisation and introduction of robotic systems and, at the same time, to increase the safety of workers, generating benefits for their health and quality of life.

COMSA is part of the consortium of 8 companies developing the project, divided into two areas of work. The first consists of the development of a generic design framework for a new automated and intelligent control

platform that adapts to existing track machinery, providing it with a level of autonomy and intelligence. The second area focuses on the design of a modular portable exoskeleton to reduce the risk of injury of workers during the most demanding tasks. This will improve not only the employee's operational efficiency, but also their health, safety and quality of life.

COMSA IS PART OF THE CONSORTIUM OF 8 COMPANIES DEVELOPING THE PROJECT, DIVIDED INTO TWO AREAS OF WORK. STREAM AIMS TO REACH A HIGH TECHNOLOGICAL MATURITY SCALE FOR NEW TECHNOLOGIES.

STREAM aims to reach a high technological maturity scale for new technologies and to validate them in real-life scenarios for rapid market acceptance. In this sense, the role of COMSA as an end user of the product due to its activity in the construction and maintenance sector will have a strategic value in the development of the project.

Following Stadler's commitment to providing sustainable and cost-effective solutions for rail transport, the EURO6000 locomotive has been designed to improve rail freight transport, within Spain and on its cross-border connections, efficiently and competitively. Designed and manufactured entirely at its Valencian plant, they belong to the new generation of 6-axle EURO locomotives from Stadler that are operating with great success in other countries such as France, Belgium, Germany, Austria, Norway and Sweden. Soon they will also be operating in Spain. The EURO6000 locomotives feature a compact design, lightweight



EURO6000 locomotive - the revolution in rail freight transport

Achieving a rail freight share of 30% by 2030 is one of the key measures proposed in the European Green Deal for the decarbonisation of the transport sector, but this will only be achieved by increasing the competitiveness of rail freight services.

IT IS ABLE TO OPERATE ON STANDARD GAUGE AND/OR IBERIAN GAUGE LINES UNDER THREE DIFFERENT OVERHEAD VOLTAGES, 1.5KV DC, 3KV DC AND 25KV AC.

monocoque structure, AC traction system with IGBTs as well as a state-of-the-art adhesion control system. They are powerful three-system electric locomotives (1.5 kV DC, 3 kV DC and 25 kV AC) with a higher hauling capability than other locomotives on the market, making it possible to transport longer and heavier trains.

Its high performance allows the transport of longer and heavier trains

With a power greater than 6 MW and a tractive effort of up to 500 kN, it reaches speeds of up to 120 km/h. Its design is based on commercially proven components and subsystems and on a high degree of redundan-

cy, increasing its reliability and availability. In addition, the ergonomic design of its two driver's cabs offers excellent comfort, safety and visibility for the drivers.

The latest bogie technology results in lower wear and tear on the infrastructure and reduced track access costs. The locomotive is suitable for operations on standard gauge (1435 mm) and/or Iberian gauge (1668 mm) lines. Its universal bogie allows for easy axle changes in the workshop.

With state-of-the-art technology that exceeds TSI requirements, this vehicle offers high load capacity, low energy consumption and reduced operating costs.

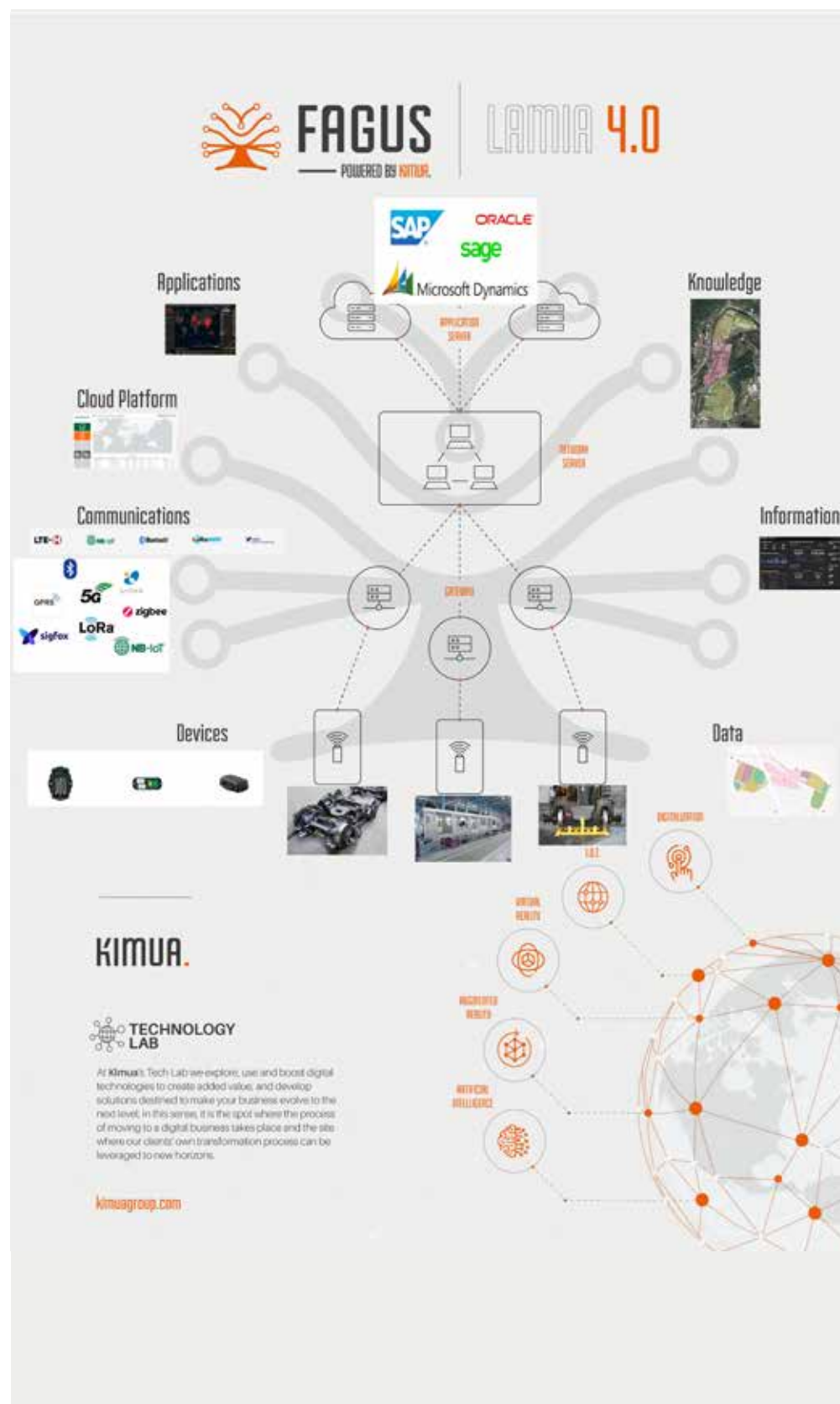
FAGUS, system for the complete control of train manufacturing by LORAWAN

FAGUS OF KIMUA CONTROLS THE TRAIN MANUFACTURING PROCESS FROM THE BEGINNING TO THE START-UP, INCLUDING ALL THE PRODUCTION PROCESSES.

Thanks to the IIOT devices incorporated in the key parts of the train, such as the bogie frame, the body, or any other element to be controlled, Fagus carries out the key data capture. This internal location data, accelerations and internal mapping are communicated by means of LORAWAN technology, creating its own private and totally secure network. Thanks to this network created by and for FAGUS, the system connects to the client's platform or ERP, where, thanks to the algorithms developed, we extract filtered and valuable information.

In the cloud, we have real-time location of the key components of the train manufacturing, achieving a real and instant monitoring of the production status of the cars, having real data to optimise the process and make organisational changes in a quick and agile way.

In this way, Fagus offers the manufacturer data that becomes information and knowledge. Knowledge to be able to have real control and make the best decisions. Decisions based on data, which will make us save on operating costs, personnel costs and logistics costs. Savings that will make you more competitive.



MRT experience with collaborative metro simulators



It has been a year now that SMRT began using the simulation system developed in conjunction with LANDER for staff training on the circular metro line operating in Singapore. The project consisted of several replica simulators, two OCC stations and multiple Laptop Simulators among others. This collaborative training center was the first of its kind in the world and one of the most demanding projects executed by LANDER.

According to SMRT, the simulation equipment is playing a fundamental role in collaborative training between drivers and line operators. It has become a key tool to improve communication and teamwork, as well as making it possible for them to get to know each other.

THIS COLLABORATIVE TRAINING CENTER WAS THE FIRST OF ITS KIND IN THE WORLD AND ONE OF THE MOST DEMANDING PROJECTS EXECUTED BY LANDER.

This is something that would otherwise be particularly difficult due to the length and dimensions of the line and the lack of opportunities for interaction between personnel, especially since the pandemic broke out. They indicate that collaborative training helps drivers, especially newcomers who think that line controllers are not accessible, to interact with each other, improving communication and pro-

moting greater collaboration capacity in real operation.

Finally, SMRT highlights the obvious difficulty involved in training personnel in real vehicles in a driverless operation with as much traffic as this one; and how the simulator is allowing them to do it regularly and more efficiently: saving energy and reducing risks for workers and users.

Apuesta sostenible

LA GAMA DE METROS METROPOLIS PARA TMB ESTÁ DESARROLLADA BAJO LOS PRINCIPIOS DE ECODESIGN PARA CONSEGUIR:

1. Estructura de caja

Reducción del peso. Estructura soldada con perfiles de aluminio de alta resistencia a la corrosión.

2. Bogies y dispositivos de rodadura

Marcha eficiente, confortable y segura. Control de la velocidad. Bajo nivel de ruido de la transmisión.

3. Interior, ventanas y puertas

Paneles interiores ligeros, máximos niveles de aislamiento y resistencia al calor. Cierre automático de puertas para mejor climatización.

MENOR CONSUMO DE ENERGÍA

MATERIALES SOSTENIBLES

LA MÁS ALTA RECICLABILIDAD DEL MERCADO: 96,1%

4. Propulsión y equipos eléctricos

El sistema de tracción permite la recuperación de energía durante el frenado.

5. Confort

Sistemas de acondicionamiento y ventilación eficientes: ajuste del caudal de aire en función del número de pasajeros a bordo. Dos unidades de A/C por coche.

Los diseños pueden variar en fase de proyecto.

Sustainable technology for metropolitan transportation

It is an innovative, efficient, and sustainable metro, with the highest level of recyclability in the market (96.1%), low energy consumption and a predictive and intelligent maintenance strategy that optimizes the productivity of the fleet.

The new trains for TMB, that are currently being manufactured at Alstom's industrial center in Santa Perpètua, have been designed to increase their sustainability throughout their life cycle: from the choice of raw materials and the manufacturing process to their operational efficiency, with special emphasis on reducing energy consumption, waste reduction, and final recycling. In addition to being designed for

ALSTOM SPAIN IS DEVELOPING A PROJECT FOR METRO DE BARCELONA THAT AIMS TO OFFER INTELLIGENT AND UNIQUE SOLUTIONS TO IMPROVE THE PASSENGER AND OPERATOR EXPERIENCE..

long durability, the trains incorporate the latest technologies in digitization and IoT, ensuring the highest availability.

In developing its solution for TMB, Alstom has approached the energy efficiency of the trains from a 360° perspective: eco-design criteria applied to the engineering processes reduce the environmental footprint of the vehicles. They also feature a traction system that allows energy recovery during

braking and an intelligent energy management system to optimize energy assets (e.g. optimized sleep modes). Another key to reducing the energy consumption of the new metros is to make the most of the train's performance during peak hours and eco-driving mode during off-peak hours. Alstom will have a 1:1 scale model of the Metropolis metros on its stand at Rail Live! 2021, which can be visited by all those attending the event.

New eco-friendly products line

Calmell Group has made the decision to bet on a more sustainable and environmentally friendly product line, thus offering its customers an alternative to the classic PVC card.

Polyvinyl chloride (PVC) is one of the most widely used plastics in the world, and with the greatest environmental impact. The life cycle of PVC, its production, use and disposal, results in the release of toxic chlorine-based chemicals. These toxins accumulate in the water and air and can get in the food chain.

Calmell Group offers solutions to this serious problem, by means of a new line of sustainable products, more respectful with the environment and therefore, much more eco-friendly.

Calmell Group's new ECO line includes recycled / recyclable and biodegradable products. We make R-PVC, R-PETG, biodegradable PVC, wood, and paper cards available to our clients. The recycled / recyclable products are made from industrial plastic waste, reducing the use of first-use plastics.

To achieve a final product that meets these parameters, we work with reliable raw material providers, who are also committed to initiative, implementation, and sustainable improvements, and share our

CALMELL GROUP'S NEW ECO LINE INCLUDES RECYCLED / RECYCLABLE AND BIODEGRADABLE PRODUCTS. THE RECYCLED / RECYCLABLE PRODUCTS ARE MADE FROM INDUSTRIAL PLASTIC WASTE, REDUCING THE USE OF FIRST-USE PLASTICS..

Calmell Group



ecological values, aligned with our strategy.

The goal is to achieve:

- A responsible use of non-renewable natural resources (water and energy)
- A correct segregation of waste for its subsequent recovery.
- Attention and awareness with special and dangerous waste.
- The application of the "3R law": Reduce, Reuse, Recycle.
- The good environmental con-

trol practices of the suppliers and subcontractors with who we operate. The continuous training and awareness of all our employees and collaborators.

We establish the best practices so that our smart cards are more sustainable, contributing positively to sustainable development, based on comprehensive environmental management: company, process, and product.

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Mafex

<http://magazine.mafex.es>

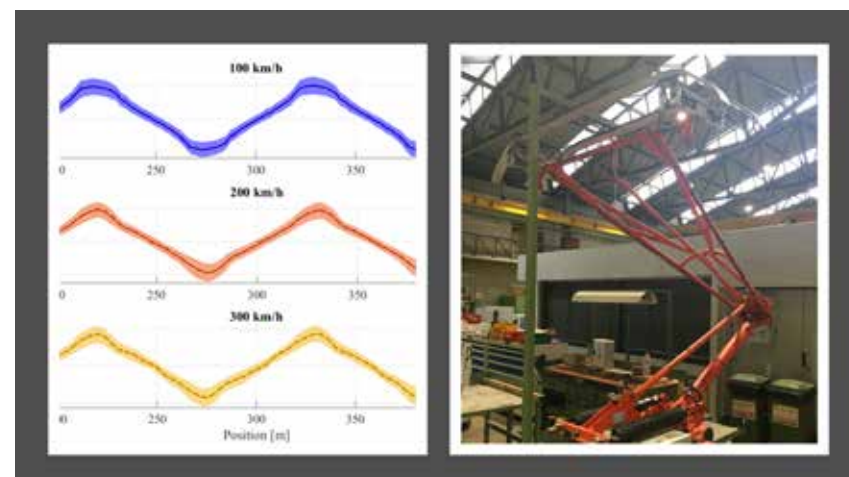
MAFEX Revista corporativa de Mafex Asociación Ferroviaria Española



Low-cost catenary inspection system

Maintenance costs represent a very important percentage of the operational expenses (OPEX) of the railway system. Those corresponding to the catenary (electrical infrastructure) and the pantograph (rolling stock) are of particular relevance; Although the pantograph-catenary interaction is not as critical as the wheel-rail interaction (from the point of view of safety), it contributes enormously to the service availability, since it plays a vital role in the railway energy system and therefore in the quality of the service.

The Basque technology center Ceit-BRTA (www.ceit.es) has developed a low-cost catenary inspection system, in the context of the European Project SIA (www.siaproject.eu), financed by EUSPA (European Union Agency for the Space Programme, www.euspa.europa.eu), that has just ended. This system is composed of a series of low-cost sensors that are installed



in the pantograph in a non-invasive way, and allow obtaining parameters of the geometry of the contact wire (eg height and stagger), as well as parameters of the pantograph-catenary interaction (eg contact force). The modular nature of the device allows its integration into complete railway inspection and monitoring systems.

The system has been validated in

commercial operation, installed in a vehicle of the Catalan Train Operating Company FGC (Ferrocarrils de la Generalitat de Catalunya, www.fgc.cat) with very promising results. In the future, new functionalities will be incorporated in terms of their diagnostic capabilities, such as the wear of the contact wire and the pantograph rubbers, isolated defects in the catenary, among others.

Banlight System

Focused on the field of emergency signaling and lighting in railway tunnels, road tunnels and wind towers, the business activity of Dinámicas de Seguridad S.L. prioritizes its commitment to new technologies in the execution of its projects and initiatives in pursuit of compliance with the highest safety standards regarding the evacuation of people in risk situations.

As a result of this commitment to new technologies applied to security, the Banlight System was born. This system consists of a handrail (or handrail) made of halogen-free fiberglass, illuminated with Led technology. Being designed to guide people to the tunnel evacuation galleries, it simultaneously performs the functions of railing and lighting the area.



Removable insulating chamber for urban railway tracks

THE REMOVABLE INSULATING CHAMBER IS THE IDEAL SOLUTION FOR URBAN LIGHT RAIL TRANSIT SINCE IT SPEEDS UP RAIL REPLACEMENT ACTIVITIES, REDUCES COSTS AND AVOIDS INCONVENIENCES TO RAIL OPERATION AND THE URBAN ENVIRONMENT..

Metrotenerife has developed and patented a removable insulating chamber for rails that solves the inconveniences of the demolition since it can be removed without affecting the track covering.

Thanks to its careful geometry, can be easily installed and extracted without any need to remove the covering materials over the track, and it also simplifies the subsequent reinstallation. In this way, it is possible to reduce time, cost and

effort involved in rail maintenance and replacement works, without losing the benefits and robustness of the system.

The components of the removable rail chamber wrap the rail in its lower part and its sides. Thus, meeting the electrical and acoustic insulation needs to prevent the spread of stray currents and the emission of noise to the environment caused by railway traffic.

The innovative solution is compatible with a variety of track surface

coverings and rail fastening models. With the removable insulating chamber, the protection cap of the fastening used with the standard encapsulation solutions is no longer needed. In addition, this chamber is also compatible with railroad crossings, where a steel profile is inserted to protect the interface between chamber and coverings.

Moreover, this detachable insulating chamber is environmentally friendly as it is manufactured with recycled materials, eliminates of the use of protective plastic caps and its installation eliminates de production of demolition wastes.

The product is currently installed at Metrotenerife's track and commercialized by the multinational ArcelorMittal.



Removable insulating chamber placed at a railroad crossing.

Introducing **new virtual alternatives** for public consultation

Advances in digitization and virtual reality, and the times in which we are living, have highlighted the need for innovative solutions for the public consultation processes, essential for ensuring the successful implementation of any transportation system.

Normally this consultation process takes place in person. IDOM has used this method during the design process of MetroLink, the first metro line in Dublin, Ireland, or the East-West tram line in Zaragoza, Spain. However, as digitalization becomes ever more important in IDOM, we are now exploring alternative solutions and are using virtual alternatives to communicate with stakeholders.

Currently, on the DART project in Dublin, virtual public consultation rooms have been introduced, giving access



to technical information and encouraging interaction between the general public and the developers. One of the greatest benefits of this option is that it is 24/7. It is possible to create specific environments to improve the user experience.

At IDOM, we have our sights set on the future, to provide our clients with bold and innovative engineering solutions. Developing and introducing



interactive elements, audio-visual material and conversational tools, greatly improves interaction and increases participation, ultimately impacting positivity on the development of transportation systems.

Digital twins and synthetic data for **rail predictive maintenance**

MainRail SL, a company specialized in the digitization of railway infrastructure maintenance, has obtained in its first-year contracts associated with more than 500 km of infrastructures, contributing substantially to promote the railway's digitization.

The MainRail software platform is already been used in the Zaragoza tram, taking care of the catenary maintenance

(carried out by CAF TE). MainRail also completed its deployment at Mallorca's railway, where the maintainer AZVI is using our Software to control and improve the maintenance of the track and infrastructure.

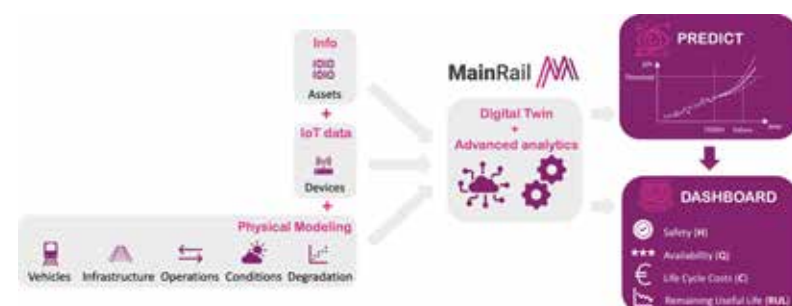
Thanks to the new contracts (see news section) for ETS and the FEVE network of ADIF in Cantabria maintained by CO-PASA, MainRail reaches references that exceed 500 km of track whose maintenance

and the data generated are managed through its SaaS platform.

This commercial impulse allows the company to continue improving the development of its predictive modules, where, based on the company's multibody simulation platform, synthetic data will be generated to train predictive algorithms based on AI.

The integration of these algorithms (IA) with data from IoT devices and the modules already implemented on its platform will allow MainRail to offer a hybrid predictive maintenance system, based on both historical data and physical simulations with digital twins.

The company is currently working-out to apply this strategy over track quality, rail wear and buckling index.



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AND CERTIFICATION

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assistances, superstructure, signalling,
communications and ticketing

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- ▶ Caf Signalling, S.L.
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- ▶ TPF Getinsa Euroestudios, S.L.
- ▶ Trigo Group
- ▶ Typsa - Técnica Y Proyectos, S.A.
- ▶ Vicomtech
- ▶ Virtualmechanics, S. L. (Virtualmech)
- ▶ WSP Spain-Apia S.A.

Systems, environmental, financial
management and IT consulting

- ▶ Aimen Centro Tecnológico
- ▶ Aquafrisch, S.L.
- ▶ Ardanuy Ingeniería, S.A.
- ▶ Citef (Fundación para el fomento de la innovación industrial)
- ▶ Fundación Gaiker
- ▶ Idom-Engineering, Consulting, Artchitecture
- ▶ Ineco-Ingeniería y Economía del Transporte, S.A.
- ▶ Mainrail S.L.
- ▶ Segula Technologies España, S.A.U.
- ▶ Sener Ingeniería y Sistemas, S.A.
- ▶ SGS Group Spain
- ▶ 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.

- ▶ Caf Turnkey & Engineering, S.L.
- ▶ Hispacold S.A.
- ▶ Idom-Engineering, Consulting, Artchitecture
- ▶ Ineco-Ingeniería y Economía del Transporte, S.A.
- ▶ Segula Technologies España, S.A.U.
- ▶ Sener Ingeniería y Sistemas, S.A.
- ▶ SGS Group Spain
- ▶ Trigo Group
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- ▶ Inse Rail, S.L.
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- ▶ 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.

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- ▶ Certifer Belgorail S.A. Sucursal en España
- ▶ Cetest, S.L.
- ▶ Citef (Fundación para el fomento de la innovación industrial)
- ▶ Dsaf-Dinamicas De Seguridad, S.L.
- ▶ FEX, Fastening Excellence Center
- ▶ Fundación Gaiker
- ▶ Idom-Engineering, Consulting, Artchitecture
- ▶ Ineco-Ingeniería y Economía del Transporte, S.A.
- ▶ Sener Ingeniería y Sistemas, S.A.
- ▶ SGS Group Spain
- ▶ Trigo Group
- ▶ WSP Spain-Apia S.A.

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

- ▶ 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.
- ▶ Gantrex Spain
- ▶ Idom-Engineering, Consulting, Artchitecture
- ▶ Ineco-Ingeniería y Economía del Transporte, S.A.
- ▶ 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

- ▶ FEX, Fastening Excellence Center
- ▶ Tekniker
- ▶ Segula Technologies España, S.A.U.
- ▶ Lander
- ▶ WSP Spain-Apia S.A.

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SUPERSTRUCTURE

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- ▶ Comsa Corporación
- ▶ Funor, S.A.
- ▶ ICF - Ingeniería y Control Ferroviario
- ▶ Inse Rail, S.L.
- ▶ Lantania
- ▶ Luznor Desarrollos Electrónicos, S.L.
- ▶ Parrós Obras, S.L.
- ▶ Sener Ingeniería y Sistemas, S.A.
- ▶ Virtualmech
- ▶ Uretek Soluciones Innovadoras, S.L.U.

Electrification

- ▶ Alstom Transporte, S.A.
- ▶ Azvi S.A.
- ▶ Caf Turnkey & Engineering, S.L.
- ▶ Comsa Corporación
- ▶ Cunext
- ▶ ICF - Ingeniería y Control Ferroviario
- ▶ Ingeteam Power Technology, S.A.
- ▶ Inse Rail, S.L.
- ▶ La Farga Yourcoppersolutions, S.A.
- ▶ Lantania
- ▶ Semi - Sociedad Española de Montajes Industriales, S.A.
- ▶ 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.
- ▶ Arcelormittal España, S.A.
- ▶ Artech (Electrotécnica Artech Smart Grid, S.L.)
- ▶ Azví S.A.
- ▶ Cables de Comunicaciones Zaragoza, S.L.
- ▶ Caf Turnkey & Engineering, S.L.
- ▶ CEIT
- ▶ Comsa Corporación
- ▶ Cunext
- ▶ Dsaf-Dinamicas De Seguridad, S.L.
- ▶ ICF - Ingeniería y Control Ferroviario
- ▶ Mieres Rail, S.A.
- ▶ Flexix, S.A.
- ▶ Funor, S.A.
- ▶ Ikusi S.L.U.
- ▶ Inse Rail, S.L.
- ▶ Ladicim
- ▶ Lantania

MEMBERS DIRECTORY

- ▶ Precon - Prefabricaciones y Contratas, S.A.U.
- ▶ Pretensados del Norte, S.L.
- ▶ Semi -Sociedad Española de Montajes Industriales, S.A.
- ▶ Talleres Alegría, S.A.
- ▶ Talleres Zitrón
- ▶ Tecnivial S.A.
- ▶ Telice, S.A.
- ▶ Virtualmechanics, S. L. (Virtualmech)

Track assembly

- ▶ Alstom Transporte, S.A.
- ▶ Amurrio Ferrocarril y Equipos, S.A.
- ▶ Azvi S.A.
- ▶ Caf Turnkey & Engineering, S.L.
- ▶ Comsa Corporación
- ▶ Gantrex Spain, S.A.
- ▶ ICF - Ingeniería y Control Ferroviario
- ▶ 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
- ▶ Duagon Iberia, S.L.
- ▶ Enclavamientos y Señalización Ferroviaria ENYSE S.A.U.
- ▶ Electrans, S.A.
- ▶ 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.
- ▶ Semi - Sociedad Española de Montajes Industriales, S.A.
- ▶ Sice Tecnología y Sistemas
- ▶ Siemens Rail Automation, S.A.U.
- ▶ Tecnivial S.A
- ▶ Tecdronic, 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
- ▶ Caf Turnkey & Engineering, S.L.
- ▶ Comsa Corporacion
- ▶ Dsaf-Dinamicas De Seguridad, S.L.
- ▶ ICF - Ingeniería y Control Ferroviario
- ▶ Indra Sistemas, S.A.

- ▶ Inse Rail, S.L..
- ▶ Mainrail S.L.
- ▶ Segula Technologies España, S.A.U.
- ▶ Semi- Sociedad Española de Montajes Industriales, S.A.
- ▶ 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

- ▶ Caf Turnkey & Engineering, S.L.
- ▶ Calmell, S.A.
- ▶ Comsa Corporacion
- ▶ Gmv Sistemas, S.A.U.
- ▶ Ikusi SLU
- ▶ Indra Sistemas, S.A.
- ▶ Inse Rail, S.L.
- ▶ Revenga Ingenieros S.A:
- ▶ Semi-Sociedad Española de Montajes Industriales, 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
- ▶ Comsa Corporación
- ▶ Duagon Iberia, S.L..
- ▶ Enclavamientos y Señalización Ferroviaria ENYSE S.A.U.
- ▶ Gmv Sistemas, S.A.U.
- ▶ ICF - Ingeniería y Control Ferroviario
- ▶ Ikusi SLU
- ▶ Indra Sistemas, S.A.
- ▶ Inse Rail, S.L.
- ▶ Revenga Ingenieros S.A:
- ▶ Semi- Sociedad Española de Montajes Industriales, S.A.
- ▶ Sener Ingeniería y Sistemas, S.A.
- ▶ Sice Tecnología y Sistemas
- ▶ Siemens Rail Automation, S.A.U.
- ▶ 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.
- ▶ Duagon Iberia, S.L..
- ▶ Turnkey & Engineering, S.L.
- ▶ Gmv Sistemas, S.A.U.
- ▶ Icon Multimedia, S.L.
- ▶ Indra Sistemas, S.A.
- ▶ Inse Rail, S.L.
- ▶ Ikusi SLU
- ▶ Revenga Ingenieros S.A.

- ▶ Sice Tecnología y Sistemas, S.A.
- ▶ Siemens Rail Automation, S.A.U.
- ▶ Tecnivial 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.
- ▶ Virtualmechanics, S. L. (Virtualmech)

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.)
- ▶ Caf Power & Automation, S.L.U.
- ▶ Flexix, S.A.
- ▶ Forging Steel Products, S.L.
- ▶ Ingeniería Viesca S.L.
- ▶ Ingeteam Power Technology, S.A.

MEMBERS DIRECTORY

- Mgn Transformaciones del Caucho, S.A.
- Siemens Rail Automation, S.A.U.
- Zeleros

Control, auxiliary and diagnostic systems

- Aimen Centro Tecnológico
- Alstom Transporte, S.A.
- Artech (Electrotécnica Artech Smart Grid, S.L.)
- Caf Power & Automation, S.L.U.
- CEIT
- Duagon Iberia, S.L.
- Enclavamientos y Señalización Ferroviaria ENYSE S.A.U.
- Gmv Sistemas, S.A.U.
- 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.
- Kimua Group
- NGRT S.L.
- NRF España, S.A.
- Stadler Rail Valencia, S.A.U.
- Virtualmechanics, S. L. (Virtualmech)
- Zeleros

Assembly equipment

- Agui S.A.
- Aimen Centro Tecnológico
- Artech (Electrotécnica Artech Smart Grid, S.L.)
- Danobat, S. COOP.
- Fundiciones del Estanda, S.A.
- Funor, S.A.

Mechanical components

- Agui S.A.
- Alstom Transporte, S.A.
- Caf-Construcciones y Auxiliar de Ferrocarriles, S.A.
- FEX, Fastening Excellence Center
- Flexix, S.A.
- Forging Steel Products, S.L.
- Funor, S.A.
- Fundiciones del Estanda, S.A.
- Hispacold S.A.
- Mecanizaciones Aeronáuticas, S.A.
- Metalocauchos, S.L.
- Mgn Transformaciones del Caucho, S.A.
- Stadler Rail Valencia, S.A.U.
- Talleres Alegría, S.A.
- Virtualmechanics, S. L. (Virtualmech)
- Zeleros

Interiors

- Agui S.A.
- Ariño Duglass, S.A.
- Colway Ferroviaria, S.L. (Nexus Management)
- Flexix, S.A.
- FEX, Fastening Excellence Center
- Flanker Tech Solutions
- Fundación Gaiker
- Satys Interiors Railway Spain, S.A.

Safety

- Agui S.A.

- Alstom Transporte, S.A.
- Artech (Electrotécnica Artech Smart Grid, S.L.)
- Dsaf - Dinamicas de Seguridad, S.L.
- Enclavamientos y Señalización Ferroviaria ENYSE S.A.U.
- FEX, Fastening Excellence Center
- Fundación Gaiker
- Indra Sistemas, S.A.
- Luznor Desarrollos Electrónicos, 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.
- Caf Turnkey & Engineering, S.L.
- CEIT
- Comsa Corporación
- ICF - Ingeniería y Control Ferroviario
- Mainrail S.L.
- Mieres Rail, S.A.
- Gantrex Spain
- Inse Rail, S.L.
- Ladacim
- Semi - Sociedad Española de Montajes Industriales, S.A.
- Smart Motors
- Virtualmechanics, S. L. (Virtualmech)
- Uretek 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.
- Caf - Construcciones y Auxiliar de Ferrocarriles, S.A.
- Caf Turnkey & Engineering, S.L.
- Comsa Corporación
- Grupo Trigo
- Hispacold S.A.
- Patentes Talgo, S.L.
- Siemens Rail Automation, S.A.U.
- Stadler Rail Valencia, S.A.U.
- Talleres Alegría, S.A.
- Talleres Zitrón

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.
- Caf Signalling, S.L.
- Caf Turnkey & Engineering, S.L.
- Dsaf-Dinamicas de Seguridad, S.L.
- Electrosistemas Bach, S.A.

- 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.
- Luznor Desarrollos Electrónicos, S.L.
- Patentes Talgo, S.L.
- Semi - Sociedad Española de Montajes Industriales, S.A.
- Sice Tecnología y Sistemas, S.A.
- Siemens Rail Automation, S.A.U.
- Smart Motors
- Telice S.A.
- voestalpine Railway Systems JEZ 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.)
- 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.
- Gmv Sistemas, S.A.U.
- Géminis Lathes
- Grupo Trigo
- Hispacold S.A.
- ICF - Ingeniería y Control Ferroviario
- Indra Sistemas, S.A.
- Ingeteam Power Technology, S.A.
- Kimua Group
- Mgn Transformaciones del Caucho, S.A.
- NGRT S.L.
- NRF España, S.A.
- Patentes Talgo, S.L.
- Satys Interiors Railway Spain SA
- Sice Tecnología y Sistemas
- Smart Motors
- Stadler Rail Valencia, S.A.U.

Maintenance of systems, equipment and vehicles components

- Aimen Centro Tecnológico
- Alstom Transporte, S.A.
- Aquafrisch, S.L.
- Danobat, S. COOP.
- Electrans S.A.
- Kimua Group
- ICF - Ingeniería y Control Ferroviario
- Ingeniería Viesca S.L.
- Newtek Solidos S.L.
- Patentes Talgo, S.L.
- Tecnival S.A.
- Virtualmechanics, S. L. (Virtualmech)

**AGUI S.A.**

AGUI is a B2B subcontractor and manufacturer of complex integrated assemblies for OEMs. In recent years we have evolved from being a reactive subcontracting firm, adaptable to clients' needs, to become a subcontracting services partner, anticipating to market needs; innovation and continuous adaptation. AGUI currently provides services in more than 10 different sectors including lifts and railway, exporting production to more than 25 countries. Within the Railway sector, AGUI is certified in ISO-3438 and EN-15085, which positions us as a reference supplier for complex welded assemblies.

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20180 Oiartzun - (GUIPÚZCOA)
+34 943 335 811 / 663 775 753
+34 943 552 066
lm.gil@agui.com
www.agui.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 (ÁLAVA)
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+34 945 892 480
comercial@amufer.es
www.amufer.es

**AIMEN TECHNOLOGY CENTRE**

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.

C/ Relva 27 A - Torneiros | 36410 O Porriño (PONTEVEDRA)
+34 662 489 181
aimen@aimen.es
www.aimen.es

**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.

Margarita Salas 7, 28521 Rivas-Vaciamadrid (Madrid)
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aquafrisch@aquafrisch.com
www.aquafrisch.com

**ALSTOM SPAIN**

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.

Martínez Villergas, 49 - Edificio V - 28027 (MADRID)
+34 91 334 58 00
+34 91 334 58 01
www.alstom.com

**ARCELORMITTAL**

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 a 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.

ArcelorMittal Asturias. Edif. de Energías, 2 pl. 33691 Gijón (ASTURIAS)
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rails.specialsections@arcelormittal.com
https://rails.arcelormittal.com/

Ardanuy

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.

Ardanuy Ingeniería develops activities worldwide, in more than 60 countries in all 5 continents.

🚩 Avda. Europa, 34 28023 (MADRID)

☎ +34 91 799 45 00

☎ +34 91 799 45 01

✉ madrid@ardanuy.com

🌐 www.ardanuy.com



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.

🚩 Polígono Industrial Royales Bajos, S/N, La Puebla de Alfindén 50171, Zaragoza

☎ +34 634 860 681

☎ +34 976 455 085

✉ felix.fernandez@duglass.com

🌐 www.duglass.com



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 (VIZCAYA)

☎ +34 946 011 200

☎ +34 946 155 628

✉ marketing@arteche.com

🌐 www.arteche.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, trams and buses.

🚩 J.M. Iturrioz, 26 20200 Beasain (GUIPÚZCOA)

☎ +34 943 880 100

☎ +34 943 881 420

✉ caf@caf.net

🌐 www.caf.net



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 (GUIPÚZCOA)

☎ +34 943 309 251

✉ info@cafpower.com

🌐 www.cafpower.com



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 onboard 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.

🚩 Avda. de la Industria, 51 28108 Alcobendas (MADRID)

☎ +34 91 789 27 50

☎ +34 91 661 37 51

✉ cabsignalling@cafsignalling.com

🌐 www.cafsignalling.com



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.

🚩 Almedralejo, 5. 41019 (SEVILLA) / Maudes, 51, 2º. 28003 (MADRID)

☎ +34 954 999 320 / +34 91 553 28 00

☎ +34 926 88 47 06

✉ azvicentro@azvi.es

🌐 www.azvi.es



CERTIFER BELGORAIL SA SUCURSAL IN SPAIN

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.

🚩 Pº de la Castellana, 127 M 2º A 28046 (MADRID)

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☎ +34 91 770 88 67

✉ info@belgorail.be

🌐 www.belgorail.es



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.

🚩 Polígono de Malpica, C/D, 83 50016 (ZARAGOZA)

☎ +34 976 729 900



✉ j.alzorriz@cablescom.com

🌐 www.cablescom.com



CAF TURNEY & 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.

🚩 Parque Científico y Tecnológico de Bizkaia, Laida Bidea, Ed. 205. 48170 Zamudio (VIZCAYA)

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🌐 www.cafte.com



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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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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**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**

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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**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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 ☎ +34 93 639 86 10
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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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**DUAGON**

Duagon Iberia, a subsidiary of the Swiss group Duagon. We have been providing railway signalling engineering services for railway signalling companies such as railway signalling equipment and solutions for 12 years. We are 160 engineers with consolidated experience in the following areas: design and programming of electronic interlockings and track systems, control centers, systems engineering (CBTC, ERTMS) with an important software component, test & commissioning and commissioning on track and on-board equipment engineering. From Spain we collaborate in the R&D of duagon's products especially network & control, embedded software and computing on-board.

🚩 Avenida de Europa, 5 2 8760 Tres Cantos - (MADRID)
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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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**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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**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.

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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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**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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**FEX, FASTENING EXCELLENCE CENTER**

The creation of the Fastening Excellence Center association responds to the concern of several companies to promote the transformation and competitiveness of the bolted joint sector, going from being companies more focused on the day-to-day and manufacturing process, to companies that also direct their attention to the finished product and the market. Currently, we have 17 companies in the association, which intends to develop two lines of activity, one focused on internal activities for members, and the other open to the market offering services on demand. Many of the partner companies work the railway market and we have a table to deal with this sector specifically.

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**FLANKER TECH SOLUTIONS**

Flanker produces components in the field of wood and its derivatives (tablex, HPL, OSB, plywood), as well as in fibreglass, plastic or composites. We integrate CNC technology, stamping, assembly and painting, for roof, floor, boot, carpeting or side cladding applications, among others. We are present in the Railway, Automotive, Packaging and Laboratory Furniture sectors.

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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, silent-blocks, joints, bumpers, axles, links, valves, bearings.

MIXTURES: NR, SBR, EPDM, CR, H/NBR, ECO, AEM, ACM, Silicone, FPM.

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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.

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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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**GANTREX SPAIN, S.A.**

Gantrex is the global market leader in production, distribution installation and maintenance of high quality crane rail solutions. Gantrex products are used in many different applications and end-markets including ports, shipyards, steel mills, aluminium smelters, railway depots and heavy industries.

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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.

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**GLOBAL QUALITY ENGINEERING SER. UNA COMPAÑÍA DE TRIGO GROUP**

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.

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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.

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**GAIKER CENTRO TECNOLÓGICOS**

GAIKER Technology Centre, located in the Technological Park of Bizkaia, is devoted to the development of new technologies to be transferred to the industry. Since 1985, the Centre has carried more than 2,000 R&D Projects in the areas of Plastics and Composites, Environment and Recycling and Biotechnology. Besides, GAIKER offers to its customers Advanced Technological Services, Analysis and Tests and Technological Dissemination Services. GAIKER counts on 87 employees and was awarded in 2008 by the European Foundation for Quality Management (EFQM) with the "Prize Winner" for the best European organisation in "Management for Process and Facts".

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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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**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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With over 25 years of experience, we have an 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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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 S.A.U

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.

Soluciones integrales a bordo y en tierra. En Ikusi desarrollamos soluciones integrales de movilidad inteligente que hacen posible la gestión y operación centralizada del material rodante desde tierra, al mismo tiempo que se aporta seguridad y confort a los pasajeros. Todo ello permite que planificadores, operadores y autoridades de transporte puedan visualizar la información de forma ordenada y sencilla y tomar las mejores decisiones para reducir los costes operativos en los servicios, coordinar de forma óptima los recursos y anticiparse a los problemas y tendencias futuras.

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INGETEAM POWER TECHNOLOGY, S.A.

Ingeteam es un grupo especializado en electrónica de potencia y de control, (inversores, convertidores de frecuencia, controladores y protecciones). Operamos en todo el mundo, empleando a 3.900 personas. Nuestra actividad está estructurada sobre la base del I+D. En el sector ferroviario, los convertidores de tracción INGETRAC se basan en la integración de módulos de potencia (BPM) ampliamente probados, e incluyen todos los elementos necesarios para cada aplicación.

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INSE RAIL S.L.

Inse Rail es una ingeniería altamente especializada en el sector ferroviario y en particular en sus instalaciones y sistemas. Fundada en 1994, está plenamente dedicada a la ingeniería, consultoría y project management en los sectores ferroviario, industrial, de energía y edificación, desarrollando su actividad en las diferentes etapas de planificación, diseño, construcción y explotación de las inversiones. Inse Rail participa en el desarrollo internacional de Alta Velocidad ferroviaria y transportes metropolitanos, con una profunda especialización en los sistemas de electrificación, señalización y seguridad, comunicaciones y demás instalaciones del transporte ferroviario.

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INTERNACIONAL HISPACOLD, S.A.

Hispacold, una empresa con más de 40 años de experiencia, líder a nivel mundial en sistemas de climatización y especializada en el confort de las personas. Hispacold diseña y fabrica soluciones HVAC para todo tipo de vehículos ferroviarios: tranvías, metros, EMUs, DMUs, LRV (trenes ligeros)... con soluciones tecnológicas probadas y fiables. Hispacold cuenta con los más reconocidos certificados internacionales de calidad, medio ambiente y seguridad: ISO 9001, ISO 14001, OSHAS 18001, EN 15805-2 y el prestigioso certificado IRIS ISO / TS 22163.

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INDRA

Indra es una de las principales compañías globales de tecnología y consultoría y el socio tecnológico para las operaciones clave de los negocios de sus clientes en todo el mundo. Es un proveedor líder mundial de soluciones propias en segmentos específicos de los mercados de Transporte y Defensa, y una empresa líder en consultoría de transformación digital y Tecnologías de la Información en España y Latinoamérica a través de su filial Minsait. Su modelo de negocio está basado en una oferta integral de productos propios, con un enfoque end-to-end, de alto valor y con un elevado componente de innovación. En el ejercicio 2018, Indra tuvo unos ingresos de 3.104 millones de euros, 43.000 empleados, presencia local en 46 países y operaciones comerciales en más de 140 países.

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INECO

Ingeniería y consultoría global referente en transporte que contribuye, desde hace más de 50 años, al desarrollo de infraestructuras de transporte en más de 50 países. Su alto grado de especialización técnica le ha permitido diversificar su actividad hacia nuevos mercados y afianzar aquellos en los que está presente. Su participación en toda la red ferroviaria española le ha servido para desarrollar importantes proyectos internacionales como la Alta Velocidad Meca-Medina, en Arabia Saudí, el proyecto HS2, en Reino Unido o el despliegue de ERTMS en Europa.

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INGENIERÍA VIESCA S.L.

En Ingeniería Viesca somos especialistas en diseño y fabricación de equipos electrónicos de potencia. Nuestros equipos operan satisfactoriamente en todos los continentes con alta fiabilidad y disponibilidad haciendo un uso eficiente de la energía disponible. Adaptamos nuestros productos a las necesidades y requisitos de cliente aplicando los estándares de calidad y normativas específicas que correspondan. Disponemos de medios de pruebas que permitan efectuar los protocolos que garanticen la funcionalidad esperada. Nuestra innovación está presente en nuestras soluciones: convertidores auxiliares de potencia, cargadores de baterías, arrancadores, ...

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IBÉRICA TECNOLOGIA EN SISTEMAS DE SEGURIDAD FERROVIARIOS SL (ITSS)

IBERICA TECNOLOGIA EN SISTEMAS DE SEGURIDAD FERROVIARIOS SL (ITSS), fundada en 2005, es una empresa con sedes en Sagunto (Valencia) y en Madrid. Se centra principalmente en detectores de cajas calientes / frenos agarrados y detectores de impacto vertical. Los sistemas de ITSS utilizan tecnología de infrarrojos y fibra óptica de última generación. El sistema PEGASUS DCC/DFA monitorea las temperaturas de las cajas de grasa y de los frenos de los vagones. El sistema AGUILA DIV utiliza sensores de fibra óptica para detectar ruedas descentradas y planos, y puede informar el peso del tren. Los productos ITSS son un modelo de combinación perfecta de experiencia e innovación.

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KIMUA ENGINEERING, S.L.

Kimua designs and produces different types of auxiliary tools for lifting, transporting, assembling and doing maintenance of rolling stock and its components during any stage of the Railway value chain. Additionally, Kimua has added 2 new business units to its portfolio; one for providing renting services of standard solutions and a second one for providing its clients with specific training courses in areas like handling and lashing of big and large loads.

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LA FARGA YOUR-COPPERSOLUTIONS, S.A.

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.

🚩 Colònia Lacambra, s/n, 08508, Les Masies de Voltregà (BARCELONA)

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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.

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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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🌐 www.landersistimulation.com

**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..

🚩 Sobrado, 2 28050 (MADRID)
☎ +34 91 035 35 86
✉ joaquin.navarro@lantania.com
🌐 www.lantania.com

**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.

🚩 Polígono Erratzu 253, 20130 Urnieta (GUIPÚZCOA)
☎ +34 943 333 755
☎ +34 943 333 751
✉ 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.

🚩 Candelaria, 9 28864 Ajalvir (MADRID)
☎ +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)
☎ +34 985 456 331
☎ +34 985 456 164
✉ mieresrail@mieresrail.com
🌐 www.mieresrail.com

**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.

🚩 Paduleta 47 - Pol. Ind. Jundiz Vitoria (ÁLAVA)
☎ +34 945 200 961
☎ +34 945 200 971
✉ iarbeloa@luznor.com
🌐 www.luznor.com

**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.

🚩 Paseo Manuel Lardizabal, 15, Donostia/san Sebastian, 20018, (GUIPÚZCOA)
☎ +34 662 574 768
✉ jorge.rodriguez@mainrailsolutions.com
🌐 www.mainrailsolutions.com/

**MECANIZACIONES AERONÁUTICAS, S.A.**

MASA is specialised in manufacturing medium and large structural parts in aluminum and hard metal alloys.

We are able to provide a complete finished part to our customers (from the raw material purchasing to the treated and equipped part).

🚩 Avenida del Ebro, 33 Pol. Ind. El Sequero - 26150 Agoncillo (LA RIOJA)
☎ +34 669 540 962
☎ 1
✉ christelle@masatpa.aero
🌐 www.masa.aero

**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.

🚩 C/ Severo Ochoa, 9 29590 Campanillas (MÁLAGA)
☎ +34 650 100 801
✉ info@ngrt.com
🌐 www.ngrt.com

**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.

🚩 Pol. J Mª Korta, Parcela A1 - 20750 Zumaia (GUIPÚZCOA)
☎ +34 943 835 942
✉ anajera@newteksolidos.com
🌐 www.newteksolidos.com

**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.

🚩 Av. Asegra, 22, 18210 Peligros (GRANADA)
☎ +34 958 405 030
✉ a.lara@nrf.eu
🌐 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)
☎ +34 926 88 47 05
☎ +34 926 88 47 06
✉ rocio@parros.es
🌐 www.parros.es



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.

🚩 Pº del tren Talgo, 2 28209 Las Matas (MADRID)
☎ +34 91 631 38 00
✉ marketing@talgo.com
🌐 talgo.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)
☎ +34 91 343 03 48
☎ +34 91 359 12 46
✉ fsanchez@precon.cemolins.es
🌐 www.preconsa.es



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.

🚩 Av. Bruselas 8 Oficina 8 01003 Vitoria-Gasteiz (ÁLAVA)
☎ +34 678 771 259
✉ jmartin@segula.es
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SOCIEDAD ESPAÑOLA DE MONTAJES INDUSTRIALES, S.A.

Activities in 2018/2019: *Execution of Works and maintenance SS/EE traction and autotransformer centers associated with, for the section: Plasencia-Badajoz in the High Speed railway Madrid-Extremadura. *Electrification, safety installations and telecommunications of Medina del Campo – Salamanca – Fuentes de Oñoro Line, in section Salamanca – Fuentes de Oñoro. *New SS/EE traction in Parets del Vallés at the p.k. 20/285 of Barcelona-French border line. Innovations in 2018: Design and development of a new overhead contact line C-200, powered to 25 kV and versatile in their different sections.

🚩 Av. de Manoteras, 6 2º Pl. 28050 (MADRID)
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☎ +34 91 701 77 71
✉ ferrocarril@semi.es
🌐 www.gruposemi.com



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.

🚩 Av. de Zugazarte, 56 48930 Getxo Las Arenas (VIZCAYA)
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✉ uen_infraestructurasytransporte@sener.es
🌐 www.ingenieriaconstruccion.sener



PRETENSADOS DEL NORTE, S.L.

PRETENSADOS DEL NORTE, is one of the most important producers of pre-stresses steel in the word. 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 30years' 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)
☎ +34 945 258 431
☎ +34 945 261 400
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🌐 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)
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☎ +34 91 804 19 55
✉ 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 28823 Coslada (Madrid) – Spain
☎ +34 91 334 15 90
✉ mvega@satys.com
🌐 www.satys.com



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/ Trespaderna, 29, 3º Edificio Barajas I, 28042 - MADRID
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🌐 www.sgs.com



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 28108 Alcobendas (MADRID)
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☎ +34 91 623 22 01
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🌐 www.sice.com



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

**SMART MOTORS**

Smart Motors(R) 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(r) 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)**

☎ +34 675 220 603



✉ info@smartmotors.org

🌐 smartmotors.org

**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 46550 Albuixech (VALENCIA)**

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🌐 www.stadlerail.com



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 33192, Llanera (ASTURIAS)**

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🌐 www.talegria.com

**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)**

☎ +34 976 465 656

☎ +34 976 465 720

✉ fsanjuan@teltronic.es

🌐 www.teltronic.es

**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)**

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🌐 www.thalesgroup.com

**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)**

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✉ internacional@tpfingenieria.com

🌐 www.tpfingenieria.com

**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 Corporate Image projects according to the needs of the customer; design & installation.

🚩 **Livorno, 19004 (GUADALAJARA)**

☎ +34 639 101 699

☎ +34 949 252 080

✉ export@tecnivial.es

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**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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**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.

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**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, San Sebastián de los Reyes 28703 (MADRID)**

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**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**

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🌐 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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 🌐 www.vicomtech.org



VIRTUALMECH

Virtualmech comprises a highly specialized technical team that has extensive knowledge on the different sectors of the industry, such as railway and solar thermal energy industries. The unique Selling Proposition is offering our clients real results to difficult problems, always adapted to their specific issues. We achieve these results thanks to data gathering through simulation or experimental measurements that we offer to our clients so they can make effective decision based on objective criteria.

📍 C/ Arquitectura, 1 PL10, Mod.13-14, 41015 (SEVILLA)
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voestalpine Railway Systems JEZ SL

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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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.

📍 Albert Einstein 6, 39011 Santander, (CANTABRIA)
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 ✉ Mario.Perez@wsp.com
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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)
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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.

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... LA SEGURIDAD ES EL FACTOR DECISIVO EN LA ELABORACIÓN Y EVALUACIÓN DE TODA IDEA DE DESARROLLO SOSTENIBLE

... SECURITY IS DECISIVE FACTOR IN THE ELABORATION AND EVALUATION OF ANY IDEA OF SUSTAINABLE DEVELOPMENT

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