

European
Rail Supply
Industry

Annual Report 2021



unife 
THE EUROPEAN RAIL INDUSTRY



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Message from UNIFE Chairman



"2021 was also the European Year of Rail. Despite the circumstances, railway stakeholders took the opportunity of this once-in-a-lifetime event to showcase our sector and its contribution to both our society and the economy."

Henri Poupart-Lafarge
UNIFE Chairman and, Chairman and CEO of Alstom

"It is an opportunity but also a challenge for our sector: our customers expect more efficient, more sustainable, more flexible and resilient systems."

After the crisis that impacted the world in 2020, a gradual global economic recovery has taken place in most areas throughout 2021. Considering the ability of rail to meet environmental and social challenges, the outlook for our sector – in particular – is promising. Indeed, the recovery plans of EU member states call for slightly more than €50 billion of investment in rail – infrastructure, signalling and rolling stock – makes concrete the commitment of public authority to invest in sustainable mobility systems.

COP 26 has also reinforced the global willingness to tackle climate change. The Glasgow Climate Pact, calling on 196 countries around the world to

strengthen their climate goals by the end of 2022 to align with the Paris agreement, is a step in the right direction.

It is an opportunity but also a challenge for our sector: our customers expect more efficient, more sustainable, more flexible and resilient systems. As the European stakeholders of this industry, we must meet these expectations both through a continued dedication to innovation and excellence in project execution.

Incidentally, 2021 was also the **European Year of Rail**. Despite the circumstances, railway stakeholders took the opportunity of this once in a lifetime event to showcase our sector and its con-

tribution to both our society and economy. As the “**Connecting Europe Express**” travelled between most EU capitals, our customers and the **European Commission** have demonstrated both the capabilities of our rail system and the limits it faces today, due to the operational and technical discrepancies between national systems.

I would like to take this opportunity to thank the **UNIFE** staff, for maintaining the collaborative momentum among the industry with monthly digital events on key topics, and all of the UNIFE members that have similarly engaged with the Year of Rail, providing visibility to our sector.

At the policy level, 2021 saw the release of the “**Fit for 55**” package in July by the Commission. This important framework comprises no less than 14 new legislative proposals, enabling Europe to meet its objective of a 55% reduction in greenhouse gas emissions by 2050. Some of these texts concern rail suppliers directly, like the **Alternative Fuels Infrastructure Regulation**, or our supply chain, with the **Carbon Border**

Adjustment Mechanism. Other elements can contribute to a level playing field between transport modes, such as the review of the **Energy Taxation Directive**. We should applaud the EU’s initiatives and support their adoption, as quickly as possible, in line with the deployment of a consistent Taxonomy framework to support sustainable investments.

We also encourage progress on the implementation of the EU’s **Industrial Strategy**, where we belong to its “mobility ecosystem”, and of its trade policy: *Europe needs to ensure that its companies can compete on a level playing field in Europe and in the world.*

On top of this, 2022 will be an important year for our industry:

- ▶ The **Europe’s Rail Joint Undertaking** will take over from **Shift2Rail** and carry out the largest collaborative railway Research & Innovation programme yet, with more than €1 billion of investment.
- ▶ Updated Technical Specifications for Interoperability will be proposed, with transition rules that should ensure the

absence of negative impact on existing projects.

- ▶ The revision of the **Trans European Network – Transport** (TEN-T) guidelines will confirm the European vision for the completion of its rail network.

After a tumultuous two years, we look forward to meeting again in person and promoting rail as an enabler of a more prosperous European future!

Sincerely,



Henri Poupart-Lafarge
UNIFE Chairman and,
Chairman and CEO of Alstom

Message from UNIFE Director General



"Rail is central to modern European life, enables greater interconnectivity that gives citizens greater social, educational and economic opportunities and presents a viable strategy for transport decarbonisation."

Philippe Citroën
UNIFE Director General

"Thank you for your commitment and we are excited to continue building the future of sustainable, accessible and reliable transportation together."

There is an old saying that "every crisis is an opportunity". For the European Rail Supply Industry, this saying was proven true once again, several times, over the course of this past year. The impetus created by the dual climate and public health emergencies have led to the completion of several key and pertinent envelopes. Recognising mobility's ability to define our communities and enable economic growth, the European Union designated 2021 as "the **European Union Year of Rail**". This year-long communications campaign took part in and across every Member State to highlight how rail is central to modern European life, enables greater interconnectivity that gives citizens greater social, educational and economic opportunities and presents a viable strategy for

transport decarbonisation. This initiative has informed UNIFE's engagement with EU institutions, Member State representatives, rail sector stakeholders and others as we advocated for rail to serve as the backbone of tomorrow's sustainable, safe, reliable and accessible mass transit paradigm of tomorrow.

In 2021, the European institutions continued to build upon its vision for the Union – one that leads global climate action efforts, is prepared for the ongoing digital revolution and continues to build on the prosperity citizens have enjoyed due to our novel degree of interconnectivity. This past year, UNIFE has continued to advocate on behalf of its members as the **European Commission**, led by President



Ursula von der Leyen, pursued an ambitious slate of proposals. These included the successful completion of **EU Climate Law** which codified the earlier **Green Deal** into law, the **Fit for 55** roadmap, a revision to the **Trans European Network – Transport** (TEN-T) Regulation and the **action plan to boost long distance passenger rail**. Similar successes were seen in European Parliament, helmed by the late **President Sassoli** who regrettably passed in early 2022 and is succeeded by **Ms. Roberta Metsola**, and the **Council**, which had **Portugal** and **Slovenia** hold the presidency, where the long awaited **International Procurement Instrument** that will ensure equitable market access globally and bolster deployment of

high quality, green rail products saw ratification ahead of trilogues and approval of almost all of the **Recovery and Resilience Facility's (RRF) National Recovery Plans (NRPs)**.

As the Member States spent the past year drawing up their plans for their allotment of the €723.8 billion, our association's collective efforts have been essential to positioning rail as the backbone of Europe's future mobility system. By UNIFE's estimates, the 27 European states have elected to invest **approximately €55 billion from this fund to our sector alone**, directing funds to initiatives that will modernise and further develop rail infrastructure and, to a lesser extent, further advance transport decarbonisation

efforts by investing in urban rail systems and rolling stock. These funds are much needed for achieving training the Green Deal's intended goals of doubling rail passenger and freight traffic by 2030 and 2050, respectively. In our meetings with both EC Executive Vice-President for the Green Deal **Frans Timmermans**, Commissioner for the Internal Market **Thierry Breton** and high level representatives from the **Directorate-General for Mobility and Transport (DG MOVE)**, the consensus was that these investments will only be successful if they bolster rail's sustainability, reliability and safety credentials in a manner that makes it more competitive and inspires it to capture more of the market. Such a widespread shift in



end user preference will require new tools and qualified professional to deploy them. These funds, and those in the associated **2021-2027 Multiannual Financial Framework (MFF)**, must be used to jumpstart Research and Innovation (R&I) projects and training initiatives that will build upon these systems and personnel capabilities needed to optimally operate these developments.

To enhance European rail's uptake of emerging technologies and address current and mounting workplace discrepancies, UNIFE has used the Year of Rail to engage with stakeholders from across the EU. To this end, our association has been a vocal champion of continuing the **Shift2Rail Joint Undertaking as Europe's Rail**, created by Commission's DG Research and Innovation (DG RTD) and Commissioner

Mariya Gabriel's Horizon Europe with its work to be carried out by DG MOVE. This institutionalised partnership, which was officially sanctioned with the late 2021 passage of the **Single Basic Act**, will build upon the successful pursuit of next generation rolling stock solutions, artificial intelligence, automatic train operation, big data and communication tools needed to advance our railways to a true **Single European Railway Area** and inspire a modal shift to rail. However, this level of interconnectivity and interoperability will not be built by itself. UNIFE has been a leading partner in the **STAFFER Blueprint for Skills** consortium, working to assess and improve existing rail education and vocational training programmes to provide students and professionals the skills needed to build tomorrow's railway system.

Another milestone passed in 2021 was the first full year of entry into force the Technical Pillar of the **4th Railway Package (4RP)**. While we were discouraged by Commission budgetary cuts to the **European Union Agency for Railways (ERA)**, we are confident in the organisation's ability to act as the one-stop shop that Europe needs to lower authorisation costs and speed up market uptake of sustainable, interoperable equipment. Led by Executive Director **Josef Doppelbauer**, the agency has already issued thousands of authorisations. In our cooperation with ERA, our industry seeks stability and predictability for individual railway projects benefiting from today's TSI maturity, while managing the continued evolution of the technical regulations, standards and innovations in parallel.



Our association has continued our committed advocacy on this topic as it has been designated an essential point by UNIFE Chair **Henri Poupart-Lafarge**. This development of a centralised approval body and its attempts to make European rail transportation more seamless will be furthered by continued execution of **European Rail Traffic Management System (ERTMS)** Coordinator **Matthias Ruete's** action plan.

2021 has seen our association continued to promote the European Rail Supply Industry's global leadership in international fora such as **Business at the OECD** and the **European Standardisation Organisations (ESO)** - particularly, **CEN** and **CENELEC** - through the **Sector Forum Rail (SFR)**. Despite the continued public health crisis,

UNIFE, through its work with IRIS and the **International Rail Quality Board (IRQB)**, has been able to promote a culture of quality in the rail sector.

Lastly, but certainly not least, UNIFE would like to thank its Members – without whom, there would be no European Union Year of Rail to discuss. Your engagement throughout the campaign and our broader advocacy initiatives has raised awareness of both the European Rail Supply Industry's pivotal role in confronting our current crises and building the sustainable multimodality rooted in our unique transportation mode that will help us take on those to come. In the coming year, 13 new Members have elected to join us in this mission: [ABB Power Grids](#), [Sécheron SA](#), [CS Group France](#),

[Dellner Couplers](#), [ENYSE S.A.U.](#), [Ingeniería y Control Ferroviario S.A.U.](#), [LCI Italy s.r.l.](#), [MER MEC Ste](#), [NetModule AG](#), [Promeco Group Oy](#), [TESMEC Rail](#), [Te.Si. Fer s.r.l.](#), [TTC Marconi s.r.o.](#) and [Walbo Railway s.r.o.](#). Thank you for your commitment and we are excited to continue building the future of sustainable, accessible and reliable transportation together.

Sincerely,

Philippe Citroën
UNIFE Director General

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ROMA TERMINI 13
AU 9627 12:00
IN ATTESA DEI TRENI. -GATE D-NUOVO



Biglietti

UNIFE Mission

“Promoting Rail Market Growth for Sustainable Mobility”

01

Promoting
European policies
and programmes
favourable to rail

02

Working towards
an interoperable
and efficient
European railway
system

03

Ensuring
European Rail
Supply Industry
leadership
through advanced
research,
innovation
and quality

04

Providing UNIFE
Members with
strategic and
operational
knowledge



How UNIFE Works

I. EU Standardisation & Harmonisation

- ▶ Collaborating with the European Union Agency for Railways on the definition of rail regulations (including the Technical Pillar of the Fourth Railway Package) and Technical Specifications for Interoperability (TSIs)
- ▶ Supplying expertise for European and International Standardisation Bodies (e.g. CEN/CENELEC, ISO)
- ▶ Contributing to the development of the Single European Rail Area

II. Public Affairs

- ▶ Advocating policies that increase the global competitiveness of the European Rail Supply Industry
- ▶ Supporting modal shift policies that give priority to rail
- ▶ Encouraging investment in rail projects
- ▶ Promoting rail transport as the best solution to meet social challenges of the future

III. European Rail Research

- ▶ Coordinating EU-funded research projects
- ▶ Playing an active role in ERRAC - the European Rail Research Advisory Council
- ▶ Cooperating with the Shift2Rail Joint Undertaking and contributing to the follow-up of its activities
- ▶ Shaping the future of rail research & innovation in Europe

IV. IRIS Certification®

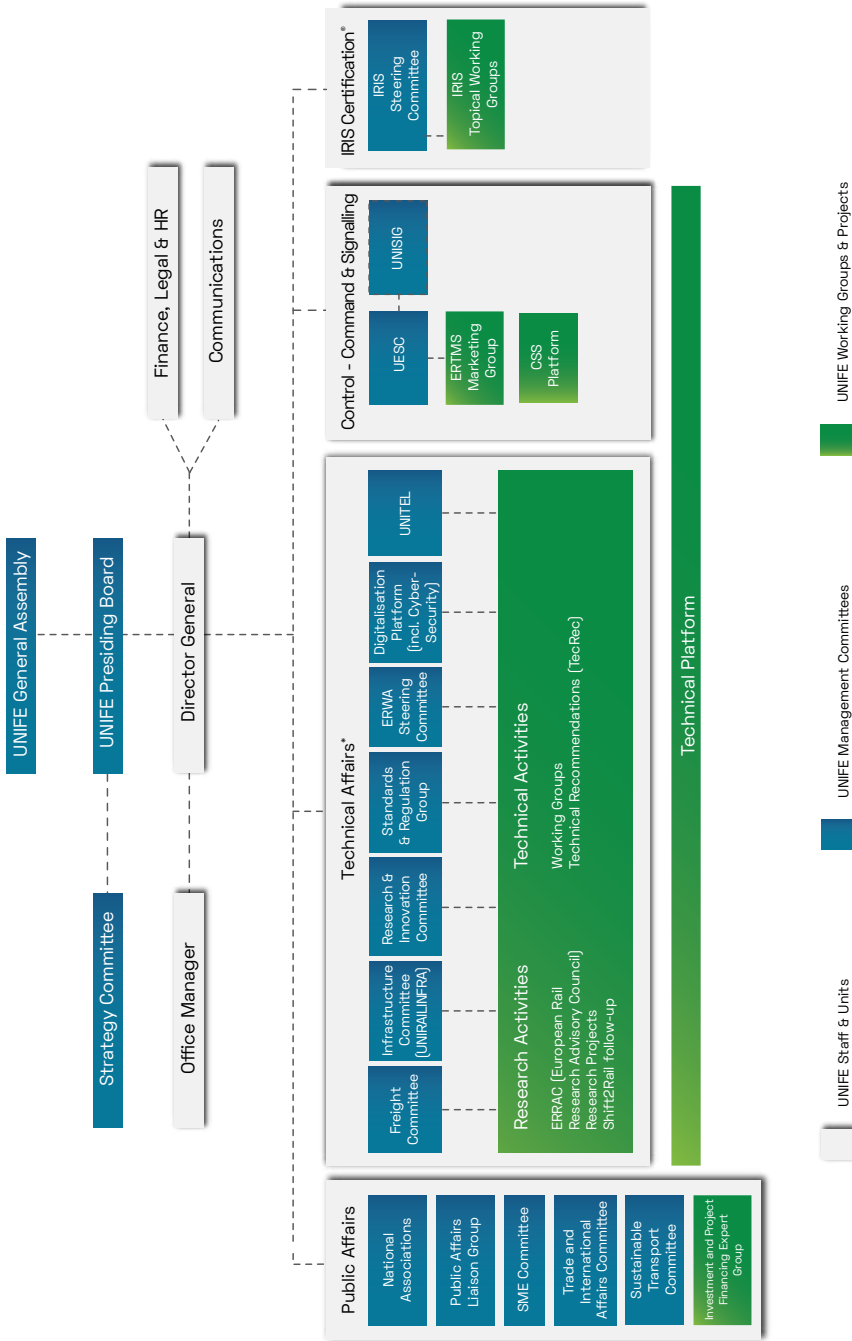
- ▶ The globally recognised rail quality management system
- ▶ Enables efficient business processes and leads to substantial quality improvements and cost reduction throughout the supply-chain
- ▶ More than 2200 IRIS Certification® certificates issued worldwide

European Rail
Supply Industry

European Union



UNIFE Structure



* A System Pillar Committee and a System Pillar Technical Group will be created in the first trimester of 2022



UNIFE Presiding Board



Henri Poupart-Lafarge

UNIFE Chairman

Chairman and CEO,
Alstom



Augusto Mensi

Member of the Presiding Board

CEO,
Lucchini RS



Jürgen Wilder

Member of the Presiding Board

Member of the Executive Board
and Responsible for the Rail
Vehicle Systems division
Knorr-Bremse AG



Javier Martínez Ojinaga*

Member of the Presiding Board

CEO,
CAF Group



Michael Peter

Member of the Presiding Board

CEO,
Siemens Mobility



Lilian Leroux

Member of the Presiding Board

CEO,
Faiveley Transport



Millar Crawford

Member of the Presiding Board

Executive Vice President,
Ground Transportation Systems,
Thales Group



Roger Dirksmeier

Member of the Presiding Board

Managing Director,
**FOGTEC (representing the UNIFE SME
Committee)**



Franz Kainersdorfer

Member of the Presiding Board

Member of the Management
Board,
Voestalpine AG

* Javier Martínez Ojinaga / Subject to approval of
the UNIFE Presiding Board, June 2022

UNIFE Committees and Working Groups



The **Presiding Board** is UNIFE's highest committee. It is responsible for the management of the association. The Board takes any measure or action required to achieve the objectives and general policies of the association. This body reviews applications for membership before they are submitted to the General Assembly for ratification. The Presiding Board is composed of 9 members elected by the **General Assembly**, every three years. One seat on the Presiding Board is reserved for the Chairperson of the UNIFE SME Committee.

The **Strategy Committee** steers UNIFE activities and advises the Presiding Board on all strategic and political issues. It is composed of high-level managers representing the association's most prominent members.

The **Technical Platform** brings together all UNIFE Members and equally covers all EU research, technical harmonisation and standardisation matters. The platform regularly reports on relevant developments and the Association's activ-

ities at EU level standardisation bodies. It also shares news regarding the Association's R&D/I projects, including the **Shift2Rail Joint Undertaking** and its potential successor in Horizon Europe. The Technical Platform communicates changes within the regulatory framework in regards to **the European Union Agency for Railways (ERA)** and the **European Commission** (i.e. DG MOVE, DG RTD, DG GROW, etc.,). This body enables all members to have a better understanding of current EU rail technical issues, their background and their implications for the industry in Europe and beyond.

The UNIFE **Freight Committee** gathers companies active in the rail freight business and aims to strengthen the position of the industry within the European institutions' policy priorities. This committee provides its members with information and support on EU R&I funding opportunities, rail freight policy developments and participation in EU lobbying on pertinent rail freight developments, including discussions concerning ongoing and upcoming TSIs/Standards.



UNIRAILINFRA is a consensus-building platform focused on rail industry infrastructure at a pre-competitive stage. It promotes investment and innovation in the railway infrastructure sector. The committee also discusses and encourages rail infrastructure development. UNIRAILINFRA brings together companies specialising in the manufacturing and supply of fixed railway equipment linked to the infrastructure subsystem with companies that design, construct and maintain those products.

The **Research and Innovation (R&I) Committee** is responsible for monitoring European rail research opportunities and preparing recommendations. It is responsible for the regular exchange of information on European rail research, including updates pertaining to Shift2Rail, discussions on and the preparation of future European rail R&D programmes like Horizon Europe and the potential successor of Shift2Rail and the definition of railway suppliers' R&I positions. The committee also drafts common positions that will be defended at the EU level. Its purview also includes contributing to ongoing initiatives such as ERRAC, Shift2Rail, the Industrial Dialogue and European Commission consultations on R&I. Additionally, it prepares inputs for ERRAC.

The **Standards and Regulation Group** (SRG) steers UNIFE's technical activities pertaining to the European

regulatory framework (i.e. Railway Directives, TSIs, etc.) and standardisation, in Europe and abroad. The SRG is composed of technical directors from the UNIFE's main system integrators and subsystem suppliers.

The **European Railway Wheels Association** (ERWA) aims at promoting usage benefits, lifecycle cost reduction and standardisation of railway wheels and wheelsets. Its mission includes developing standards and promoting innovation in safety and environmental friendliness. The group also encourages the adoption of best practices across the European market. The ERWA Steering Committee is composed of CEOs from European wheels and wheelsets manufacturers. It is supported by the Development Committee, which analyses political issues, market strategy and communications; and the Technical Committee, which deals with standardisation, regulation and research.

The **Digitalisation Platform** is open to all UNIFE's members and focuses on the development of digital technologies in the rail sector from a political, technical and business perspective. The main objectives of the Platform are to bring the rail supply industry's view to the centre of the EU-level digital debate and reach a better understanding of the potential opportunities and challenges of digitalising rail transport. The Platform coordinates these efforts with the Cybersecurity Working



Group. The platform's activities are frequently presented and promoted at public conferences and workshops, as well as articles in specialised magazines.

The **Cyber-Security Working Group** brings together the association's member companies that possess significant cyber-security expertise. This working group's main objective is to provide UNIFE members with a forum to discuss and identify opportunities for cyber-security cooperation within the European rail sector, strengthening its position when compared to competitors and other stakeholders.

The role of **UNISIG** is to develop, maintain and update the ERTMS/ETCS technical specifications in close cooperation with the European Union Agency for Railways (ERA). The detailed technical work of UNISIG is carried out in Work Packages responsible for specific technical specifications or in Mirror Groups corresponding to ERA Working Groups where UNISIG is represented by appointed nominees.

The **ETCS Steering Committee (UESC)** coordinates UNIFE's strategic and political ERTMS activities. UESC members regularly liaise with European Commission (DG Move) and European Railways Agency (ERA) representatives to address any political issues related to ERTMS and organise high-level meetings between

European bodies representatives and Signalling companies' CEOs and/or Directors.

The **ERTMS Marketing Group (UEMG)** is tasked with coordinating any marketing activities related to the European Rail Traffic Management System (ERTMS). This includes collecting and disseminating deployment statistics, planning events, generating common publications such as factsheets, flyers, and brochures, as well as managing the ERTMS website.

The **Control Command and Signalling Platform (CCS-P)** was recently reactivated to provide UNIFE with signalling expertise. Platform members are primarily collaborating with EULYNX Consortium members on reviewing EULYNX Specifications which aim to standardise interfaces and elements of signalling systems.

The **UNITEL Committee** focuses on the development and implementation of the future interoperable railway communication system (FRMCS/Next Generation), the inherent successor of GSM-R, as part of the future ERTMS. UNITEL bring together the major railway telecommunications products suppliers and companies that have significant experience in current GSM-R and future railway systems. The committee members aim to ensure that the railways communication system fulfils existing and future signalling, train control and traffic man-

agement requirements, as well as supports European railway research initiatives.

The **National Associations Committee** gathers the directors of 12 national rail associations from 11 different EU Member States, collectively representing more than 1,000 large- and medium-sized European rail supply companies. As UNIFE Associate Members, these organisations promote our positions domestically while elevating national concerns to the European level.

The **Public Affairs Liaison Group** brings together representatives of full UNIFE Members responsible for EU and national advocacy. It discusses lobbying strategies concerning important EU political files. It also identifies synergies between the association and its membership for impactful lobbying activities and campaigns.

The **SME Committee** is a platform for Small and Medium-sized Enterprises (SMEs) to share and learn information about EU policies and available funds. This group works to facilitate SMEs members' access to support schemes and to prepare advocacy campaigns on issues of concern to organisations of this size.

The **Trade & International Affairs Committee (TIAC)** is in charge of monitoring EU trade negotiations and instruments with potentially significant implications for the European rail supply industry and coordinating UNIFE's responses. The Committee also focuses on public procurement, be it at international or EU level. TIAC is also a platform for the exchange and dissemination of information on bilateral cooperation activities undertaken by UNIFE in international markets.

The **Sustainable Transport Committee (STC)** brings together the rail supply industry's main experts on sustainability-related topics. More specifically, the STC defines the strategy and carries out UNIFE's activities on the field of sustainable mobility, climate change, energy efficiency, urban transportation and EU taxonomy (sustainable finance). The STC is notably in charge of the Green Deal-related policies. The STC coordinates the activities of two active Topical Groups (TGs): the Life-cycle Assessment (LCA) TG and the Chemical Risks (CR) TG.

The **Investment and Project Financing Expert Group** brings together high-level executives responsible for long-term financing and corporate relationships with



multilateral development banks, such as the **European Investment Bank** (EIB) and the **European Bank for Reconstruction and Development** (EBRD). This committee explores funding avenues for infrastructure and industrial projects, including Public Private Partnerships (PPPs). The Expert Group also tracks and communicates on issues related to export financing (e.g., Export Credits).

The **International Railway Industry Standard** (IRIS) steering committee was established in 2006 and is composed of high level representatives from the UNIFE system integrators and equipment manufacturer membership. This steering committee is the UNIFE working group responsible for IRIS Certification® operational management and decisions regarding resources, contracts and financial budgeting.

The **UNIFE Communications Committee** steers the UNIFE Communication Strategy. It is composed of the Communications Directors of UNIFE members.



UNIFE Technical Working Groups

- ▶ Aerodynamics
- ▶ Brakes
- ▶ Cabin
- ▶ Chemical Risks
- ▶ Crash Safety
- ▶ Diesel
- ▶ Electromagnetic Compatibility (EMC)
- ▶ Energy
- ▶ Energy Efficiency
- ▶ Entity in charge of maintenance (ECM)
- ▶ Fire Safety (SRT)
- ▶ Infrastructure
- ▶ Life Cycle Assessment (LCA)
- ▶ Noise
- ▶ Persons with Reduced Mobility (PRM)
- ▶ Railway Dynamics
- ▶ Rolling Stock
- ▶ Safety Assurance
- ▶ Signalling
- ▶ Telematic Application for Passengers & Freight (TAP & TAF)
- ▶ Train Control Management System (TCMS)
- ▶ Vehicle Authorisation
- ▶ Wagon (WAG)

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European Affairs

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1) Industrial policy

“Beyond the immediate effects of the pandemic in 2020, such as the sudden and pervasive disruption of cross-border and domestic supply chains and the temporary closures of plants, members expressed serious concern about the longer term repercussions of the current crisis”.

a. Monitoring the impact of COVID-19 and other disruptions on our industry

To best assess COVID-19's consequences on its Members, UNIFE maintained continuous and regular bilateral exchanges with numerous member companies to allow for contemporaneous reflection on the long-lasting impacts of the pandemic.

Beyond the immediate effects of the pandemic in 2020, such as the sudden and pervasive disruption of cross-border and domestic supply chains and the temporary closures of plants, members expressed serious concern about the longer term repercussions of the current crisis (e.g., increases in prices or supply availability). Despite massive spending intentions established by **Next Generation EU's National Recovery Plans (NRPs)**, the substantial financial losses incurred by urban and mainline rail operators continue to inspire concerns that planned invest-

ment might be postponed or even cancelled. This will be closely evaluated in the upcoming **2022 UNIFE World Rail Market Study**, which will be unveiled during Innotrans.

In parallel, UNIFE has continued to alert European institutions of developments resulting from these issues. Our Association has had many discussions with the rotating Presidencies of the Council of the European Union, which were held by Portugal and Slovenia in 2021. UNIFE published two special Presidency Briefings to help prepare them for their tenure. These documents provide EU institutions with a series of concrete policy recommendations that will support our industry in the challenging times of COVID-19. These topics range from industry and trade to transport, public procurement, research & innovation and investment policy.



35 Asks of the Portuguese Presidency



33 Asks of the Slovenian Presidency

b. Update of the 2020 New Industrial Strategy and mobility ecosystem

In May 2021, European Commission Executive Vice-President for A Europe Fit for the Digital Age **Margrethe Vestager**, Executive Vice-President for An Economy that Works for People **Valdis Dombrovskis** and EU Commissioner for Industry and Internal Market **Thierry Breton** jointly presented **an update of the 2020 Industrial Strategy**.

This update sought to capture the full extent of the pandemic's first year on Europe's economy and industry. The communication is divided into 3 pillars and defines the concept of "open strategic autonomy", highlighting the need for the EU to be more resilient and to analyse a number of strategic dependencies. The updated strategy also confirms the rail supply's inclu-

sion in the **"Mobility, Transport and Automotive ecosystem"** - one of the 14 priority sectoral groupings established by Commissioner Breton - and the development of so-called "transition pathways".

The **mobility ecosystem transition pathway** will support EU industry's green and digital transitions, with the COVID-19 drastically affecting the speed and scale of said transformation. At the end of the year, a draft document was published by the Commission and opened to public consultation. UNIFE is playing a key role in coordinating the views of European rail suppliers to ensure that the specific needs of our sector are duly taken into account during any future actions.



► Executive Vice-President for Trade Dombrovskis, Executive Vice-President for A Europe Fit for the Digital Age Vestager and Commissioner for the Internal Market Breton



14 Industrial Ecosystems of the new strategy

c. Competitiveness of the Rail Supply Industry

In 2020, the European Commission accepted - at UNIFE's request - an extension of the EC Expert Group on the *Competitiveness of the Rail Supply Industry's* mandate. This important step represented the recognition of this forum as an already existing and much-needed governance tool for discussing the future of our industry at the EU level, in complementarity with the mobility ecosystem and transition pathway. Through the Expert Group, the different Directorate Generals of the European Commission and the Member States have managed to establish more than just a close dialogue with our industry. The EC Expert Group has, in fact, already helped foster collaboration and consensus on critical work.

This past September, another meeting of the Expert Group was held – the first one since the beginning of the year. Participants were able to delve into several topics, including industrial policy, trade and international standardisation. The meeting allowed attendees to discuss next steps regarding the implementation of the October 2019 Final Report's 88 recommendations across 10 strategic policy areas. UNIFE has undertaken **a stocktaking exercise of the implementation of these recommendations with its members** and held meetings with the European Commission to share its assessment. While this exercise is expected to be completed in early 2022, the continuation of the Expert Group will be instrumental to maintaining our con-

structive dialogue and work together on the ongoing implementation of the policy recommendations.

Last, but not least, on 26 October, UNIFE organised a **roundtable on the world leadership and competitiveness of the European Rail Supply Industry in the framework of the SIFER trade fair**. Representatives from the European institutions (i.e., DG GROW and the European Parliament's ITRE Committee) and the **French Directorate General for Enterprise** joined rail supply industry stakeholders for an exchange on current challenges regarding industrial support, trade and market access, public procurement or research and innovation.



2) Investment policy

“UNIFE has been actively working to ensure that they set the appropriate framework for rail investments and advocate much needed rail-related investments to advance the decarbonisation of Europe’s transport sector”.

a. Ambitious and unprecedented EU funding to make rail the backbone of sustainable mobility

2021 saw the finalisation of different EU programmes and funding instruments which will be key to support rail investments between 2021 to 2027. UNIFE has been actively working to ensure that they set the appropriate framework for rail investments and advocate much needed rail-related investments to advance the decarbonisation of Europe’s transport sector.

One of the most important landmarks has been the **endorsement of the majority of the so called National Recovery Plans** (NRP) – a key element of the **Next Generation EU** COVID-19 recovery supple-

ment to the **Multiannual Financial Framework** (MFF) called “**Recovery and Resilience Facility**” (RRF). Rail investments feature prominently throughout the latter. Another significant development was the finalisation of the **new Connecting Europe Facility** (CEF2) Programme and the launch of its first calls for proposals for 2021.

In terms of the NRPs, at the time of writing this report, all Member States - except the Netherlands - have submitted their plans. The majority have already been approved by the **European Commission** and the **Council**¹, and for many countries, so called



European Commission President Ursula von der Leyen



pre-financing disbursements have already hit the ground. The good news for Europe is that, as announced by President Von der Leyen at the June European Parliament's Plenary, **"at least EUR 85 billion (from the Recovery Plans) will be used to boost sustainable transport – digital railway infrastructure, charging stations for electric cars, or seamless urban mobility"**². According to UNIFE's calculations, based on the assessed plans, **rail investments will amount to approximately €55 billion**, the vast majority of funding being allocated to sustainable transport. In other words, **11% of the total funding requested by Member States under the Recovery and Resilience Facility goes for rail**.

Over 50% of these rail investments will be directed to rail infrastructure, including its modernisation and electrification but also the deployment of the **European Rail Traffic Management System (ERTMS)**. The rest will be used for the acquisition of rolling stock, including those intended for urban transport, the development of trams and metro systems and other measures related to digitalisation, freight and alternative fuels refueling infrastructure. UNIFE is glad to see that Member States are seizing this historic opportunity to invest and improve rail transport systems across Europe.

In the framework of European Year of Rail, UNIFE organised a webinar on *"How to boost rail investments with the support of the MFF and the Recovery & Resilience Facility?"* in January.

Regarding the new **Connecting Europe Facility (CEF)**, **UNIFE has been actively and successfully lobbying to reverse the initial exclusion of the eligibility of hydrogen refueling infrastructure for the rail network**. It is important to highlight that, as in the previous CEF programme, the **European Commission** has indicated that approximately 70% of the €25,8 billion CEF 2 funds set aside for transport should be allocated to rail projects. Furthermore, the first call for proposals under the new CEF programme was launched on 16 September. The 2021 budget for transport topics is set at €7 billion and will support – among other initiatives – creating an even more efficient and interconnected multimodal transport system for both passengers and freight. This must include an affordable, high-speed rail network, abundant recharging and **refueling infrastructure including for the rail network** and increased automation for greater efficiency and safety.

Finally, the **EU Cohesion Policy** will operate with a budget of over €330 billion for the period 2021-2027, to be distributed across the 27 Member States. Two EU Structural Funds will be of vital importance for the rail sector, namely: the **European Regional Development Fund (ERDF)** and the **Cohesion Fund**. Eligible investments under these schemes will include: Rail TEN-T infrastructure (including stations supported development, reconstruction & upgrade, ERTMS deployment); freight transport on rail; development, reconstruction, upgrade of tram and metro lines; environmentally-friendly rolling stock for public transport; upgraded digitised urban transport systems.

¹ With the exception of Hungary and Poland, due to the so-called "rule of law" issues in both countries

² https://ec.europa.eu/commission/presscorner/detail/en/speech_21_2887

At the time of writing this report, only Greece has seen its Partnership Agreement approved. This important document sets the strategic direction of the Operational Programmes and the different investments priorities. The remaining ones are expected to be approved in the course by the end of 2022. UNIFE has carried out regular meetings with the Member States' Permanent Representation in Brussels in order to make the EU27 aware of our industry's priorities. Additionally, earlier in 2021, UNIFE also met with the Cabinet of EU Commissioner for Cohesion Policy and Reforms **Elisa Ferreira** to insist on the importance of dedicating significant amounts to rail in order to advance on the decarbonisation agenda and enhance sustainable mobility in Europe.



European Commissioner for Cohesion and Reforms Elisa Ferreira

b. Working with banks and mobilising private investment for rail

UNIFE has continued to cooperate closely with the **European Investment Bank (EIB)** by hosting rail experts from the organisation at different committee meetings with the objective of presenting latest developments and future financing strategies. This is particularly relevant because after adopting its "*EIB Group Climate Bank Roadmap 2021-2025*" in 2021, the Bank has embarked on the revision of its **Transport Lending Policy** in order to make it fit with the new EU climate objectives and also the ambitious targets set up in the EU Sustainable and Smart Mobility Strategy.

In this sense, UNIFE has responded to the public consultation organised for this purpose by highlighting the importance of prioritising rail including urban rail transport in the Bank operations due to the important need for significant

rail investments to complete the TEN-T network and achieve the decarbonization targets. Additionally, on 18 October, UNIFE held a bilateral meeting with the EIB in charge of the transport sector Vice-President **Kris Peeters** to exchange on our industry's priorities and expectations of this public consultation.

Finally, on 9 November, UNIFE participated in an internal session organised by the EIB with the participation of **DG MOVE** and **DG COMP** to present market trends, outlooks for all categories of rolling stock and, in particular, the development and roll out of zero tail pipe emission technologies (i.e., batteries, H2). This was an excellent opportunity to provide relevant market intelligence to the EIB, which eventually will support the uptake of more zero emission rolling stock lending operations.



UNIFE Director General Philippe Citroën and EIB Vice-President Kris Peeters

As part of the new initiatives announced on 14 December by the European Commission on green and efficient mobility, the EIB also presented its **Green Rail Investment Platform**. This was conceived as a vehicle for the deployment of the bank's technical and financial capacity, as well as the EU financial instruments meant to explore viable business models and boost opportunities to finance rail transport. On one hand, for eligible projects with robust loan structure, EIB can finance up to 50% of the project costs by offering loan tenors that match the life of the assets at attractive interest rates. On the other, eligible projects with high credit risk profile may benefit from

an Union guarantee under **InvestEU**. Thus, the Commission and the EIB will work to actively seek eligible pilot projects to acquire rolling stock.

Again, EIB Vice-President **Kris Peeters** demonstrated the Bank's commitment to our sector by stating that ***"Rail transport will be the backbone of Europe's future climate-neutral transport system. That is why investing in rail is a top priority for the EIB."*** The new **Green Rail Investment Platform** will help the rail sector to access EU investment financing and advisory support more easily".



Regarding the **European Bank for Reconstruction and Development (EBRD)**, UNIFE also hosted its representatives for several sessions where the Bank presented its experience in promoting transport solutions and financing efficient and sustainable transport networks with a focus on rail supported projects in EU neighbouring countries, such as the Western Balkans and Eastern Europe.

c. Rail investments outside the EU borders



UNIFE has continued mobilizing resources to bring to the attention of the most important stakeholders and decision makers the need to dedicate significant EU funding for EU third partner countries to be able to invest in sustainable transport projects such as rail, while at the same time, ensuring fair competition in EU funded projects. UNIFE Director General **Philippe Citroën** has addressed letters to Commissioners **Olivér Várhelyi** and **Jutta Urpilainen**, who are responsible for Neighbourhood and Enlargement (DG NEAR) and International Partnerships (DG INTPA), respectively, allowing UNIFE greater engagement with the Western Balkans and Africa.

UNIFE Director General Philippe Citroën,
DG NEAR Deputy Head of Unit Michael Voegelé and Transport Community Director Matej Zakonjšek

In March, UNIFE organised an exclusive webinar for its Members with the participation of over 100 participants and high-level keynote speakers from the **Transport Community Secretariat**, the **European Commission's Directorate General for Enlargement and Accession (DG NEAR)** and the EIB. The speakers engaged with our industry to explain the potential for rail investments in the region, some key ongoing projects and operations, as well as the EU Western Balkans connectivity agenda with its associated €9 billion Economic and Investment Plan.

Regarding Africa, UNIFE and some of its Members also participated in July in an event hosted by DG INTPA which counted with the participation of African rail operators to exchange on the on the future EU funding support for the rail sector in Africa. UNIFE will continue engaging and monitoring developments on these fronts with the ultimate objective of increasing public and private funding for rail in these regions.

d. Green Bonds

In July, the Commission presented a proposal for a Regulation for creating a European Green Bonds Standard, as part of the roll-out of the Union's sustainable finance strategy. To gather stakeholder's views, the Commission opened a public consultation for which UNIFE submitted a position paper. The paper stresses that bonds can be beneficial for the rail sector as it will unlock additional sources of financing needed to transition to a carbon neutral economy and the huge potential for rail to play here.

The strong expected issuance flow of environmentally sustainable bonds is also revealed by the European Commission's intentions of issuing 30% of NextGenerationEU as **"NextGenerationEU green bonds"**. Totalling **€250 billion**, it will be the largest Green Bond Scheme in the world. Clean transportation - where rail features prominently - and R&I activities supporting the green transition are included within the eligible expenditure categories.



3) Public procurement in Europe

“There is an unprecedented opportunity – and challenge – to ensure that funding dedicated to rail will be spent in the best possible way, one that ensures the timely and fair implementation of projects”.

With the widespread outbreak of the pandemic and subsequent creation of the **National Recovery Plans** (NRPs), there is an unprecedented opportunity – and challenge – to ensure that funding dedicated to rail will be spent in the best possible way, one that ensures the timely and fair implementation of projects.

Although the [2014 modernisation of the European Union's public procurement framework](#) marked a positive step forward on a number of topics, there remain shortcomings to ensuring fair competition between suppliers and establishing an approach in rail procurement that focuses on best value, rather than price alone.

UNIFE has long sought to close these gaps, some of which the **European Commission** acknowledged in May 2021 in its proposal for an instrument to tackle distortions created by foreign subsidies. In parallel to a future EU instrument, UNIFE has continued to stress the importance of strengthening the rules on abnormally low tenders and the more profuse acceptance of the **Most Economically Advantageous Tender** (MEAT) principle. These are of particular importance given greater activity from non-European, state-owned enterprises (SOEs) that are shielded from normal market competition.



- Interactive map displaying SOE activity, jointly designed by FIEC, EIC, EuDA and UNIFE

In May, UNIFE joined forces with the [European Construction Industry Federation](#) (FIEC), [European International Contractors](#) (EIC) and the [European Dredging Association](#) (EuDA) to launch an [interactive map on the activity of third country state-owned enterprises in the European procurement market](#). This tool displays all projects in which third country SOEs have tendered since 2009 in the construction, dredging and rail supply sectors. The main conclusion from the map is that the interest of third country SOEs in the European public procurement market has grown significantly in recent years.

Jointly working on a sectoral initiative, UNIFE, the [Community of European Railways and Infrastructure Managers](#) (CER) and the [European Rail Infrastructure Managers](#) (EIM) published a joint publication called *"Recommendation to apply the Most Economically Advantageous Tender (MEAT) and good practices in the domain of railway procurement"* in 2019. This strategic document focused on three potential award criteria: technical or technological value; life-cycle costs and environmental and social impact. It also set out several recommendations for rail contracting authorities as they conduct their evaluation processes.

In parallel, UNIFE published a note titled *"Making use of the existing EU public procurement framework to ensure a level-playing field and create European value"*, which lists a set of good practices recently put in place in various European countries. The objective of this important document was to raise awareness amongst decision-makers and contracting authorities of the possibilities already provided by the EU public procurement framework for creating a level playing field.

After the postponement of an event in May 2020 due to the pandemic, a digital one was organised in November 2021 with practitioners representing European railway undertakings, infrastructure managers and suppliers to promote this sustainable approach to rail procurement.

Lastly, in 2021, UNIFE has continued to drive the [AEGIS Europe](#) alliance's activities on public procurement. Throughout the year, the alliance pushed for reforms of the European public procurement framework during its exchanges with the European Commission, the European Parliament and individual Member States.



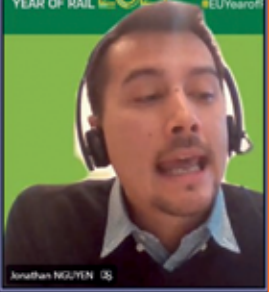
UNIFE, EIM and CER joint recommendation supporting the MEAT Principle

CER-EIM-UNIFE Recommendation to apply the Most Economically Advantageous Tender (MEAT)

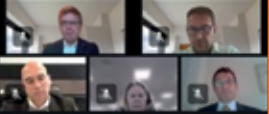
- **Benefits of applying MEAT criteria:** Reduced obsolescence due to more advanced products likely to be maintainable for longer time, increased competition and advancement of sustainable policy objectives, fair competition between all bidders...
- **Challenges of applying MEAT criteria:** How to avoid creating additional burden in evaluation of tenders? How to professionalise procurement departments to this new approach? How to incentivise and support contracting authorities in their transition?

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EUYearofRail



Jonathan NGUYEN



► UNIFE Head of Public Affairs Jonathan Nguyen explains the benefits and challenges of the MEAT principle



4) The Green Deal and transport decarbonisation

The transport sector accounts for approximately a quarter of the EU's greenhouse gas (GHG) emissions, emitting more pollutants than any other sector except for energy production. However, rail relies very little on imported fossil fuels and clearly stands out for its high energy efficiency, low emissions of CO₂ and growing use of renewable energy. UNIFE has continued to be very vocal in promoting the essential role of this unique transport mode in meeting EU targets for decarbonising transportation.

Mobility decarbonisation is becoming more pressing as civil society puts pressure on decision-makers to fight climate change. A sustainable, climate-neutral masterplan is at the heart of the Commission's mandate for the 2019-2024 term. Through the **European Green Deal**, Commission President **Ursula von der Leyen** aims to make Europe the first climate-neutral continent by mid-century. Executive Vice-President **Frans Timmermans** oversees the ambitious strategy. UNIFE believes that the Green Deal can be a game changer, providing the EU with a framework for achieving net zero emissions by moving towards a low-carbon economy while also reaching high efficiency standards.

The most important transport initiative stemming from Green Deal is the new **"Sustainable and smart mobility Strategy"**, presented by Transport Commissioner **Adina-Ioana Vălean** in December 2020. The strategy is organised into three main pillars: **"Sustainable Mobility; Smart Mobility and Resilient Mobility"**. Similar to the **2011-Transport White Paper**, it is expected to define the EU policy framework for transport over the coming years.

Mr. Timmermans presented the first **European Climate Law** in March 2020, enshrining into legislation the climate neutrality objectives of the Green Deal. The law sets a step-by-step approach for the fulfilment of this goal by strengthening intermediate 2030 targets, notably for GHG emissions reduction, share of renewable energy sources and increase of energy efficiency. These ambitious targets will be enforced through the "regulatory roadmap" presented by the Commission in June 2021 under the name of **"Fit for 55"**. The package includes revisions and updates of existing legislation - as well as new proposals - for a total of 14 initiatives.

UNIFE Presiding Board members meet Executive Vice-President Frans Timmermans



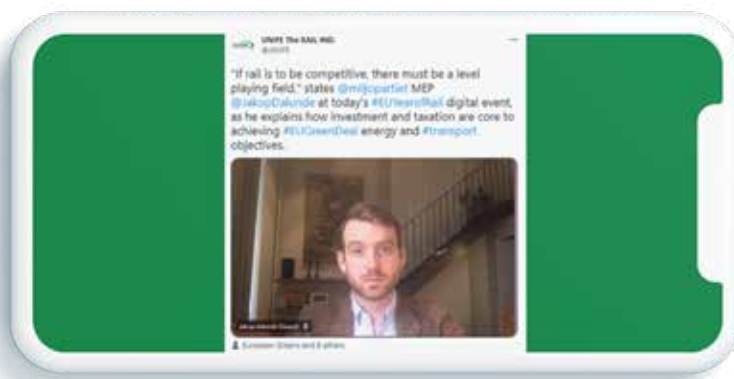
► European Commissioner for Transport Adina Vălean





Through the work of this association's **Sustainable Transport Committee** (STC), UNIFE has undertaken several other sustainability-related activities in 2021. We have directed special focus to the regulatory package, Fit for 55. In particular, UNIFE has identified as a priority the new **Regulation on Alternative Fuels Infrastructure** (AFIR), as it holds the potential to foster the deployment of green propulsion systems in rail. Additionally, we have tracked the recast of the **Energy**

Taxation Directive (ETD), which may eventually end the fossil fuels subsidies benefitting aviation. Another major portfolio has been sustainable finance, a field that saw significant shifts in the EU taxonomy initiative. 2021 saw the introduction of the first Delegated Act enforcing the current **Taxonomy Regulation**, the revision of the Urban Mobility Package and a proposal for a Directive on the substantiation of environmental claims.



As part of the European Year of Rail, UNIFE's Public Affairs team convened high level EU officials and industry stakeholders in February for a panel titled "**Getting on Track: Rail & Energy Efficient Solutions for the EU Green Deal**". This digital event was a prime opportunity to interface on the European rail supply industry contribution to a decarbonised rail transport system and potential down the tracks as the EU ramps up its sustainability efforts.

Swedish MEP
Jakop Dalunde

5) Digitalisation

Throughout 2021, the UNIFE Digitalisation Platform continued to grow. It now brings together 35 UNIFE members, representing the European rail supply industry's entire value chain. The platform serves as an open, dynamic forum for members seeking to successfully drive forward their digital priorities and initiatives. These efforts are critical to shaping the rail industry's vision for the future of mobility.

UNIFE remains committed to bringing the European rail supply industry's views and objectives to the centre of the ongoing digital debate, decisively contributing to these discussions and effectively engaging in a fruitful dialogue with decision-makers and other key stakeholders. UNIFE has released two Vision Papers, "[Digital trends in the rail sector](#)" and "[Rail fit for the digital age](#)", to outline the views, priorities and ambitions of the European rail supply industry in this quickly evolving space that is constantly reshaping our sector's future. In particular, **Big Data**, **Cybersecurity**, **Artificial Intelligence (AI)**, **Multimodal digital services**, **Gigabit connectivity** and **Digital Twins** remain essential focus areas for UNIFE.

UNIFE's Vision Papers for this field also represent the most effective advocacy instrument in view of the digital initiatives that the **European Commission** has initiated this year. Concurrently, the Commission is shaping both a green and digital transition needed to avert the climate crisis and remain competitive as the world increasingly goes online. In March 2021, Executive Vice President of the European Commission for A Europe Fit for the

Digital Age **Margrethe Vestager** and European Commissioner for Internal Market **Thierry Breton** presented their digital masterplan "[Europe fit for a digital age](#)". Cornerstones of the initiative are a new comprehensive Data Strategy and a new regulatory framework for Artificial Intelligence in the EU.

Notably, the Data Strategy aims at creating a single market for data across the EU and a single market for cybersecurity. It also seeks to establish "common European data spaces" across different sectors and industries – including mobility. Unlocking all barriers to datasets sharing and promoting a robust cybersecurity strategy remain crucial priorities for UNIFE. Our association looks forward to engaging with the EU institutions and fellow stakeholders on these topics. UNIFE has proactively worked on the proposal for a Regulation on "[Data Governance Act](#)" and the cybersecurity-related revision of the "[Network and Information Security Directive](#)" (NIS2).

Furthermore, UNIFE will keep following the new "[Regulation for Artificial Intelligence](#)" as it progresses through the decision-making process and we anticipate contributing

on the broad field of "multimodal digital services". In this area, the most important initiative is the revision of the [Intelligent Transport Systems](#) (ITS) Directive, released in December 2021.

UNIFE believes it is vital for the whole sector to maintain its commitment to making digitalisation not merely an objective in and of itself, but rather a means to achieving more ambitious and overriding goals. The activities of the Digitalisation platform are directed towards this end goal and aim to bring the European rail supply industry's views and objectives into the centre of the digital debate.

As part of the **European Year of Rail**, UNIFE organised a special event in April, titled "[Boosting railway digitalisation thanks to EU Research and Innovation](#)", to discuss the contribution of research and innovation to the technological transition towards a digitalised railway sector.

6) Urban mobility

“Citizens require the creation of new mobility paradigms capable of delivering high-quality, accessible-for-all urban and suburban services”.



The global population has tripled over the last 100 years, with over 7 billion people living around the globe today and all forecasts indicating that this number will continue to grow in the decades to come. Urbanisation, coupled with population growth, represents one of the most staggering mega-trends humanity will grapple with in the foreseeable future. Such drastic urbanisation will not be without medium- and long-term consequences. Cities produce the majority of economic activities and output, but they also consume most of the available resources and energy supplies. As mobility plays a decisive role in ensuring growth, economic dynamism and social cohesion within cities and their suburban areas, the objective clearly must be ensuring a fundamental rite of urban living: getting around rapidly and safely.

Today's cities face challenges like increased traffic, diminished air quality, population growth, lack of available space, lowered liveability, tenuous social inclusion, continued health concerns and the incessant need to create economic develop-

ment. Against this backdrop, citizens require the creation of new mobility paradigms capable of delivering high-quality, accessible-for-all urban and suburban services.

Following its first Vision Paper on the topic, *“Urban Rail for the future of cities and metropolitan areas”* (2019), UNIFE has continued its active involvement in ongoing debates on urban mobility and strengthened its partnerships with associations such as **POLIS**, **EUROCITIES** and **UITP**. UNIFE has welcomed the European Commission's initiative to kick-off the revision of the **2013 Urban Mobility Package**. European rail manufacturers look forward to proceeding with this initiative throughout 2022 and towards establishing urban rail at the very heart of urban mobility policies across the EU. To this end, in September, UNIFE participated in the EC public consultation to gather views from stakeholders, and **co-signed** with other associations **a joint statement** that called on the Commission to place active mobility and public transport at the heart of the **Urban Mobility Framework**.



UNIFE and partner associations release joint statement on Urban Mobility framework

7) Skills policy



► Visit the STAFFER website at railstaffer.eu

In November 2020, UNIFE and 32 other partners from across the rail sector and academia officially kicked-off the **Skill Training Alliance For the Future European Rail system** (STAFFER) Blueprint for Skills.

This consortium aims to support an overall sectoral skills strategy and develop concrete actions to address short- and medium-term training needs. The project will last for 4 years, ending in 2024. During its first year, UNIFE has led the both the **policy recommendations work package concerning suppliers' needs** and the **communications work package**, the latter in conjunction with CER. Our efforts have significantly contributed to increased visibility of both this project and our sector's needs at the EU level through targeted dissemination activities.

At the beginning of 2021, UNIFE and CER developed a communication strategy and established a dissemination regime to facilitate widespread information and knowledge transfer

amongst and beyond the members of the consortium. These were outlined, as well as internal processes to ensure optimal cooperation amongst partners, in the "**STAFFER Communications, Dissemination and Exploitation Plan**" (CDEP). Special attention was paid to establishing processes that would ensure that awareness of the project and its recommendations persist beyond the consortium's life span.

On 24 March, UNIFE held a digital event on skills, titled "**Adapting training and attracting talent for the European Rail Supply Industry**", as part of its year-long 2021 European Year of Rail series. It was a welcomed opportunity to discuss the current skills shortage with high-level industry leaders, representatives from the EU institutions and researchers. The occasion was an important juncture to explore the best means of ensuring the accessibility, efficacy and attractiveness of existing skills trainings, as well as **their ability to meet evolving transport needs**. Participants agreed that meeting

these needs was crucial to Europe's ability to develop and deploy the next generation of rail needed to deliver the dual green and digital transitions that has been a cornerstone for this Commission. The discussion was an important opportunity to showcase our association's important skills and training initiatives, chiefly STAFFER but also the earlier **Hop On** campaign and continued advocacy for increased need for skilled professionals in an evolving work force. Principally, UNIFE shared our efforts to raise awareness of exciting careers in rail and reforming curricula across the Union.

For more information, please visit STAFFER's dedicated [website](http://railstaffer.eu).

Launched at the end of April 2021, the site hosts the Blueprint's deliverables, provides activity updates, resources for those wishing to engage with training programmes and more.

03

International Affairs

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1) Global leadership and the level playing field: continuing to advance the interests of the European Rail Supply Industry



UNIFE European Year of Rail Factsheet on establishing a level playing field

In the midst of the pandemic-induced economic crisis and increasing protectionist trends, UNIFE has continued to advocate for a level playing field and fair competition among rail supplier, both in Europe and worldwide, through various activities. Our association also communicated the industry's assets to show how its work makes a significant difference today.

In February, following a public consultation in which UNIFE participated, the **European Commission** published its Communication on the **review of the EU Trade Policy**, titled "[*Trade Policy Review - An Open, Sustainable and Assertive Trade Policy*](#)". As the COVID-19 pandemic raged, the world saw the continued rise in unilateralism, increased uncertainty and intensifying competition from China. With this in mind, the communication addresses the medium-term – looking to 2030 – objectives of the EU's trade policy and defines the concept of "open strategic autonomy". The Commission also mentioned new legal and autonomous instruments to be proposed in the next months.

In April, UNIFE organised a virtual meeting between **Michael Hager**, Head of Cabinet of Executive Vice-President in charge of 'An Economy that Works for People' and Trade Commissioner **Valdis Dombrovskis**, and **Henri Poupart-Lafarge**, Chairman and CEO of Alstom and UNIFE Chair. The objective of the call was to present Mr. Hager the current trade challenges faced by the European Rail Supply Industry, both domestically and internationally, and convey UNIFE's stances concerning the main trade dossiers.

In the framework of the **European Year of Rail**, UNIFE published [*a factsheet on world markets*](#) to provide policy makers, industry leaders and the wider public with information on the world rail market and our industry's export data. Specific focus was paid to success stories, such as the **European Rail Traffic Management System (ERTMS)** which became a truly global standard.



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REGISTER NOW!

UNIFE Online Event
"Levelling the playing field to maintain the global leadership of the European rail industry"
31 May, 10.00-11.30 (CEST)

unife
www.unife.org

Twitter: @UNIFE LinkedIn: UNIFE - The European Rail Supply Industry Association

UNIFE's European Year of Rail digital event on a global level playing field

To the same end, UNIFE organised an online event called *"Levelling the playing field to maintain the global leadership of the European rail industry"*. The virtual discussion examined Europe's global rail leadership and how it can ensure fair competition for suppliers operating in the European and international rail markets. The event featured prominent speakers from the European Commission, **European Parliament** and the **Portuguese Presidency of the Council**, as well as academics and industry speakers.



2) The International Procurement Instrument (IPI)

As the 2020 World Rail Market Study reported, world-wide market accessibility has fallen to only 62% - compared to 63% in 2018. This trend is even more worrying as the current economic crisis linked to COVID-19 is expected to intensify that protectionist trend. Therefore, it is more urgent than ever for the European Rail Supply Industry to have a robust tool as it attempts to open world procurement markets.

2021 was a crucial year for discussions on the IPI, bringing us closer to the end of the legislative process:

- In June, an agreement was finally reached among Member States after 9 years, thanks to the tremendous efforts of the Portuguese Presidency of the Council.
- The European Parliament has actively resumed its work on the file under the leadership of the International Trade Committee (INTA), with important com-

petences of the Internal Market Committee (IMCO) aiding their progress. The Parliament voted on its position at the end of the year, opening the way to trialogues and the file's finalisation in 2022 during the french presidency.

UNIFE has continued to engage on public procurement through the **AEGIS Europe** trade coalition, and chaired its Working Group on Public Procurement. Throughout the year, our efforts redoubled to **ensure an ambitious and actionable agreement both in the European Council and Parliament.**

More than ever, the support of the entire rail supply industry - especially at the national level - is crucial to finalising negotiations on this much-needed instrument as soon as possible.



European Commissioner
for Trade Dombrovskis

3) Instrument on foreign subsidies

Last spring, the Commission adopted a proposal for a Regulation on foreign subsidies distorting the internal market. The legislative proposal follows the publication of the “[White Paper on levelling the playing-field as regards foreign subsidies](#)”, published in June 2020.

With this initiative, the Commission acknowledged for the first time that there is a growing number of instances within the EU in which foreign subsidies have distorted market operations, or bidding in public procurement, to the detriment of EU companies. Subsequently, the Commission made a proposal to fill in existing regulatory gaps regarding competition, public procurement, investment and others.

The Regulation would grant the Commission the power to investigate financial contributions granted by non-EU governments to companies active in the EU. If it finds that such financial contributions constitute distortive subsidies, it could impose redressive measures.

UNIFE has been extremely active on this file, especially through the like-minded AEGIS Europe, the alliance representing 23 key industries aiming to promote manufacturing investment, innovation, jobs and growth in Europe.



UNIFE position paper on the effects of foreign subsidies distorting the internal market



AEGIS Europe comments on the Commission's proposed regulation of distortive foreign subsidies



Trade relations between the EU and China

In recent years, UNIFE members have encountered increasing barriers as they attempted to operate in China. According to the 2020 [*World Rail Market Study*](#), China's rail market accessibility has reached a record low of 17%. Not only are some market segments now effectively closed to foreign suppliers, but additional constraints like non-transparent public procurement procedures and expanding localisation requirements are regularly imposed by contracting authorities in the few areas that remain accessible. The introduction of an **Autonomous Recommendation List of Equipment** in the urban transport market could create further market barriers for foreign enterprises seeking to enter their urban transport market on an unequal footing.

The **EU-China Comprehensive Agreement on Investment (CAI)** was concluded in principle on 30 December 2020. The text, schedules of commitments and annexes were published in the following months.

Our association has also continued to monitor China's ongoing efforts to join the **WTO Agreement on Government Procurement (GPA)**. UNIFE and the AEGIS Europe coalition continue to defend certain necessary pre-conditions for China's successful entry to the WTO GPA.

Simultaneously, Chinese state-owned enterprises have become increasingly powerful players in all product segments and on all continents, often profiting from unfair competition. Against this background, UNIFE has closely monitored the situation through several initiatives – confirming important shifts in numerous dossiers throughout 2021. In particular, UNIFE continues to monitor developments related to the **EU-China Connectivity Platform**, which aims to enhance synergies between China's "**Belt and Road Initiative**" (BRI) and the EU's connectivity initiatives, including the newly proposed **EU Global Gateway strategy favouring a Teams Europe approach**. By joining **Business at OECD**, UNIFE is also party to various work streams tasked with addressing trade distortions and imbalances.



Trade relations with the United Kingdom

On 31 January 2020, the United Kingdom withdrew from the European Union, commencing a transition period during which EU law continued to apply to the United Kingdom until 31 December 2020.

The **EU-UK Trade and Cooperation Agreement (TCA)** entered into force in January 2021. The agreement was reached on 24 December 2020, after several months of difficult negotiations on the future relationship.

Throughout the negotiations, UNIFE has been active as it sought to ensure as few disruptions as possible in the current trade flows between the EU and the UK. We also called for an elevation of the UK with respect to public procurement. While the overall results for the European Rail Supply Industry seem satisfactory, the TCA will need to stand the test of time, in particular on practical issues that companies can face when exporting on respective markets.

4) Monitoring of existing trade agreements

Throughout the year, UNIFE team has continued to monitor existing trade agreements of importance to the European Rail Supply Industry. In this respect, an impor-

tant meeting was held in January with Denis Redonnet, Chief Trade Enforcement Officer (CTEO) and Deputy Director General of DG TRADE.



EU-Japan economic partnership agreement

After years of negotiations, the **EU and Japan's Economic Partnership Agreement (EPA)** entered into force on 1 February 2019. However, the EPA only opened the procurement of goods and services covered by the **Operational Safety Clause (OSC)** in the **WTO Agreement on Government Procurement** to EU suppliers from 1 February 2020. The OSC was a major non-tariff barrier that allowed opacity and discrimination in procurement from Japanese rail operators.

UNIFE welcomed this agreement as it provides European rail suppliers with satisfactory guarantees on public procurement. But **in practice, the Japanese rail market continues to lack transparency and openness towards European suppliers**. It is crucial that the Commission maintains pressure on its Japanese counterparts, as well as support activities as outlined in the 2020 [*Guide for EU Suppliers on Government Procurement in Japan*](#), to ensure that a level playing field in this important rail market.



EU-South Korea Free Trade Agreement

Despite the existence of a Free Trade Agreement between South Korea and Europe since 2011, there are currently many obstacles related to public procurement, technical aspects and government support that impede access to the South Korean rail market for European suppliers. This shortcoming is also due to the fact that this deal was less ambitious than the more recent generation of trade agreements.

UNIFE continues to actively collaborate with DG TRADE to ensure a level playing field and degree of reciprocity in procurement relations. UNIFE updated its position on this topic in April to reflect the current realities faced by our members in this area.

5) Carbon Border Adjustment Mechanism (CBAM)



UNIFE position paper on the Carbon Border Adjustment Mechanism (CBAM)

This past July, the European Commission proposed a *[“Regulation on a Carbon Border Adjustment Mechanism”](#)* (CBAM) to tackle the risk of carbon leakage and ensure that the price of imports more accurately reflects their carbon content. This initiative is part of the **European Green Deal** and was presented as one piece of the **“Fit for 55”** package, announced in 2021. It followed a public consultation from July 2020, in which UNIFE participated.

In November, UNIFE reacted to the proposed Regulation with a position paper which was also submitted as

part of a public consultation. While UNIFE stressed its support of the stated objective to establish a level playing field on carbon content and avoid carbon leakage, it also highlighted the significant risks for the competitiveness of downstream industries like rail supply. UNIFE stressed that the CBAM should be applied to the emissions of the complete product value chain before such product is imported into the EU. Finished products, such rail rolling stock and equipment, should have the possibility of being included in the CBAM as soon as possible.

UNIFE stressed its support of the stated objective to establish a level playing field on carbon content and avoid carbon leakage, it also highlighted the significant risks for the competitiveness of downstream industries like rail supply.

6) Organisation for Economic Co-operation and Development (OECD)



The OECD is an important international body that works on establishing evidence-based international standards and generating policy solutions to social, economic and environmental challenges which are increasingly relevant for our industry. In 2020, UNIFE joined **Business at OECD** – formerly, BIAC – which represents the leading business federations in OECD countries and over 7 million private businesses across all sectors.

a) Measuring distortions in international markets

UNIFE has been particularly active in advocating action at OECD in the work stream focussed on levelling the playing field. As a result of its efforts, rail rolling stock will be the focus of the next sectoral

report on measuring distortions in international markets. This report, expected to be released in 2022, will be a major source of information regarding confronting unfair foreign subsidies.

b) Arrangement on officially supported export credits and the Rail infrastructure Sector Understanding (RSU)

The revision and extension of the **Rail infrastructure Sector Understanding (RSU)** was on the table at last year's meeting of **Participants' to the OECD Arrangement**. **The messages advocated by UNIFE were successfully taken on board.** More specifically, the RSU's sunset clause was extended until 31 December 2023, while the share of local costs of export contract value has been increased by 50%. This enables the rail industry to benefit from a more efficient tool for the provision of competitive financing solutions. Nevertheless, UNIFE continues to insist on the modernisation of the whole Arrangement and the necessity to actively promote it towards international trading partners to achieve a level playing field for both market access and export conditions.



In October 2021, UNIFE submitted a new position paper to the **Business at OECD (BIAC)** Export Credit Committee and the Organisation's Export Credit Working Group in view of their annual meetings on how to best incentivise climate-friendly and sustainable projects. With the green transition well under way, OECD members are discussing how to engage **Export Credit Agencies (ECAs)** to



provide stronger support for green transactions and projects. To this end, UNIFE considers making use of a common comprehensive classification method to define and, thus, identify climate-friendly industry sectors and projects will be a fundamental practice. The aforementioned position paper includes a set of proposals ranging from the development of comprehensive standard methodology and rules for ECAs aligned with the Paris Agreement to preventing distortions of a potential level playing field, capturing ECAs' climate risk exposure, providing more flexibility with repayment terms and local costs for green projects, and lowering risks premiums.

In parallel, the **European Commission**, in its March communication titled *"Trade Policy Review - An Open, Sustainable and Assertive Trade Policy"*, announced that "in order to ensure a better level playing field for EU businesses on third country markets, in which

they increasingly have to compete with the financial support foreign competitors receive from their Governments, the Commission will explore **options for an EU strategy for export credits**. This will include an **EU export credit facility** and enhanced coordination of EU financial tools".

UNIFE has many expectations from this initiative because, according to the Commission, "it will also incentivise climate friendly technology projects and propose to immediately end support for the coal-fired power sector, and to discourage all further investments into fossil fuel-based energy infrastructure projects in third countries".

7) Bilateral cooperation with third countries



UNIFE Director General Philippe Citroën



Cooperation with Gulf Countries (GCC-SG)

The Gulf region remains a priority market for the European rail supply industry as it is expected to grow by 1.7%, as outlined in the 2020 World Rail Market Study¹. Since 2014, UNIFE has worked to build a solid relationship with the **Gulf Cooperation Council Secretariat General (GCC-SG)**, which oversees economic developments in the region. Our organisations codified our cooperative intentions in December 2017 with the signing a Memorandum of Understanding (MoU).

UNIFE Director General **Philippe Citroën** and Head of Public Affairs **Jonathan Nguyen** once again participated in the annual Middle East Rail Conference, which took place on 12-13 October in Dubai. They presented the European Green Deal and related initiatives, as well as the European Rail Supply Industry's vision on best value procurement – also known as the **Most Economically Advantageous Tender principle (MEAT)**. UNIFE also used this opportunity to hold bilateral meetings with the Gulf Cooperation Council Secretariat General and its member companies.



Cooperation with Russia (NP UIRE)

Throughout 2020, UNIFE has also maintained close contacts with its Russian counterpart, the **Union of Industries of Railway Equipment (NP UIRE)**. While exchanges on the regulatory framework and processes for authorisation have continued, a joint event on automatic train operation (ATO) was organised in February.

The Commonwealth of Independent States (CIS) region continues to be an important and attractive market for the European Rail Supply Industry, with an expected growth of 1.7% in the coming years².

¹ Compound annual growth rate 2021-2023 vs. 2015-2017; UNIFE 2020 World Rail Market Study.

² Compound annual growth rate 2021-2023 vs. 2015-2017; UNIFE 2020 World Rail Market Study.



IRIS General Manager Bernard Kaufmann at UNIFE's APTA TRANSform Expo booth



Relations with American Public Transportation Association (APTA)

Despite the pandemic, UNIFE has maintained consistently solid relations with our counterparts in North America. Given the challenges both our regions have experienced due to the virus, UNIFE and the **American Public Transportation Association (APTA)** have decided to hold regular exchanges on COVID-19's impact on our respective markets and potential policy support measures. This has allowed UNIFE to participate in raise its presence in North America and directly converse with representatives from major transport authorities such as New York's **Metropolitan Transportation Authority** and Boston's **Massachusetts Bay Transportation Authority** at APTA's 6 June **Rail Conference**. Our close ties with APTA were also particularly helpful in engaging directly with the United States' **Federal Railroad Administration (FRA)** on 2 July on the importance of expanding rail service in

a sustainable manner that recognises the need for a level playing field, crafted in part by bilateral leadership in international standardisation bodies. UNIFE was fortunate enough to represent the European Rail Supply Industry at the **2021 APTA TRANSform Conference and Expo** in Orlando this past November. This opportunity provided us the opportunity to share about Europe's path towards decarbonised transport, the importance of instilling a culture of quality in rail through IRIS and more.

The North American rail market - composed of the US, Canada and Mexico - is forecasted to experience 2.5% growth in the coming years³. Important projects such as the California High-Speed Rail, Mexico's Tren Maya and the expansion of the Toronto network are expected to define this period.



Cooperation with US Railway Supply Institute (RSI) and the Canadian Association of Railway Suppliers (CARS)

Throughout 2021, UNIFE also worked to deepen its cooperation on trade and fair competition with the US Railway Supply Institute (RSI) and the Canadian Association of Railway Sup-

pliers (CARS), in a bid to raise the Rail Supply Industry's international visibility and awareness of the challenges it faces due to subsidised, state-owned competitors.

³ Compound annual growth rate 2021-2023 vs. 2015-2017; UNIFE 2020 *World Rail Market Study*.



04

STANDARDS & REGULATION

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1) Overview

As the official representative body for the European rail supply industry, UNIFE coordinates the contributions and position of its members towards the development of regulations, decisions, guidelines and other documents drafted by the **European Union Agency for Railways (ERA)** and the **European Commission (EC)**. the **Technical Specifications for Interoperability (TSIs)**.

The UNIFE **Standards and Regulation Group (SRG)** and its supporting UNIFE technical working groups are platforms for members to influence technical regulations that relate to the interoperability and safety of the European railway system. UNIFE has actively participated in numerous working parties and groups organised by the European institutions to support the drafting of the aforementioned outputs. The SRG plays a pivotal

role in coordinating UNIFE's technical stances on the implementation of the EU's 2016 **Fourth Railway Package (4RP)** and 2022 Revision of the Technical Specifications for Interoperability (TSIs).

SRG also interacts with other rail associations, such as **CER**, **EIM**, **UIP** and **NB-Rail**, as well as other stakeholders in Europe's rail sector through participation in the **Group of Representative Bodies (GRB)** and the **European Standardisa-**

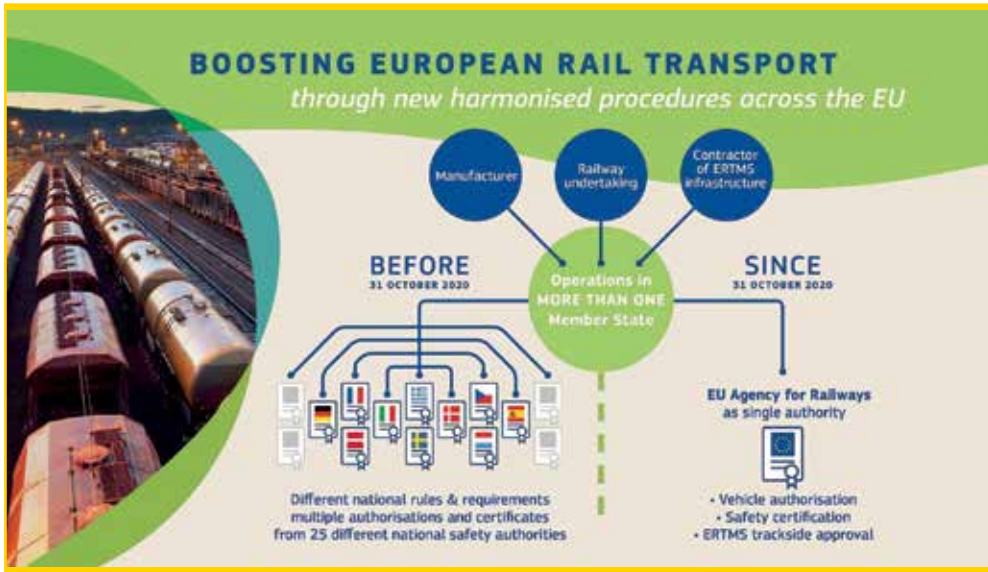
tion Organisations (ESO) - particularly, **CEN** and **CENELEC** - through the **Sector Forum Rail (SFR)**.

As an observer on both the **ERA Management Board** and **ERA Executive Board**, UNIFE Director General Philippe Citroën regularly attends these meetings to express the association's commonly held positions on important topics such as ERA's annual work programme and ongoing activities supporting 4RP's implementation.

a) 2021's key developments in rail standards and regulations

1. Implementation of the Fourth Railway Package's Technical Pillar

The 4RP's Technical Pillar is comprised of the reworked *Interoperability and Safety Directives* and the *ERA Regulation*, which entered into force on 15 June 2016 and provided Member States with a three-year transposition period, a possible one-year extension upon request and later a further actionable extension until 31 October 2020 due to inconveniences caused by the COVID-19 disruption. Since 31 October 2020, the Technical Pillar has been in operation in all Member States. As such, 2021 was its first full year in effect, allowing all stakeholders from the railway sector, including the ERA and all the **National Safety Authorities (NSAs)**, to experience of the Fourth Railway Package regime. Starting from 16 June 2019, ERA has acted as a European authorising entity and delivered over 2300 vehicle authorisation decisions - representing over 26.000 authorised rail vehicles.



UNIFE's focus this past year has been collecting feedback on the new processes in an attempt to ensure lessons learnt are shared, issues resolved and agreements reached where further enhancements can be made to streamline the new system. A harmonised European authorisation process ran by the newly fortified ERA should result in a convergence and greater certainty of requirements, leading to a more consistent, quicker and cheaper vehicle authorisation process with less duplication of checks and testing. With the entry into operation of the Technical Pillar in all Member States at the end of 2020 and now over two years of experience at ERA, the activities to review the implemented processes and define recommendations to enhance the them to achieve the expected cost and time saving goals has begun.

Vehicle authorisation
 harmonisation
 under 4RP

Image source
 © European Commission

This review is led by **4RP Steering Group**, of which UNIFE is member and has provided the detailed feedback from the European rail supply industry. Important aspects remain to be solved, including the finalised clean-up of *Notified National Technical Rules*, development of the ERA IT tools and improvement to the “conformity-to-type authorisation” concept. Close attention will be paid in the coming year to ensuring the full delivery of the Fourth Railway Package's expected benefits.

Finally, UNIFE continues to raise awareness and greater understanding of the changes within the European rail supply industry currently being implemented under this new framework. Our association strongly supported the Technical Pillar's adoption, which we see as of paramount importance for the rail industry's competitiveness as it removes the remaining technical barriers to the creation of a **Single European Rail Area** (SERA).

2. Revision of the 2022 Technical Specifications for Interoperability

On 24 January 2020, the EC sent a request to the ERA for the preparation of the 2022 *Digital rail* and *Green freight TSI* Revision package. This package is intended to align the TSIs' contents with the EC's high-level policy goals. In 2021, the ERA Working Parties and **Topical Working Groups** (TWGs) have been focused on the preparation of the next revision of TSIs, with the new full package scheduled for vote and publication at the end of 2022 or early 2023.

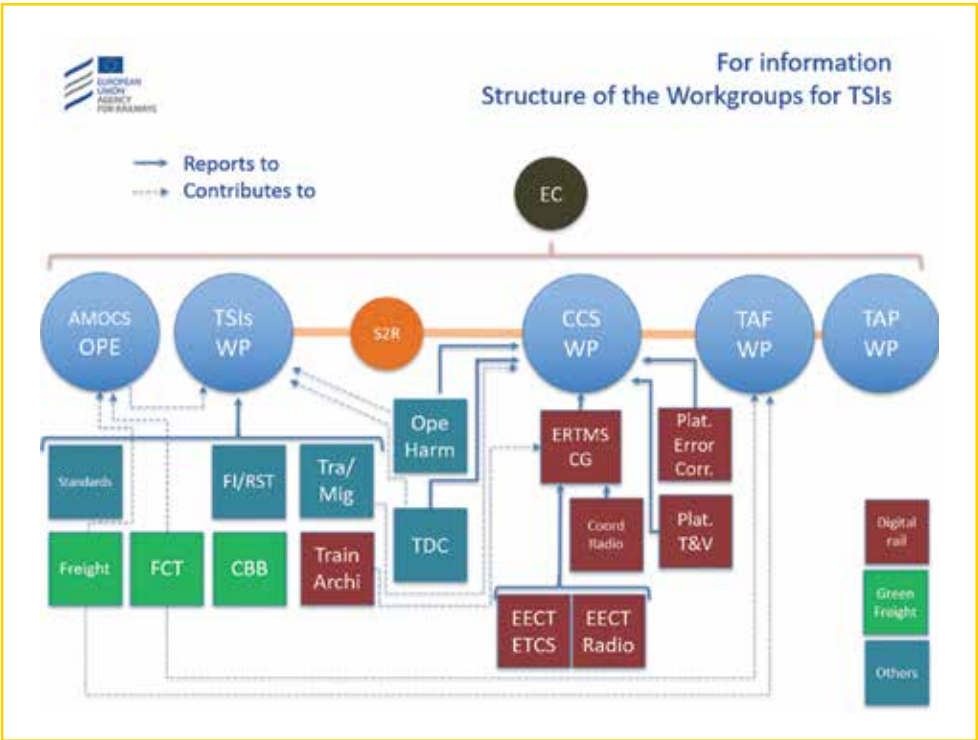
UNIFE has adapted its internal consultation processes with its committees and technical working groups to best follow and contribute to the new revisions. We are a member of the ERA Working Party on the revision of TSIs which acts as the steering group for all such activities and has experts nominated to each of the activated TWGs. Within our association, the Working Party on the revision of TSIs is followed by the SRG, which coordinates the rail supply industry's response, nominates experts within the TWGs and cooperates with the other UNIFE committees when appropriate. The activities of each TWG, where the detailed TSI revision proposals are developed, are consulted by a combination of the existing UNIFE technical working groups depending on the change request subject.

UNIFE's goal is to ensure that the necessary evolution of the technical regulation and standards framework is carried out in a way that will improve the competitiveness of the European Rail Supply Industry, support the harmonisation and transparency of technical rules in Europe while facilitating the development and authorisation of rail products.

The Working Party held eight meetings on the TSI revision in 2021 to monitor the activities of the TWGs and review change request proposals. Meetings will continue to be held frequently in 2022 as the final outputs and TSI text proposals are delivered by each of the TWGs to finalise ERA's recommendation to the EC by June.

ERA Technical Working Groups structure

Image source: European Union Agency for Railways (ERA)



3. Revisions of TSI Transitions within the TSI 2022 Package

Concerning the TSI 2022 revision package, one of UNIFE's priorities is the review and expected amendments to the transitional provisions required to provide the European rail supply industry with stability for individual railway projects while regulations, standards and innovations continue to evolve. This process, led by the **ERA TWG on Migrations and Transitions**, has been closely followed by the UNIFE SRG and **Vehicle Authorisation Mirror Group**. In 2021, UNIFE published a position paper, titled "[TSI Transitions for a Competitive European Railway Sector](#)", outlining the European rail supply industry's stances on the transitional provisions needed to support the planning and competitiveness of long-term rail projects and delivery of vehicle types. Increased stability and predictability of the European technical framework and TSI transitions is a priority for our industry. The sector must benefit from today's TSI maturity – especially regarding interoperability, safety and market-driven product innovations. This past year, UNIFE launched several actions at the European and Members State levels to promote this position paper and

alert relevant stakeholders of the importance of regulatory stability for the competitiveness of the European rail supply industry.



[TSI Transitions for a Competitive European Railway Sector](#) position paper



4. European Commission Expert Group on the Technical Pillar of the Fourth Railway Package

UNIFE is a permanent member of the EC's **Expert Group on the Technical Pillar of the Fourth Railway Package**, alongside Member State and other official sectoral representative bodies. This group is intended to consult the sector on legalisation to be voted on, give recommendations on draft texts and help prepare discussions and votes to be held in the **Railway Interoperability and Safety Committee (RISC)**. This Expert Group is intended to complement - but not replace - the RISC, which only allows Member State representatives to vote on the final Implementing Acts.

One meeting of the EC Expert Group on the Fourth Railway Package was held in 2021. Its agenda included a discussion on proposed updates to the Fourth Railway Package Fees & Charges and TSI revision planning. UNIFE took the opportunity to also instigate talks with the Member States on the priorities identified by the industry, namely about the risks associated with the TSI Transitions revision and ETCS Baseline 2 updates within authorisation projects.

Throughout the year, our association has called on the European institutions and Member States to make available the necessary support, funding and resources for ERA from 2022 onwards. This work was a consequence of the EU's decision to reduce its contribution to the agency's 2021 budget. This resulted in significant constraints on its activities during the once-in-a-generation **European Union Year of Rail** campaign. UNIFE considers an increased ERA budget a necessity to match its expectations and ambitions, allowing the organisation to perform its key role in the development of the Single European Railway Area and achievement of the EU Green Deal objectives.

A further consequence of the resource and budget constraints that ERA experienced this year has been the 2021 amendment to *Implementing Regulation (EU) 2018/764* on the Fourth Railway Package fees and charges payable to the agency. Within the EC Expert Group and EC public consultation on this topic, UNIFE highlighted the need to provide sufficient resources to ERA and optimise the new vehicle authorisation process if the original 4RP objectives are to be achieved. Our association also called for steps to be taken to reduce the time and efforts needed per application.

5. UNIFE High-Level Dialogue with DG MOVE and ERA on the Implementation of the Technical Pillar of the Fourth Railway Package

UNIFE has established a high-level dialogue between **DG MOVE's** Directorate C, ERA management teams and UNIFE members at the CTO level on the implementation of the Technical Pillar of the Fourth Railway Package. These meetings have sought to jointly and closely monitor the final implementation activities of the Fourth Railway Package as it entered operation at ERA in June 2019 and to identify common actions to ensure the smooth transition to the new regime. Discussions have covered areas such as the new vehicle authorisation processes and requirements, the development of the related ERA IT tool, the TSI amendments and the clean-up of notified national technical rules.

These meetings resumed in 2021 to continue exchanges on the return of experience with the new vehicle authorisation regime and provide feedback between participants. They provided an opportunity to share lessons learnt, identify areas for continued improvement and agree on practical measures to facilitate the authorisation applications and process. Discussions in these meetings also cover the development and application of TSIs for both the 2022 revision, and beyond, towards the European railway target system. Regarding the 2022 TSIs, UNIFE highlights the necessity for transitional provisions that provide the rail supply industry with stability for individual railway projects while the regulations,

standards and innovations continue to evolve. Beyond 2022, UNIFE calls for an optimisation of the current TSIs and complex technical framework to provide a leaner and more competitive system for the European railway sector.

For more information on the Fourth Railway Package and TSI revisions, please contact UNIFE Technical Affairs Manager Nicholas Shrimpton at nicholas.shrimpton@unife.org.



6. Cooperation with the Group of Representative Bodies (GRB)

As the official association of Europe's rail suppliers, UNIFE is a member of the **Group of Representative Bodies (GRB)**. The GRB is a group of European railway associations tasked with supporting the sector's consultations with the **European Union Agency for Railways (ERA)** as it composes its work programme and its activities on rail safety and interoperability.

The GRB has continued to be highly active throughout 2021, with particular focus paid to the return of experience concerning the Fourth Railway Package, the revision of the TSIs for 2022 and the budget and functioning of ERA. A number of joint positions relating to regulation and standardisation have been adopted by the GRB and submitted to the EC, ERA and Member State representatives. The GRB also continues to closely follow all ERA activities and the delivery of its work programme.

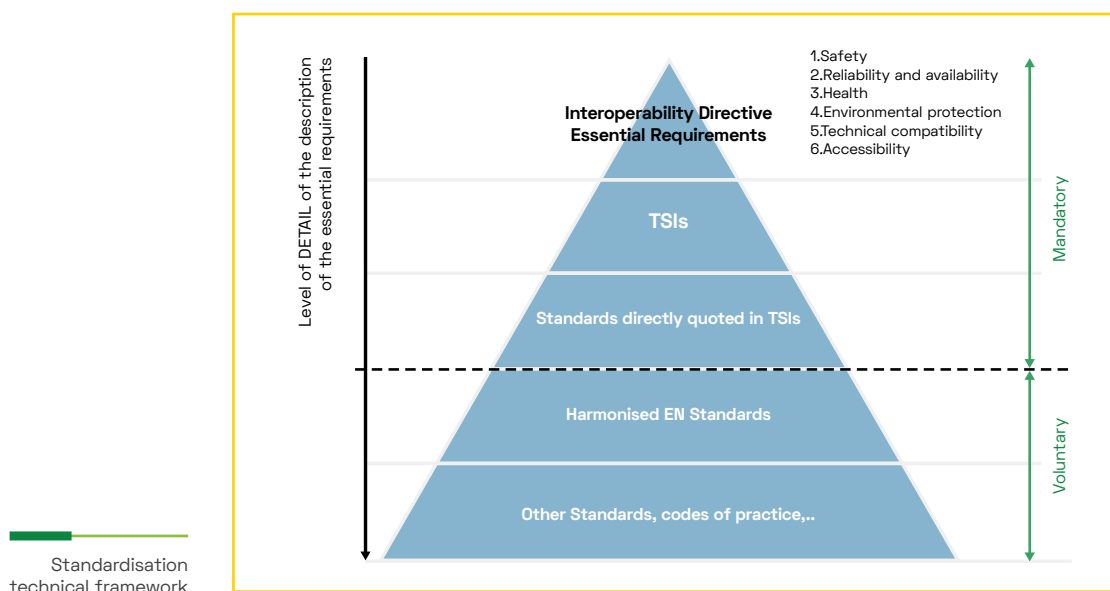
Since January 2019, Mr **Christian Rausch**, member of UNIFE's **Standards and Regulation Group (SRG)**, has also served as the GRB's chair for a two-year mandate. At the end of 2020, the GRB supported the renewal of his mandate until 2022. Strong leadership and cooperation among all stakeholders have been vital during the final stages of the Technical Pillar's implementation and the preparation of the revised TSI package for 2022.

Please contact UNIFE Technical Manager Nicholas Shrimpton and David Kupfer to learn more. They are reachable at nicholas.shrimpton@unife.org or david.kupfer@unife.org.

For further information on GRB, please visit grbrail.eu

2) UNIFE involvement in Standardisation

Standardisation is extremely important for our industry, leading many UNIFE members to be involved in both European and global standardisation proceedings through their respective national bodies. UNIFE provides a platform for its members to coordinate their standardisation advocacy and build consensus on our industry's priorities in this area. UNIFE's **Standards and Regulation Group (SRG)** is responsible for monitoring developments in both regulation and standardisation, the complete technical framework of which is represented in the figure below. The careful coordination of activities in both areas is required to ensure that the work carried out by European institutions and ESOs is complementary and improves the rail sector's functioning and competitiveness.



To support the efforts of its members at the national level, UNIFE has established close links with relevant **European Standardisation Organisations** (ESOs), namely **CEN** and **CENELEC**. Our association works closely with the Commission, who sets the policy framework for European level standardisation, and the **CEN-CENELEC Management Centre**, which coordinates the activities of both organisations.

UNIFE also participates in **Sector Forum Rail** (SFR), formerly known as the **Joint Programming Committee Rail** (JPC-R). The SFR facilitates discussions between the CEN-CENELEC Management Centre and representative bodies on the sector's standardisation priorities.

At the global level, UNIFE holds A-Liaison status for the **International Standardisation Organisation's** (ISO) **Rail Technical Committee 269** (ISO TC 269). This enables us to take part in the committee's regular meetings.

UNIFE is also a member of the **Rail Standardisation Coordination Platform for Europe** (RASCOP). Initiated by the European Commission in 2016, the platform brings together parties involved in the planning and development of railway-related legislation, standards and technical documents in Europe. It also works to coordinate all activities related to the development of European standards and other related technical documents that are relevant to the railway sector. The platform is chaired by the Commission's Directorate-General for Mobility and Transport (**DG MOVE**) and is supported by ERA.

In 2021, UNIFE initiated the development of a rail sector vision on international standardisation that brings together the views of different rail sector organisations on international standardisation. Based on the UNIFE position paper on international standardisation, published in March 2020, a dedicated group at GRB was able to establish a common position supported by the associations **NB-Rail**, European Rail Infrastructure Managers (**EIM**), Union internationale pour le transport combiné Rail-Route (**UIRR**), International Union of Wagon Keepers (**UIP**), and UNIFE. This position will be the basis of further discussions with the Commission and with CEN and CENELEC on the strategic importance of international standardisation for the European industry.

Furthermore, UNIFE has relaunched our cooperation with urban transport operators on standardisation through the **Urban Rail Platform**, a forum driven by UNIFE and the International Association of Public Transport (**UITP**). The platform aims to support standardisation in urban rail and provide its members with a forum for discussing matters related to regulation and Research & Innovation (R&I). In 2021, a subgroup on standardisation for urban rail was launched to identify standardisation priorities for the urban rail sector. The group focusses on taking stock of existing initiatives and prioritizing between different needs identified through previous activities such as the urban rail standardisation mandate m486.



For more information on the UNIFE's Standardisation activities, please contact UNIFE Technical Affairs Manager David Kupfer at david.kupfer@unife.org.

3) UNIFE Technical Working Groups

UNIFE **Technical Working Groups** support the association’s work on standardisation, regulation and research. The overall coordination is done by the responsible our association’s committees. There are two types of Technical Working Groups at UNIFE:

The SRG supervises the UNIFE Technical Working Groups and periodically reviews their activities to ensure that they operate in line with our overall standards and regulation objectives.

UNIFE Mirror Groups (MG)

These are temporary groups which are active during the drafting and revision of regulations and TSIs. They mirror ERA’s working groups where UNIFE delegates participate as official representatives of the European rail supply industry.

UNIFE Topical Groups (TG)

Topical groups follow specific topics, mainly related to standardisation and research activities.

1. UNIFE Mirror Groups (MG)

Vehicle Authorisation Mirror Group (VA MG)

The UNIFE **Vehicle Authorisation Mirror Group** was established to follow the development of the *Implementing Regulation (EU) 2018/545*, establishing practical arrangements for the railway vehicle authorisation

and railway vehicle type authorisation process, pursuant to *Directive (EU) 2016/797*. Since the **Fourth Railway Package’s** (4RP) and the new European vehicle authorisation process entry into operation in June 2019, the UNIFE VA MG has been the main group providing feedback of its application at the



expert level. Their experiences and lessons learnt, shared in this group, have led to further clarifications and identified areas for improvements have, in turn, been communicated with ERA and the Commission in the **4RP Steering Group** with the final goal of streamlining the 4RP processes.

The VA MG is also the nominated UNIFE group following the ERA TWG on Migrations and Transitions, which has been working on the revised transitional provision in the upcoming 2022 TSI package. This subject is of high priority for UNIFE as it aims find the balance between the needs for the TSI and rail

project stability and the TSI and target system evolution.

The mirror group has also provided additional input regarding TSI 2022 change requests impacting vehicle authorisation and proposals for the update to the Implementing Regulation (EU) 2018/545 guidelines in 2022.

For more information, please contact UNIFE Technical Affairs Manager Nicholas Shrimpton by email at nicholas.shrimpton@unife.org.



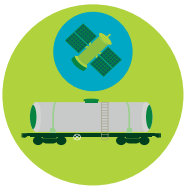
Safety Assurance Working Group (SafAssu MG)

The **Safety Assurance Working Group** (SafAssu MG) supports ERA's work on the *Railway Safety Directive*. It also assists the SRG and other working groups with expertise on risk assessment and the application of the *Common Safety Method (CSM) Regulation (EU) 402/2013*.

In 2021, this mirror group continued to elaborate the industry position within multiple ERA working groups focusing on railway safety. This included providing inputs for the *ERA guidelines on the entities in charge of maintenance (ECM) Regulation (EU) 2019/779* – namely concerning the development of the “safety critical components” concept as introduced

by the revised Safety Directive and the related ERA guidelines on the ERA **Safety Alert IT Tool** (SAIT). The mirror group monitored the development of the **Common Safety Methods** for the assessment of safety levels and safety performance of operators at both the National and European Union level (CSM ASLP) to ERA. Additionally, this group coordinates UNIFE's positions pertaining to the numerous ERA activities on human and organisational factors and safety culture.

For more information, please contact UNIFE Technical Affairs Manager Nicholas Shrimpton by email at nicholas.shrimpton@unife.org.



Telematic Application for Passengers and Freight Working Group (TAP/TAF TSI MG)

UNIFE members have long been involved in several EU activities on interoperability. In 2021, their work focused on freight and passenger subsystems TSIs, finalising the 2022 revision cycle process. The last revised version of TAF TSI was launched in January 2021. A new schema for the TSIs Revision has also been introduced and the work on the 2022 *TAF/TAP TSI Revision*, which got underway in October 2020. The inputs provided by UNIFE members in 2021 were especially focusing on the merging of TAF and TAP TSI into one technical specification called the *RU-IM Communication* and a separate retail TAP TSI. This process was not completely clear,

but significant progress was made towards creating a modern TAF/TAP TSI. UNIFE's role in the TSI's 2022 Revision cycle was to lead the subgroup dealing with the revision of its glossaries. This challenging work within the **TAF/TAP TSI Joint Sector Group** was successfully finished. Currently, the revised text of the Regulations is in the final stage of approval following the social consultations. Currently, the revised text of the Regulations is in the final stage of approval following the conclusion of the social consultations, which were completed in November 2021.

UNIFE was even more involved in this iteration of the revision process than it was in the previous one. The *Electronic freight transport information (eFTI) Regulation and also the*

Timetable Redesign (TTR) process had a great impact on the overall work. Change management and monitoring of the TAF/TAP TSI implementation continuously followed the revision, as did finalising the implementation plans of the various actors. UNIFE also contributed to the preparatory phase of the **Connecting Europe Facility 2** (CEF 2) programme proposals within the sector. At the moment, ideas for a common CEF2 project proposal on TTR is being discussed, for which the submission deadline is 19 January 2022.

The implementation process continued successfully with UNIFE members carrying on their work establishing TAF TSI in CEF 2 projects or through their engagement as suppliers of individual projects submitted by

Railway Undertakings (RUs) or Infrastructure Managers (IMs).

The working group has also been dealing with the cybersecurity topics and new TAF/TAP TSI system architecture, which centre on the CDM and **LinX4Rail** Shift2Rail project. UNIFE members are considered significant actors in the TAF and TAP TSI sector community and have contributed to preparing both the rail industry and the entire transport sector for increasing competition in the coming years.

For more information, please contact UNIFE Technical Affairs Manager Stefanos Gogos by email at stefanos.gogos@unife.org.

2. UNIFE Topical Groups (TG)



Brakes Topical Group

In 2021, the **Brakes Topical Group** contributed to several UNISIG work items. In particular, it discussed, agreed and submitted a set of comments on *Subset 139 on ATO over ETCS*. On several occasions, the group's experts joined meetings of the ERA extended core team to support UNISIG specialists on this and other brakes-related items. These discussions were an important element of the 2022 TSI revision but also extend beyond it.

Brakes Topical Group meetings addressed several other issues that support the 2022 TSI revision and served as an opportunity for exchange on the adhesion management component of **PIVOT2** Shift2Rail project.

For more information on the Brakes Topical Group, please contact UNIFE Technical Affairs Manager David Kupfer at david.kupfer@unife.org.



Special Vehicles Ad Hoc Group

UNIFE established an ad hoc expert group focused on 'special vehicles' (e.g., on-track machines, infrastructure inspection vehicles, road-rail vehicles) in 2020, following the request of several of its members. This group occupied itself with the existing requirements for these vehicles, resulting in a change request being submitted for the new TSI revision package that seeks to improve the consistency of the *TSI LOC&PAS* concerning them by altering

definitions and other text in line with the recasted Interoperability Directive and European standards that facilitate their authorisation within the Union. The group remains active in the follow-up of the change request with ERA for the 2022 TSI revision.

Contact UNIFE Technical Affairs Manager Nicholas Shrimpton at nicholas.shrimpton@unife.org to hear more about the Special Vehicles Ad Hoc Group.



Cabin Working Group (TG)

The **Cabin Working Group** members finalised work on harmonising standardisation activities at the European level regarding the specifications of the driver's cabin. The main purpose was to identify possible synergies, differences, inconsistencies and overlaps in the current obligations. After generating recommendations and presenting them to the relevant standardisation bodies to develop more consistent specifications, this group submitted a *Change Request (CR1380)* for modification of the ERTMS specification. The Cabin Working Group has worked to tailor it while considering the recommendations

coming from the **ERTMS Control Change Management Group**. A meeting with ERA and **DG MOVE** took place to discuss CR1380 and its potential inclusion into the 2022 CCS TSI revision. UNIFE highlighted the importance of its inclusion and remarked upon their benefits.

To learn more about our Cabin activities, please write UNIFE Technical Affairs Manager Jose Bertolin at jose.bertolin@unife.org.



Electromagnetic Compatibility Working Group (EMC TG)

UNIFE experts continue to work in close co-operation with **EIM** and **CER** experts within the **Train Detection Compatibility Working Group** (TDC WG), coordinated by ERA. This working group provides inputs concerning the update to the mandatory *ERA/ERTMS/033281* specification. It describes the interfaces between CCS track-side and other subsystems. Topics discussed in 2021 included the Technical Opinion related to the [Metal and inductive components-free space between wheels](#) which was finally published on the ERA website in March 2021 and continuing standardisation activities focused on the Test Method for Vehicles, DC vehicle/substation Impedance and AC vehicle impedance.

With regard the DC vehicle/substation Impedance, the effect of a vehicle impedance has been investigated and preliminary conclusions of the simulation results were discussed at the TDC WG. A consensus on the value of the minimum Rolling Stock input inductance could come soon in the range of 0.8/1.6 mH for 1.5/3kV networks.

Please reach out to Jose Bertolin, UNIFE Technical Affairs Manager, at jose.bertolin@unife.org to hear more about the Electromagnetic Compatibility Working Group.

3. MG/TG Combined Consultations for ERA TWGs

Several other UNIFE Technical Working Groups have continued their activities through combined consultations with the ERA **Topical Working Group** (TWG) activities ahead of the 2022 TSI revision:

The **Topical Working Group on the Interfaces between Rolling Stock and Fixed Installation** (TWG RST/FI) has consulted the **UNIFE Rolling Stock, Infrastructure and Energy Mirror Groups** (RST MG, INF MG and ENE MGs). This TWG's activities have addressed multiple change requests on the improvement of interface requirements between the LOC&PAS, ENE and INF TSIs, improved TSI requirements with regards to multiple pantograph use and traffic loads, and elevated provisions when applying the TSIs in case of upgrade or renewal.

The **Topical Working Group on Composite Brake Blocks** (TWG CBB) has consulted the **UNIFE Noise and Wagon Mirror Groups** (NOI MG and WAG MG) and **the Brakes Topical Group** (Brakes TG). The activities of this TWG aimed to define a procedure for the demonstration and assessment of the acoustic performance of composite brake blocks at the interoperability constituent level. The defined procedure will close the open point in Appendix F of TSI Noise and amend the Appendix G of WAG TSI in the 2022 TSI package.

To hear more about the ERA Topical Working Groups, please contact UNIFE Technical Affairs Manager Nicholas Shrimpton at nicholas.shrimpton@unife.org.



4) Cybersecurity activities

Cybersecurity is of great importance to the EU and a key area of interest for the European Rail Supply Industry. It is worth underlining that the European Commission has set the topic as one of its top priorities and a cornerstone of its digital and connected Europe initiatives.

During 2021, UNIFE's **Cybersecurity Working Group** has been very active in defining the European Rail Supply Industry's positions, notably reflected in our September 2021 [position paper](#) on digital resiliency.

The paper's main objective was to present a path towards harmonised cybersecurity in railways through a sectoral approach across the European Union. It presents rail's current cyber challenges and opportunities in the short, medium and long term.

The position paper's main priorities and recommendations are focused on the recent publication of the "[CENELEC/Technical Specification 50701 Railway applications – Cybersecurity](#)", covering signalling, rolling stock and fixed installations. It should serve as the basis to create a homogenous degree of cybersecurity across the rail sector, as the most promising way to rectify short-term obstacles. The new **legal framework at the EU level** – including the [Cybersecurity Strategy](#) published at the end of 2021, the [Cybersecurity Act](#), and The [Network and Information Security \(NIS 2\) Directive](#) – places several new demands on cybersecurity practitioners.

Just as importantly, the paper remarks that in order to reach a fully cybersecure Europe, a **collaborative** approach by all stakeholders is necessary.

Additionally, it addresses the **sector's regulatory complexity and particularities**, which make Operational Technologies (OT) in rail system quickly obsolete or outdated as they are based on what is considered a secured approach at the time of their conception but is easily bypassed once the technology that underwrites it is eclipsed.

The UNIFE position paper highlights also the **key role of European Union Agency for Cybersecurity (ENISA), European Union Agency for Railways (ERA), CEN-CENELEC** and European research and innovation initiatives like **Shift2Rail Joint Undertaking** and its successor, **Europe's Rail**, or **Horizon Europe** to reinforcing the cyber resiliency of the rail sector. It also underlines the need to get strong support from the **European Commission** to ensure regulatory consistency and provide financial support to the rail sector for protecting these strategic assets from cyber threats.

Moreover, the **UNIFE Cybersecurity Working Group** has actively collaborated with the **European Union Agency for Cybersecurity (ENISA)**. This included replying to important surveys such as the one concerning the current threat landscape report, contributing to other important reports as Managing Cybersecurity Risks in Railways, that was released in November 2021 or participating in the ERA - ENISA "[Cybersecurity in Railways](#)" conference that was convened in March 2021. UNIFE has also been in regular contact with the **European Rail Information Sharing and Analysis Center (ER-ISAC)** to share the industry's view on cybersecurity with other rail stakeholders.

For further information about our cyber activities, please contact UNIFE Technical Affairs Manager Marta García at marta.garcia@unife.org.

5) UNITEL

Established in 2018, the **UNITEL Committee** brings together UNIFE members with significant telecommunications experience to plan the interoperable European rail network of tomorrow. This group focuses on building consensus for the development and implementation of the **Future Railway Mobile Communication System (FRMCS)**, the inherent successor of GSM-R within the next iterations of ERTMS. This committee succeeds the **Railway Operational Communications Industry Group (ROC-IG)**, which was formally discontinued in 2019, and has adopted its activities. All former ROC-IG members are now participating in UNITEL and the committee welcomed a further two new members this year.



In 2021, the UNITEL Committee continued its work as the recognised voice of the European railway telecom supply industry towards the European institutions and sector partners.

UNITEL experts are active in all ERA working groups responsible for the development of future **Control Command and Signalling Technical Specification for Interoperability (CCS TSI)** pertaining to railway telecommunications. In addition to the maintenance activities of the GSM-R specifications, the UNITEL Technical Group contributes to the preparation of the FRMCS specifications and the planned introduction of FRMCS to the TSIs in 2022 and beyond. Committee members remain active in the international standardisation

organisations responsible for the development of the railway telecommunications system and discussions defining the radio spectrum allocations at European level.

In July of this year, the UNITEL committee released their **GSM-R Long-term Support Statement following the joint assessment** of how this communication service can be supported until the migration to the FRMCS has been successfully finalised – which is currently projected for some time after 2030, when a co-existence between GSM-R and FRMCS becomes no longer needed. This statement provided a formal response to requests from the railway sector for a renewal of the support statement from the **Railway Operation Communication Industry**

Group (ROC IG) following UNITEL's establishment as a UNIFE committee. The signatories are committed to supporting communication solutions for ERTMS and rail digitalisation today and in the future, however the statement highlights the need for early planning and reciprocal commitment by all involved parties given the existing and future challenges in supporting and phasing out GSM-R.

In September 2021, UNIFE published its **position paper on the successful transition to the FRMCS** and the key

factors that need to be addressed to successfully achieve this. This publication draws on lessons learned from the earlier introduction of the GSM-R in the 1990s. The paper, developed by the UNITEL Committee, also outlines the timeline and phased approach envisaged to achieve FRMCS' expected deployment from 2025. UNIFE expects further introduction of digital tools and automation in rail will become a dominant driver for FRMCS deployment and future broadband applications far beyond today's GSM-R.

For more information, please contact UNIFE Technical Affairs Manager Nicholas Shrimpton at nicholas.shrimpton@unife.org.



“In 2021, the UNITEL Committee continued its work as the recognised voice of the European railway telecom supply industry towards the European institutions and sector partners”.

6) European Clean Hydrogen Alliance (ECHA)

On 11 March 2021, UNIFE Director General Philippe Citroën attended the first meeting of the *Clean Hydrogen for Mobility CEOs roundtable*. This event is one of the six such meetings connected to the **European Clean Hydrogen Alliance (ECHA)**, launched in 2020. The group aims at an ambitious deployment of hydrogen technologies by 2030, bringing together renewable and low-carbon hydrogen production, demand for hydrogen technologies in industry, mobility and other sectors, and hydrogen transmission and distribution. With the alliance, the EU seeks to build its global leadership in this domain and support its commitment to reaching carbon neutrality by 2050.



European Transport Commissioner **Adina-Ioana Vălean** attended this meeting and reminded attendees of the importance of building a “hydrogen economy” through a cooperation between all value chain actors. For rail transport, she highlighted that direct electrification is the dominant approach, but stressed that hydrogen fuel cell trains will help decarbonise parts of the network that are difficult to electrify. This was particularly important as hydrogen trains are already running in several EU Member States.

This event, which brought together all ECHA members interested in hydrogen applications for mobility, was an opportunity to learn more about ECHA’s transport-related activities. In 2021, the Alliance has developed a pipeline of mobility projects using hydrogen that could receive later Commission guidance on financing options.

For more information, please contact UNIFE Head of Technical Affairs Nicolas Furio at nicolas.furio@unife.org.



05

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1) Horizon 2020 and Shift2Rail

After years of intense work by the European rail industry, with UNIFE's leading coordination, the **Shift2Rail Joint Undertaking (S2R JU)** was established in July 2014 as an institutionalised partnership with support from the European Union's Horizon 2020 programme. The S2R JU's mission is to improve our sector's competitiveness by accelerating the integration of new and advanced technologies into innovative rail products and solutions.





S2R JU projects contribute to creating and leveraging emerging technologies needed to meet changing transport needs, complete the **Single European Railway Area** (SERA), increase the European rail system's capacity and improve both the reliability and quality of rail services. These actions also help significantly reduce costs. To meet these ambitious goals, S2R JU has a robust framework and a multiannual budget of €920 million. It is jointly funded by the private sector - which contributes €470 million - and the EU, investing €450 million.

1. Main Shift2Rail Joint Undertaking activities in 2021

Shift2Rail User Requirements/Implementation and Deployment Working Group

The S2R JU User Requirements/Implementation and Deployment Working Group met three times this year - UNIFE attended all of them. This group's role is to assist the Joint Undertaking in ensuring the market uptake of technical solutions developed during its activities and facilitate information exchanges on initiatives, projects and partnerships dealing with the thematic areas of each of the *Innovation Programmes* and *Cross-Cutting Activities*.

For more information, please contact UNIFE Head of Technical Affairs Nicolas Furio by email at nicolas.furio@unife.org.

Shift2Rail Innovation Days

The 2021 **Shift2Rail Innovation Days**, held on 9 and 10 December, was an opportunity for the European railway community to take stock of the European Year of Rail and see how far Shift2Rail's research and innovation initiatives have progressed. It was also an ideal forum to hear from high-level representatives about rail's crucial role in the mobility and transport recovery effort and the transition from Shift2Rail to the new Europe's Rail Joint Undertaking.

Philippe Citroën, UNIFE Director General, spoke on the event's *High-level Panel on the European Rail transformation*. During the discussion, he underlined the benefits of Shift2Rail and the European rail supply industry's expectations from Europe's Rail.

He reminded the importance of Europe's railways in achieving **EU Green Deal** objectives, positioning rail transport as the backbone of future mobility and increasing the competitiveness of the European rail supply industry as to allow for the creation and deployment of even greener solutions. He also highlighted the importance of well defining the scope of both Europe's Rail's Innovation and System Pillars to ensure the development of new technologies.

Additionally, Mr. Citroën joined a panel on international relations in rail research and innovation. The discussion featured representatives from across Europe, the United States, Colombia and Brazil. Moderated by S2R JU's Executive Director **Carlo Borghini**

and **DG MOVE's** Head of Unit for Rail Safety and Interoperability **Keir Fitch**, the conversation continued upon those held with partners across the Americas and elsewhere on the possible benefits further international research cooperation could hold for decarbonising transport and increasing rail's competitiveness.

To learn more about UNIFE's participation in Shift2Rail's Innovation Days, please contact UNIFE Head of Technical Affairs Nicolas Furio by email at nicolas.furio@unife.org.

2. Shift2Rail and Horizon 2020 projects



DAYDREAMS

DAYDREAMS (Development of prescriptive **AnalYtics** based on **aRtificial intElligence** for **iAMS**) is a project within Shift2Rail's 3rd Innovation Programme (IP3). It started its activities in December 2020.

DAYDREAMS's overall objective is to advance - in line with S2R JU's vision - on the integration and use of data and artificial/human trustworthy intelligence, together with context-driven **Human Machine Interface** (HMI) for prescriptive **Intelligent Asset Management Systems** (IAMS) in railway by:

- Advancing the maintenance approach by moving from preventive and predictive asset management towards prescriptive asset management
- Largely improving the decision-making process by developing multi-objective decision optimisation approaches that take into account all possible, and often conflicting, implications of IAMS decisions in the railway environment (e.g., on Traffic Management System, Energy, Freight, etc.,)
- Reinforcing the role of the person-in-the-loop by designing and developing advanced context-driven HMIs to allow context- and risk-aware multiple-options decision-making processes supported by the information on data sensitivity and robustness. The HMI will allow the person-in-the-loop to:
 - Properly access and visualise predictions/metrics and models
 - Assess why and how the model predicts something ("opening the black-box")
 - Steer models by setting parameters
 - Evaluate alternatives using parameter steering and extend this process through speculative execution

While previous projects involving DAYDREAMS partners, such as [IN2RAIL](#) and [IN2DREAMS](#), have successfully addressed condition-based and predictive maintenance approaches that improved traditional reactive and preventive maintenance methodologies, DAYDREAMS will exploit state-of-the-art technologies to tackle complexity

and exploit the business value of prescriptive approaches already used in other industrial fields. DAYDREAMS will also increase trust by utilising blockchain and smart technologies inherited from IN2DREAMS to track and monitor the IAMS adoption and use in multi actors' environments.

Read more about this important project at daydreams-project.eu

Want to know more about DAYDREAMS? Please contact UNIFE Technical Affairs Manager Stefanos Gogos at stefanos.gogos@unife.org.





GATE4RAIL

GATE4RAIL (GNSS Automated Virtualized Test Environment for RAIL) was a project within S2R JU's *2nd Innovation Programme* (IP2) that ended in February 2021.

GATE4RAIL aimed to define, design and develop a geo-distributed simulation and verification infrastructure to evaluate the GNSS performances in the railway environment. GATE4RAIL also identified methodologies and tools aimed at simulating GNSS behaviour in different railway scenarios and situations and automated updating of tests environment.

The project's Final Conference and Demonstration took place on 22 February 2021. During the latter, project partners showcased main functionalities and capabilities of both the geo-distributed simulation and verification infrastructure. They also presented the results of the test campaign.

For more information

about GATE4RAIL, please visit
gate4rail.eu

If you wish for further insights,
please contact UNIFE
Technical Affairs Manager
Jose Bertolín at
jose.bertolin@unife.org.

Final achievements and results are summarised as follow:

- o A simulation and verification platform for the evaluation of the GNSS performances in the railway environment had been designed, developed and tested. A set of users, functional, system and operational requirements were identified as the foundation for the definition and implementation of the GATE4RAIL system level architecture (SLA).
- o The consortium performed an investigation, selection and test of different methodologies for automated update of test environment. **ARCADIA/CAPELLA** was selected as the best Model Based Systems Engineering approach for the project.
- o The partners also performed an investigation, selection and test of concepts and methodologies definition for continuous integration, automated test and repetition and evaluation. **GitLAB** impressed the evaluators, who elected it the best approach in terms of continuous integration for the project.

GEARBODIES

The **GEARBODIES** project, which started in December 2020, seeks to develop new methods and technology for the inspection of new materials in carbody applications, as well as to employ innovative approaches for developing novel concepts with enhanced lifetimes for key running gear components.



GEARBODIES is working towards the development of cost-efficient and reliable trains by contributing with specific innovations towards the Shift2Rail **Technology Demonstrators** (TD) of *Innovation Programme 1* (IP1), through two dedicated work streams:

- *Work Stream 1* (WS1): Inspection methods for carbodies using new materials (TD1.3) to develop effective and affordable solutions for inspecting carbodies that are using new lightweight materials
- *Work Stream 2* (WS2): Innovative approaches for developing running gear components (TD1.4), which aim to employ innovative approaches, tools and methods for developing novel concept designs of running gear components with extended lifetime, and low LCC, whilst main-

taining or reducing current levels of reliability, noise emissions, and track damage.

Through these efforts, GEARBODIES will actively contribute to improving the efficiency, safety and competitiveness of the European railway sector by supporting the implementation and exploitation of innovative materials and practices. It will have profound impacts on the cost efficiency and reliability of the sector, as well as on its energy consumption and infrastructure maintenance. Inspection time will be significantly reduced, while the use of new materials and systems will extend component lifetimes and lower maintenance costs.

Interested in this research and want to hear more, please visit gearbodies.eu.

For more information about this project's status, please contact UNIFE Technical Affairs Manager Stefanos Gogos at stefanos.gogos@unife.org.





IN2ZONE

IN2ZONE (The next generation of railway transition zones) is a Shift2Rail *Innovation Programme 3* (IP3) project that seeks to enable infrastructure to boost the economic viability, sustainability and resilience of the European rail network.

For more information, please visit the project's website at in2zone.eu

To get further updates concerning IN2ZONE, please contact UNIFE Technical Affairs Manager Marta García via email at marta.garcia@unife.org.

IN2ZONE's objective is to design and test a prototype next generation transition zone solution that provides a step-change in track support conditions, resulting in a drastic reduction in maintenance interventions. It plans on doing so by:

- Reducing in-service affecting delays due to fewer track geometry defects and associated failures (for example, due to track settlement or a localised loss of rail support)
- Increasing network capacity in terms of more frequent trains and higher speeds, due to improved vertical geometry and reduced degradation rate
- Reducing lifecycle costs through the reduction of maintenance, extending the operational life of both the track and its associated assets
- Lowering noise and vibration at the transition locations, by providing a sustained smooth transfer between areas of differing support stiffness
- Providing a solution for optimum and sustained track support conditions that is compatible with the next generation track solutions already developed

Consequently, the project will enable the transition zone solution to self-correct minor vertical track geometry irregularities or faults. Further, the solution architecture will be modular to ensure the benefits are realised in minimal time.

During 2021, the current state-of-art technology and identification of innovative concepts for transition zones have been defined and the technical specifications for the design of transition zones have been prepared.

IP4MaaS

IP4MAAS is a project under S2RJU's 4th *Innovation Programme* (IP4). The project was launched in December 2020.



Within IP4, more than 10 projects have created a wide array of technologies which tackle various aspects of the traveller experience. Those technologies tackle the interoperability of **Transport Service Providers'** (TSPs) services, travel shopping, booking & ticketing, trip tracking, travel companion technologies and business analytics. Various tools have been tested in multiple locations around Europe to retrieve user feedback and improve upon those critiques. Today, IP4 has a large toolset of proven technologies that need to go to the next level and be implemented in large scale products.

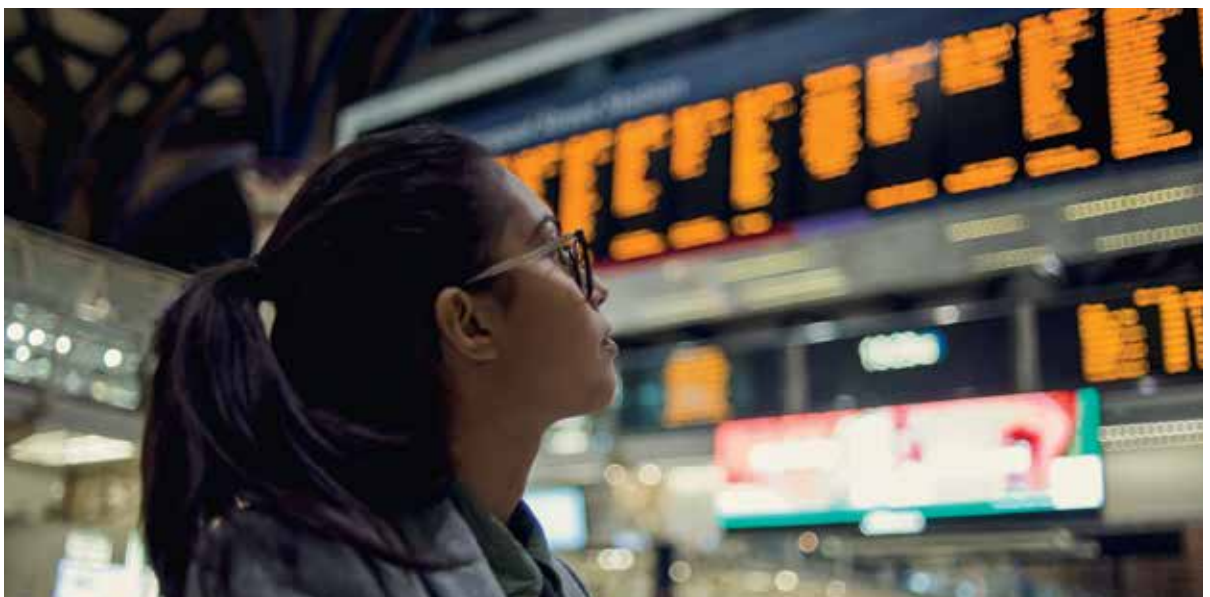
To that end, IP4MAAS will assist IP4 projects in demonstrating the technologies at an unprecedented level, at 6 different locations in Europe and with the cooperation of more than 10 transport operators (Public Transport and Mobility-as-a-Service), au-

thorities and agencies. IP4MaaS will develop the scenarios for the demonstrations and a thorough assessment strategy that evaluates both the performance and impact of the technologies on users and the environment in urban and suburban setups. IP4MaaS will also create strategic plans for the demonstrations that will be updated in two iterations, leading to two demonstration phases.

Furthermore, the project will provide recommendations on the promotion and transferability of the technologies to other locations in Europe. IP4MAAS will organise and monitor one of the largest demonstrations of technologies in the history of European research and innovation project's and expects its findings to be used as a baseline for future demonstrations and testing that involves a diverse group of demo partners.

For more information on IP4MAAS, please visit ip4maas.eu

To get updates on these demonstrations, please contact UNIFE Technical Affairs Manager Stefanos Gogos via email at stefanos.gogos@unife.org.





NEXTGEAR

NEXTGEAR (**NEXT** generation methods, concepts and solutions for the design of robust and sustainable running **GEAR**) is a Shift2Rail Innovation Programme 1 (IP1), which saw its activities commence in December 2019.

The project contributes to the development of a new generation of running gear. To make a step change towards this end, NEXTGEAR is:

- Updating the **Universal Cost Model** (UCM) developed by the Roll2Rail project
- Suggesting new ideas on the use of new materials and manufacturing methods
- Designing the wheelset of the future by proposing hybrid carbon fibre/metallic wheelset design

Interested in NEXTGEAR?

Visit the project website at nextgear-project.eu

Looking to discuss NEXTGEAR?

Please contact UNIFE
Technical Affairs Manager
Jose Bertolín at
jose.bertolin@unife.org.

Since NEXTGEAR got underway, some of its preliminary achievements and results include:

- As the projects aims to release the **UCM 2.0** tool release by its conclusion, the previous version has been upgraded with the development and improvement of new modeling techniques, cost modelling methods and new user interface
- NEXTGEAR has investigated two novel materials and manufacturing methods: the **additive manufactured** (AM) components and **fibre reinforced plastic** (FRP) based components. Two metro vehicle running gear components have been designed, manufactured and tested obtaining a significant mass and production time reduction
- A high safety integrity level (SIL4) controller has been designed, manufactured and tested in realistic "*Hardware in the Loop*" conditions, following the requirements consolidated through a systematic study of active suspension systems
- **Hybrid metallic-composite** (HMC) axel has been designed with a significant mass reduction, after evaluating the feasibility of using composite materials for the construction of HMC wheelset. Manufacturing and mechanical parameters were simulated and analysed not only to choose the best candidate of the three proposed concepts but also to complete its characterization.

OPTIMA

OPTIMA (Communication Platform for Traffic Management Demonstrator) is a Shift2Rail Innovation Programme 2 (IP2) project began its work in December 2019.

OPTIMA will address the design and development of a Communication Platform to manage the link with different services, or “multimodal operational systems”, supporting Traffic Management System (TMS) appli-

cations. The platform will link TMS applications with Traffic Management, Traffic Control, Maintenance/Energy Management and signalling field infrastructure systems.



The main objectives of OPTIMA are:

- o Make use of the Integration Layer to integrate real-time data from the rail business service, external sources, services running in the Application Framework and operator workstations
- o Develop, validate and verify the Communication Platform
- o Provision of a fully available and documented communication platform for installing and testing complementary projects prototypes

For more information about OPTIMA, please contact UNIFE Technical Affairs Manager Jose Bertolín at jose.bertolin@unife.org.

In 2021, the project began in its development phase and has since entered the validation stage. The consortium has worked on the development of the Communication Platform modules, which are scheduled to be finalised in early 2022. The consortium has implemented and will continue to work on defining the *Business Services*, the platform persistence layer and the interfaces based on the outcomes of the **Common Data Model** (CDM) activity. The integration Layer is already available and deployed on the validation platform.

A strong collaboration with complementary Shift2Rail projects [X2Rail-4](#) and [FINE-2](#) has been established, particularly for activities concerning the CDM and integration of the TMS applications into the platform. This relationship ensures their alignment and the success of future development.

Become better acquainted with this project by visiting its dedicated website: optima-project.eu



RAILGAP

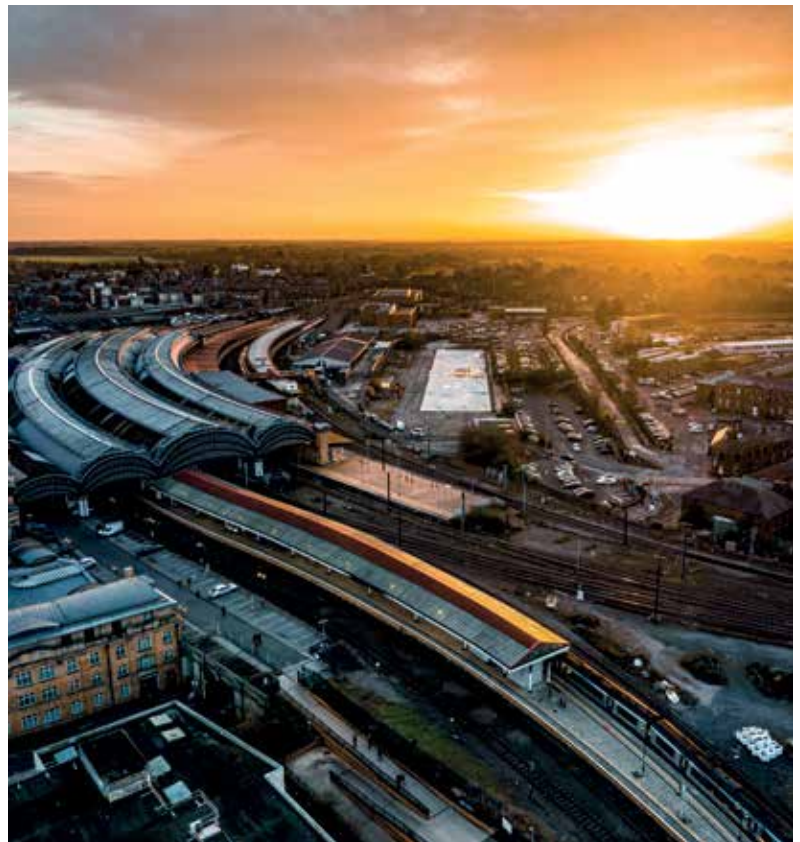
RAILGAP (RAILway Ground truth and digital mAP) is a **Horizon 2020** project that started in January 2021. It is tasked with developing innovative **High Accuracy, High Precision Ground Truth and Digital Maps**, essential elements of an EGNSS train positioning system and a Validation & Verification Environment.

During the project's first year, the consortium was dedicated to analysing user needs and sorting them into functional and non-functional requirements for the development of the Ground Truth and Digital maps. Additionally, the project started to prepare the measurement campaign through the review of the state-of-the-art of selected technologies and

the definition of the measurement procedures. The work related to the characterisation of technologies in railways also started. It was mainly focused on the obtention and validation of the necessary error models and the performance of sensor fusion solutions for railway precise and robust position/trajectory determination.

To learn about train positioning initiatives, visit railgap.eu

Want to hear more about mapping? Please write to UNIFE Technical Affairs Manager Jose Bertolín at jose.bertolin@unife.org.



RECET4Rail

RECET4Rail (Reliable Energy and Cost-Efficient Traction system for Railway) is a project under S2R JU's *1st Innovation Programme* (IP1).



The RECET4Rail research project is meant to introduce new emerging and disruptive technologies to rail traction systems in order to improve the overall rail system performance from all points of view, while reducing the overall lifecycle exploitation cost.

Its ambition is to provide essential knowledge and competence that can lead to the improvement to high

Technology Readiness Levels (TRL) of Shift2Rail traction demonstrations developed in the Shift2Rail **PINTA-3** project. This collaboration paves the way for future key developments in digitalisation applied to traction, environmental sustainability (especially devising carbon-free traction systems) and reinforcement of standardisation to lower complexity and costs.

Four workstreams are envisaged within the project:

- 3D additive manufacturing and new manufacturing technologies
- Wireless Dynamic Charging for urban vehicles based on silicon carbide (SiC) semiconductors and high power lithium ion batteries sizing
- Investigations on reliability of traction components and lifetime mechanisms
- Big Data, Artificial Intelligence (AI) for smart and predictive maintenance of traction systems

Visit the project's website,

recet4rail.eu,

for more details.

For further inquiries,

contact UNIFE Technical Affairs Manager

Marta García by email at

marta.garcia@unife.org.

This year, RECET4Rail has already reached important research conclusions in 3D printing technologies for traction components with the selection of one use case. Also, in relation with Wireless Dynamic Charging for urban vehicles, a set of solutions based on lithium batteries for a free catenary operation of a tramway in a city profile have been already defined.



RIDE2RAIL

RIDE2RAIL is a project directly linked to S2R JU's 4th *Innovation Programme* (IP4). The project started in December 2019 and works to develop solutions and tools that will facilitate the efficient combination of ride-sharing and scheduled transport services - for example, bus and rail. By making it easier to compare and choose between multiple transport options and services, RIDE2RAIL seeks to make ride-sharing a (more) attractive way to move passengers towards public transportation while fighting both congestion and pollution.

Learn more about the future of multimodality by visiting RIDE2RAIL's website: ride2rail.eu

You can also direct any questions to UNIFE Technical Affairs Manager Stefanos Gogos by writing him at stefanos.gogos@unife.org.

RIDE2RAIL aims to integrate multiple public, private and social data sets and sources with existing transport platforms to promote effective ride sharing practices by citizens. This will make rail a complementary transport mode that extends public transport and railway networks. The RIDE2RAIL framework for intelligent mobility will integrate and harmonise real-time and diverse information about rail, public transport, ride-sharing and crowdsourcing in a social ecosystem, which will permit users to compare and choose between multiple options or services classified by a set of criteria - including environmental impact, travel time, comfort, cost - according to their preferences. The hope is that this will make the travel experience both more positive for individual users and, globally, more sustainable.

RIDE2RAIL will design, develop and test in real demonstrators a set of software components for the IP4 ecosystem, including advanced Travel Companion features and a crowd-based Transport Service Provider, which will foster the combination of flexible and regular multimodal mobility through an easy personalisation in diverse existing environments, facilitating market uptake. It will also deliver a set of validated proof of concepts and business cases envisaging future mobility scenarios where advanced transport solutions will be seamlessly integrated into existing collective transport services (rail and others) in four diverse European cities: Padua, Athens, Brno and Helsinki. Its first pilot, the robot bus service in Helsinki's Vuosaari district, has been initiated and is the first of two pilots planned in the area. Both are focused on reducing single-occupant private car trips.

SAFE4RAIL-3

Safe4Rail-3 (Advanced safety architecture and components for next generation TCMS in Railways) is a Shift2Rail IP1 research project that seek, in collaboration with the Shift2Rail **CONNECTA-3** project, to increase the flexibility and reliability of the **Train Control and Monitoring System** (TCMS) communications. It is also tasked with reducing development and maintenance costs and achieving novel train functionalities. The project will do so while paying special attention to manufacturer interoperability and the availability of multiple sources.



Safe4Rail-3's activities are based on the development of three technological pillars aimed at advancing the maturity of technologies and devices for the next generation of TCMS needed to achieve TRL 6/7:

1. Development of the **Drive-by-Data** (DbD) devices in the train network
2. Development of high TRL wireless devices and antennas that are suitable for Wireless Train Backbone and Consists domains (Wireless TCMS), along with analysis of antenna installation
3. Integration of a Heating, Ventilation and Air Conditioning (HVAC) functionality on top of a Functional Distribution Framework platform and a DbD communication layer that takes full advantage of the expertise obtained from **AUTOSAR**

To read more about this project visit its website:

safe4rail-3.eu

Additionally, please contact UNIFE Technical Affairs Manager Jose Bertolin at jose.bertolin@unife.org for further details.

Safety and Security assessments for these technological developments will be analysed and studied based on the upcoming standardisation.

During the first year of the project, the consortium, in collaboration with the complementary CONNECTA-3 project, worked to consolidate the new requirements for the three technologies to achieve TRL 6/7 and started the development phase.



SILVARSTAR

SILVARSTAR (SoIL Vibration and AuRalisation Software Tools for Application in Railways) is a 2-year collaborative project that fits into the "Cross-Cutting Activities" category of Shift2Rail.

This project seeks to provide the railway community with software tools and methodologies best suited to assessing the noise and vibration environmental impact of railway traffic on a system level.

For more information,
please visit the project website
silvarstar.eu

For further details on
SILVARSTAR, contact UNIFE
Technical Affairs Manager
Marta García by email at
marta.garcia@unife.org.

The project's main ambition is to prove software tools for application in soil vibration and in auralisation within the railway sector. In this context, the project has two work streams which address these challenges:

- o The **first work stream** is focused on the prediction of ground vibration through the development and validation of a hybrid (numerical and experimental) approach.
- o In the **second work stream**, auralisation and visualisation software tools will be developed based on a physics-based model to synthesize railway noise in high quality.

This year, different advancements in the project have been achieved: the research and definition of the state-of-the-art for prediction models for railway induced vibration, definition of the concept and the framework for the vibration prediction tool that can be used for environmental vibration

impact assessment of new and upgraded railway lines. Furthermore, related with the second work stream a technical demonstration on virtual reality have been performed at the **Swiss Federal Laboratories for Materials Science and Technology** in November 2021.

SPRINT

SPRINT (Semantics for PerfoRmant and scalable INteroperability of multimodal Transport) was a project within Shift2Rail's IP4 that reached its terminus in February 2021.

SPRINT worked to improve the performance and scalability of the Interoperability Framework being developed in the wider IP4 context to sustain a large deployment and simplify, or automate, all necessary steps in integrating new services and sub-systems in the programme's ecosystem. Moreover, it contributed to the realisation of the Framework by masking the complexity of interoperability to travel applications by publishing the Assets Manager uniform abstractions of services, enabling travel applications to know how to communicate with them

(e.g., web service/API interfaces, communication protocols).

Lastly, SPRINT provided additional technical means to operate on the "web of transportation data". For example, the Interoperability Framework has enhanced its ability to act as a distributed broker to communicate with different services and dynamically discover, bind and inject data and services. This includes the Mobility Service Providers identification on the basis of their geographical area and offered service capabilities.



For more information on SPRINT, please visit sprint-transport.eu

Contact UNIFE Technical Affairs Manager Stefanos Gogos by writing him at stefanos.gogos@unife.org to learn more about this project.





STREAM

STREAM (Smart Tools for Railway work safEty and performAncE iMprovement) is a S2R JU IP3 project dedicated to delivering a resilient, consistent, cost-efficient and high capacity European rail infrastructure.

The project's activities are focused on delivering two methods – or Work Streams - to improve competitiveness in railway maintenance and construction operations:

- a) The **first work stream** involves the development of a control platform designed to convert traditional heavy-duty hydraulic machines (e.g., excavators) in robotic systems.
- b) The project's **second work stream** is focused on creating a modular, wearable, active exoskeleton to reduce the risk of injury due to physical overload.

Furthermore, STREAM has set up an **End-User Board** composed of 12 companies. These board members represent end users of the technology, including Infrastructure Managers and Construction companies. They provide feedback on all technical aspects of the outputs to help bring the technology close to the market needs. Two meetings have been held and resulted in fruitful exchanges of information.

For more information,
please visit the project website
at streams2r.eu

To have even more details,
please contact UNIFE
Technical Affairs
Marta García by email at
marta.garcia@unife.org

In 2021, the main project objectives have been:

- o **Definition of the technical requirements**, categorised by user, safety, regulatory, and ethical requirements for each of the two technical solutions. Those include the analysis of the replies of the questionnaires for companies and workers.
- o **Technical demonstrations** of both technologies in Italy and Spain at the beginning of the year.
- o **Cost-Benefit Analysis** and **ethical assessment** are highly relevant to the project. During the year several research activities have been conducted to improve the background within this field.

TRANSIT

TRANSIT (TRAIIn pass-by Noise Source characterization and separation Tools for cost-effective vehicle certification) is a research and innovation project being conducted within the wider S2R JU's "Cross-Cutting Activities".

TRANSIT will provide the railway community with a proven set of innovative tools and methodologies for reducing rail's environmental impact and improving the level of interior acoustic comfort of railway vehicles. Currently, vehicle certification and homologation requires extensive measurement campaigns on dedicated test tracks, leading to high cost and time expenses. In the future, conducting these processes virtually should reduce these expenditures. Furthermore, increasing energy efficiency of railway transport is a key goal of Shift2Rail and efforts are ongoing to reduce vehicle weight. This is being achieved, for example, by applying composite material technology in the design of the carbody.

The project is developing accurate and robust source characterisation, separation methods and techniques, and exterior noise simulation tools to facilitate virtual testing and more cost-effective vehicle certification and homologation methods. Regarding interior acoustic comfort, innovative material designs needed to increase sound transmission loss and absorption are being developed. Their creation and deployment will lead to improved interior sound quality while not exceeding weight constraints.

Throughout 2021, different measurement campaigns were carried out. They are requisite to reaching the project's expected outcomes.



For more information

please visit the project [website](https://transit-prj.eu) at transit-prj.eu

Interested in noise and

vibrations? Please contact UNIFE Technical Affairs Manager Marta García by email at marta.garcia@unife.org.





5GRAIL

5GRAIL is a **Horizon 2020** EU-funded project that consists of eight Work Packages and was organised to validate the **first Future Railways Mobile Communication System (FRMCS)** – the successor to **Global System for Mobile Communications – Railway (GSM-R)** - specifications by developing and testing prototypes for the technology's ecosystem on both trackside infrastructure and on-board use. Regarding the latter, the project aims to reduce specific equipment costs and installation engineering time by combining all train-to-ground communications. The hypothesis is that this is possible by enabling a modular on-board setup based on standardised interfaces and including mainstream 5G components, called **Telecom On-Board Architecture (TOBA)**, in alignment with the sector's technical vision.

Want to find out more about the future of rail telecommunications?

Visit 5GRAIL's project website at 5grail.eu

If you require further information,

reach out to UNIFE Technical Affairs Manager Stefanos Gogos at stefanos.gogos@unife.org.

The project has started to define the functional tests and will then work towards prototypes development and evaluation, for both on-board and infrastructure, including the **European Train Control System (ETCS)**, **Automatic Train Operation (ATO)**, FRMCS voice specific services and **Train Control and Monitoring System (TCMS)** applications. The objective is to create interfaces between TOBA and ETCS, ATO and TCMS.

Prototypes will be tested in simulated and real environments with pilots in both labs and the field. These experiments will be conducted in sites

across Europe – namely, **France**, **Hungary** and **Germany** - to ensure compliance and validation for specification, standards and performance. Consequently, these experiments will guarantee the time to market for FRMCS products, which are planned to be available in 2025 as per the European timeline.

UNIFE is leading the project's Dissemination, Communication and Exploitation Work Package. This project is also linked to the UNIFE **UNITEL** committee, which is involved in FRMCS' development.

2) UNIFE Freight Committee and Digital Automatic Couplers (DAC)

A key activity for UNIFE's Freight Committee in 2021 was following the developments around the Digital Automatic Coupler (DAC). This is a key technology for efforts to revitalise European rail freight. Introducing the DAC has been identified as a crucial project that will only be possible through an EU-wide, coordinated effort based on a technical and interoperable solution, backed by the necessary investments. At the end of 2020, Shift2rail launched the European DAC Delivery Programme (EDDP). The program aims to deliver open DAC specifications, as well as migration scenarios and business cases in collaboration with experts representing manufacturers, rail operating companies, wagon keepers and the European Commission.

Several UNIFE members are actively contributing to the programme, providing the essential inputs to the technical work. At the association level, UNIFE is a member of EDDP's supervisory board and co-leading the work on Migration Scenarios in Work Package 3.



DAC benefits [Courtesy of Shift2Rail JU]

For more information,
please contact
UNIFE Technical Affairs
Manager David Kupfer at
david.kupfer@unife.org.

The Freight Committee facilitated the monitoring and distribution of information on the programme's progress to the association's wider membership, supported members interested in joining the consortium, and prepared UNIFE positions on DAC related topics. Through its involvement, UNIFE has contributed to achieving several milestones, such as the development of the DAC draft open specifications.

Alongside our work on EDDP, UNIFE monitored the European Union Agency for Railways' freight activities, where the TSI requirements for the new coupler were prepared over the course of the year. In close communication with the EDDP working groups, ERA has established a Technical Document that will serve as a reference document for the DAC related technical requirements in the 2022 TSI revision.



3) Europe's Rail Joint Undertaking and Horizon Europe

If Europe wants to maintain its industrial leadership in the face of intensifying foreign competition, it must stay at the forefront of research and innovation. **Shift2Rail Joint Undertaking (S2R JU)**, supported by the EU through its **Horizon 2020** framework programme, played a key role in helping Europe retain a technological and innovative advantage.

Throughout the year, UNIFE successfully advocated for the establishment of a successor to S2R JU – known as the Europe's Rail JU – in the form of an institutionalised partnership pursuant to Article 187 TFEU and within the framework programme for Research & Innovation **Horizon Europe 2021-2027**.

2021 was dedicated to the preparation of the **Single Basic Act (SBA)** and the **Europe's Rail Master Plan**.

This year saw challenging negotiations around the SBA between **the European Commission** and the Member States. Despite these difficulties, the companies pre-selected as future members of Europe's Rail, or *Candidates Founding Members*, and the rail sector associations - including UNIFE - were involved in the preparation phase of the two pillars of Europe's Rail JU: the Innovation Pillar and the System Pillar.



1. Single Basic Act

On Tuesday, 23 February 2021, the Commission published its regulation proposal, named the [Single Basic Act](#), to set up nine Joint Undertakings including the Europe's Rail JU.

SBA is composed of three parts. The first contains provisions common to all joint undertakings with the aim to streamline and harmonise the legal boundary conditions. Part Two details provisions that are specific to individual joint undertakings. The last one outlines final provisions applicable to all joint undertakings.

Regarding Europe's Rail, the following can be highlighted:

- The Europe's Rail Joint Undertaking will contribute to the achievement of the **Single European Railway Area**, ensure a fast transition to a better European rail system and support the competitiveness of the European rail industry.
- It is confirmed that a System Pillar will be implemented in the Europe's Rail Joint Undertaking to enable the sector to converge on a single operational concept and system architecture.
- The Union's financial contribution from the Horizon Europe Programme will be up to €600 million, including at least €50 million for the System Pillar alone.
- The members' contribution will total at least €600 million.

For more information,
please contact UNIFE's
Head of Technical Affairs
Nicolas Furio at
nicolas.furio@unife.org.

The **Single Basic Act** (SBA) was adopted by the Council of the European Union on 19 November 2021 and was published in the Official Journal of the European Union on 30 November.

This was a major milestone that made official the Europe's Rail launch by the end of 2021.

2. Europe's Rail Master Plan, Innovation Pillar and System Pillar

To prepare Europe's Rail, the Commission, with the support of Shift2Rail, has initiated two workstreams:

- ▶ The first convenes the Commission and Candidates Founding Members to prepare Europe's Rail Innovation Pillar.
- ▶ The second, concerning the System Pillar, involves the Commission and associations representing the rail sector. This includes UNIFE.

Those workstreams have helped the Commission prepare the Europe's Rail Master Plan describing the programme's high-level objectives. UNIFE members had the opportunity to react to the Commission Draft Master Plan proposal during a consultation phase that took place in November 2021.

a) The Innovation Pillar

The Innovation Pillar will steer the new Joint Undertaking's R&I activities and should address key topics like Automatic Train Operation (ATO), freight, digitalisation and asset management. In 2021, the Commission and the Candidates Founding Members held exchanges on the Innovation Pillar's technical work programme, which should be supported by roughly €550 million in EU funding. Five areas of priority have been identified:

- ▶ European rail traffic management and supporting rail's key role in a multimodal transport system
- ▶ Digital and automated train operations
- ▶ Sustainable and digital assets
- ▶ Competitive digital green rail freight
- ▶ Smart solutions for lower usage lines (i.e., cost-efficient regional lines)

Those areas of priority have then been developed in flagships areas described in the Multi-Annual Work Programme that is to be officially released in 2022.

b) The System Pillar

The System Pillar will define the future **European Rail System** Architecture - especially for the Control Command Signalling (CCS) subsystem. Its main objective is to generate a sector approach that will enable an acceleration of the market uptake of future innovations on the European rail network. This will be achieved by outlining a system architecture that appeals to common business objectives of stakeholders across the rail sector. Approximately €50 million in EU funding will be allocated to the System Pillar's activities and will be jointly administered by the Commission and the sector, which is represented by the rail associations - one of which is UNIFE.

In July 2021, the **European Commission** delivered its report on the System Pillar, giving a first overview of its scope, governance, outputs and working arrangements with other organisations - such as the **European Union Agency for Railways** (ERA) or its complementary Innovation Pillar, for instance. The definition of the System Pillar activities continued throughout the year with the nomination of rail experts, from both UNIFE and railways, to set-up the **System Pillar Core Group**. This body will be responsible for the design of the System Pillar's future activities.

During 2021, UNIFE has provided many inputs to the European Commission and participated in many meetings to support the definition of the System Pillar.

For more information about the future rail research institutionalised partnership, please contact UNIFE Head of Technical Affairs Nicolas Furio at nicolas.furio@unife.org.

3. Horizon Europe – other opportunities

Interested in other Horizon Europe opportunities?

Please contact UNIFE Head of Technical Affairs Nicolas Furio at nicolas.furio@unife.org.

Outside of **Horizon Europe's** future Joint Undertakings, the **European Commission** has adopted its main Horizon Europe work programme for the 2021-2022 period, outlining the objectives and specific topic areas that will receive a total of €14,7 billion in funding.

During the year, UNIFE regularly informed its members about the Horizon Europe calls opportunities -especially ones included in Horizon Europe's Cluster n°5 on "Climate, Energy and Mobility".

Thanks to the interest of UNIFE members, UNIFE discussed these possibilities with various stakeholders to prepare proposals in different fields of expertise. This resulted in the submission of a proposal addressing rail cybersecurity in September 2021.



4) European Rail Research Advisory Council (ERRAC)

In July 2021, **Roland Moser**, Chief Technology Officer at **SBB**, was elected to serve as the new ERRAC chairman following the end of **Thales' Thale's Alberto Parrondo's** term. The ERRAC stakeholders thanked Alberto for his commitment over his three year mandate and welcomed Mr Moser, who promised to serve as an honest broker for the ERRAC stakeholders during his mandate.

Over the next three years, ERRAC rail 2050 and rail 2030 vision documents will continue to serve as most important reference in shaping the Council's priorities. Another crucial document for the future of ERRAC activities is the **Rail Strategic Research and Innovation Agenda (SRIA)**, published in December 2020. The document was elaborated upon with many inputs from UNIFE members and other rail stakeholders. It explains how a new programme of technical and operational innovation can transform the railway sector to support its role in addressing the needs of railway users, the economy and society, as well as protecting the environment. Not all innovative concepts developed in the SRIA will be addressed in the new Europe's Rail Joint Undertaking. ERRAC will therefore closely follow the Joint Undertaking's activity and analyze its multi annual work plan to identify any gaps. Such gaps could be filled, for example, with the help of enhanced partnerships between ERRAC and other *European Technology Platforms*.

During the ERRAC Plenary events that took place in July and November of 2021, representatives from the EC's **DG MOVE and DG RTD** reported on the progress of the preparation of Europe's Rail Joint Undertaking. This provided ERRAC members with updated information on the R&D environment for the rail sector. During the plenary sessions, Shift2Rail Executive Director Carlo Borghini reported on his organisation's activities.



For more information about ERRAC's activities, please visit www.errac.org

Feel free to also contact David Kupfer, Technical Affairs manager at UNIFE and ERRAC secretary, at david.kupfer@unife.org.

06

SIGNALLING AND ERTMS

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SIGNALLING AND ERTMS



In 2021, the **European Union (EU)** continued to face a multitude of unprecedented challenges: climate change, the digital transition, industrial disruptions due to the climate crisis and, of course, significant economic setbacks caused by the pandemic's outbreak. Despite these difficulties, Europe has clearly understood that transport plays a critical role in safeguarding the well-functioning single market which proved to be vital for the EU citizens as the Coronavirus severely restricted the free movement of people, goods and services.

These complications demonstrated the concrete need for investments in ambitious transport projects – notably, in rail - to drive swifter progress on **EU Green Deal** objectives, while providing sustainable, uninterrupted mobility across Europe, creating jobs and conveying essential goods uninterrupted. It is indisputable that rail transport will play a crucial role in the reduction of the transport sector's greenhouse gas emissions over the coming years. This has once again put the **European Rail Traffic Management System (ERTMS)** high on the political agenda of the European institutions and numerous Member States over the past months - especially as we witness increased interest in digitalising the Union's rail system.

"We are at a critical point for ERTMS deployment in Europe and worldwide, as the context speaks in favour of an acceleration for the technology's roll-out and the pandemic period should not be used as an excuse to further delay the implementation of the current and future projects", recalled **Matthias Ruete**, the European ERTMS Coordinator, in his recently published

ERTMS Work Plan. This clearly shows once more that it is a real and favourable time to step up Europe's deployment of this key technology that lays at the core of the future Digital Railway evolution.

This sentiment was echoed later by the **European Commission (EC)** in its December 2020 **Sustainable and Smart Mobility Strategy**, where it is clearly mentioned that the **"full roll out of the ERTMS"**, is to be considered as the heart of a digital rail system and, as such, it should remain a priority for the Commission and for Next Generation EU".

With regards to the regulatory aspects of ERTMS, the Commission, together with **European Union Agency for Railways (ERA)** and the **Shift2Rail Joint Undertaking (S2R JU)**, has recently called on the ERTMS stakeholders to start preparing the content of the next **Control-Command Signalling Technical Specifications for Interoperability (CCS TSI)**. This document, which is likely to be published in 2022, will codify sector level agreement on a common European vision for the future Control-Command Signalling European System based on ERTMS. UNIFE/**UNISIG** experts have been actively and significantly contributing to the ongoing technical discussions in occurring in many high-level **European stakeholders working groups** led by the **European Union Agency for Railways (ERA)** and the Commission's Directorate-General for Mobility and Transport (**DG MOVE**), which were tasked with conducting the preparatory work for this important future transition.

UNISIG members fully recognize that ERTMS has reached a turning point, as pressure grows to speed deployment alongside research into “**game changer**” technologies which can underpin the future command, control and signalling framework. The future rail sector evolution will be based on the following pillars:

- ▶ A harmonized and coordinated **deployment of ERTMS** in Europe to accelerate the achievement of the **European Deployment Plan (EDP)** targets is a requisite for advancing the system forward.
- ▶ For the next CCS TSI, to be released in 2022, priority should be given to the introduction of stable specifications only, (e.g., Automatic Train Operation (ATO) or “Future Rail Management Control System (FRMCS) ready” specifications) those that demonstrate the quick wins of game changers.
- ▶ Europe’s Rail Joint Undertaking (ERJU), the S2R JU successor programme and its Innovation and System Pillars, is to play a key role in boosting the European rail sector by defining a well-balanced

European Rail System framework and architecture that involves all European rail stakeholders and supports the delivery of new technologies/solutions.

- ▶ The Recovery and Resilience Fund (RRF) is an historical opportunity for Member States to boost the ERTMS deployment and bridge the gap with potential project delays – it is a moment that must not be missed.



1) ERTMS – Main Political highlights and communication activities in 2021

a) UNIFE - NP-UIRE joint digital conference on ATO/unmanned trains

On 26 February, UNIFE co-hosted a joint conference with the **Russian Non-commercial Partnership Union of Industries of Railway Equipment** (NP UIRE) on the introduction of **Automatic Train Operation (ATO)**, or unmanned trains, in both Europe and Russia. The successful digital event attracted more than 200 specialists, allowing them to discuss the status of introducing autonomous technologies to European and Russian railway transport systems. Additionally, it was a welcomed opportunity to reflect on our partnership over the past few years. This relationship has resulted in numerous joint guidances on testing and authorisation procedures, as well as technical terminology, for European and Russian members.

The event notably featured a presentation by Mr **Carlo Borghini**, Executive Director of S2R JU, on the current research and innovation framework in the EU. Much of

these initiatives are carried out via the institutionalised partnership and its **Innovation Programme 2** (IP2) which is mainly focused on ERTMS game changers. He also showed how S2R's planned successor, Europe's Rail, is projected to play a frontline role in developing and deploying innovative and digital technologies for railways to directly contribute to achieving Green Deal objectives and the full decarbonisation of European transport.

UNISIG ATO experts shared the current status of its development in S2R IP2 and its standardisation process by outlining the successful work already being undertaken to demonstrate the maturity and interoperability of ATO Grade of Automation 2 (GoA2) under different applications. This technology is set to be ready for inclusion in the TSI 2022 regulation. They also further explored other ongoing work and planning regarding ATO GoA3/4.



b) European Parliament (EP) Report on railway safety and signalling: assessing the state of play of the European Rail Traffic Management System (ERTMS) deployment

In February 2021, **Izaskun Bilbao Barandica**, Spanish Member of **European Parliament (EP)**, presented the first draft of the EP's **Report on the state of play of the European Rail Traffic Management System (ERTMS) deployment**. The Report, which was approved by the [European Parliament plenary in July 2021](#), is the result of a thorough brainstorming session between stakeholders representatives who were asked to exchange on existing ERTMS interoperability issues, current deployment progress and available funding opportunities over the past months. UNIFE/UNISIG significantly contributed to the preparation of this comprehensive report and attended all the relevant meetings during this phase.

Through this report, the Parliament assessed the status of ERTMS implementation in Europe and outlined the need to significantly improve coordination and harmonisation of implementation rules across the Union. These developments are critical to getting ERTMS up and running at full speed.

During the July 2021 EP Plenary, Rapporteur Izaskun Bilbao explained the need for further proliferation of this important tool by stating “we need to ensure that ERTMS is deployed on time as this is a decisive step to guarantee interoperability of national railway systems”. Enabling a Single European Rail Area is central to allowing the swift market uptake of the European Rail Supply Industry's latest, most sustainable and reliable mobility solutions across the European Union.



MEP Izaskun Bilbao Barandica

c) Preparation of the future Europe's Rail Joint Undertaking (ERJU) – System Pillar activities

Over the past months UNIFE/UNISIG experts have been significantly involved in the preparation of the future ERJU System Pillar activities, via the active participation in the EC's System Pillar Group.

Under the leadership of the EC and with the participation of the sector organizations, a System Pillar Report was drafted and published in July 2021, which defines the scope, deliverables, governance and working arrangements for the System Pillar. The report describes in its introduction the ambition of the ERJU:

“In line with the Sustainable and Smart Mobility Strategy, the ambition of the Union and Member States, with the support of ERA and Shift2Rail JU, is to create a modern, harmonized, robust and reliable interoperable European railway system. Such a system is necessary for the rail sector to better address customer needs, maintain safety and digital security, improve operational efficiency and performance, reduce costs, support European rail supply industry competitiveness and increase the speed of adoption of performance-enhancing improvements.”



Europe's Rail Joint Undertaking:
Report on the preparation of
the System Pillar

Starting in July 2021, the **ERTMS Users Group, UIC** and UNIFE/UNISIG jointly developed a proposal for a new project under the **S2R JU Framework Contract**. This project prepares the ERJU's System Pillar activities, in terms of organisation and content. Derived from the ERJU's ambitions, the project objectives are to:

1. Design a top-level target signalling system architecture that is ERTMS radio-based with a harmonised operation
2. Define a migration roadmap, which defines implementation strategies from existing legacy signalling system architectures towards the target system one
3. Achieve broad acceptance of deliverables by railways and suppliers, being consistent with the rail sector **Common Business Objectives**
4. Use available inputs from all existing Control Command and Signalling architecture initiatives in the project, if they comply with the objectives mentioned above

The proposal was accepted by S2R JU and the project officially kicked-off beginning of October 2021.



d) High-level European UNIFE event on ERTMS

In September 2021, UNIFE - through UNISIG - convened high-level representatives from the European institutions and the private sector for a European Union Year of Rail digital event titled *“ERTMS, a key enabler for the digital and sustainable rail transition”*.

The speakers panel featured prominent guests: **Matthias Ruete**, ERTMS EU Coordinator; **Izaskun Bilbao Barandica**: Member of the European Parliament (Renew Europe) and Rapporteur of EP Report on ERTMS, **Carlo Borghini**, Executive Director of the Shift2Rail Joint Undertaking and future Europe's Rail Joint Undertaking; **Fabio Senesi**, Head of the **ERTMS National Programme**, and **Klaus Mindel**, the newly appointed General Manager of UNISIG.

During the debate the panellists examined the status of ERTMS deployment efforts and existing funding opportunities, such as the **Connecting Europe Facility** (CEF), the **Structural Funds** and the **Recovery and Resiliency Facility's** (RRF) **National Recovery Plans**. It was also a great opportunity to take stock of the European ERTMS Deployment status and reflect on how the RRF represents an historical opportunity for European Member States seeking to boost ERTMS proliferation and avoid potential project delays.

Attendees were able to learn more about EU policy directions for this key technology and its development in relation to the future Europe's Rail Joint Undertaking and its System Pillar. The discussion, moderated by Railway Gazette Editor-in-Chief **Chris Jackson**, reached the consensus that the timely, harmonised and pervasive deployment of ERTMS was central to unleashing its potential benefits and achieving a Single European Rail Area capable of transporting people and goods seamlessly across the Member States.

Mr Ruete clearly stated that *“as rail has moved to the centre of our smart and green mobility strategy, digitalisation of rail is key. This really depends on the rapid roll-out of the ERTMS. Digital rail without ERTMS is unthinkable”*.

UNIFE has published a factsheet, titled *“ERTMS, a key enabler for the digital and sustainable rail transition in Europe”*, that further explains the main topics addressed during the digital event.



UNIFE's EU Year of Rail ERTMS factsheet

2) Recent activities of the Control Command and Signalling (CCS) Platform



The cooperation between **EULYNX** consortium and UNIFE CCS Platform continued over the past year efficiently with the aim to review the interface specifications for interlocking technology.

Railway supply representatives are regularly invited to take part in the review of specifications and make suggestions from the product development perspective.

This cooperation has enabled both parties - suppliers and railways - to improve the specifications. On one hand, the need for queries and changes after the publication of the specifications decreases significantly and, on the other, EULYNX benefits from suggestions for improvement from the suppliers. The cooperation takes place within the **Change Control Board (CCB)** and on-request advice from the industry to the **EULYNX Architecture Cluster**. Based on the

production of extensive review comments, this arrangement has proven to be constructive and has marked a first step towards a wider collaboration with the industry which be using the specifications in the development of EULYNX-enabled products. The review process is complex and regularly produces extensive review comments. We observed several critical technical and economic issues, later alerting EULYNX of their existence. Potential consequences of these issues were discussed with the EULYNX consortium, which need to be complemented.

For the future EULYNX specifications, the suppliers are bringing in their point of view earlier in the process and actively contributing to the improvement and feasibility of the specifications. This is the only way to ensure a continuous development of EULYNX specifications.

3) ERTMS – Technical achievements 2021

a) UNISIG proposal for Error Correction and Functional Maintenance

In April 2021, ERA published its proposal for functional maintenance and error corrections. It included some extra burdens on suppliers, such as:

- ▶ Publication of a TSI update every 18 months
- ▶ Products upgrade obligation within 12 months with potential loss of certificate
- ▶ Suppliers' obligation to explain the product behavior vis-à-vis errors

In July, UNISIG experts prepared a position paper in reaction to ERA's proposal and announced that a suitable alternative for the rail supply industry would follow. By September, the UNISIG counterproposal and flowchart were officially presented first to ERA and then to CER. UNISIG's counter relies on the following principles:

- ▶ specification error corrections will be implemented and introduced with a manageable approach which reflects the complexity of the system without fixed short-term deadlines;
- ▶ the approach needs to be balanced between stability and flexibility;
- ▶ it must not jeopardize or interfere with authorisation and contractual commitments.

During these bilateral meetings with ERA and CER, no major concerns were raised from ERA or CER. The decisive ERA meeting at the end of October was constructive, leading to a few elements from our proposal being considered in the updated ERA version.



b) UNISIG contribution to the ERTMS/ETCS evolution and the next CCS TSI 2022

The dedicated UNISIG workgroups Supergroup, ATO, Level 3, System Group, Euroradio, RAMS and Cybersecurity have been working in coordination with S2R JU during the preparation of the technical inputs for the evolution of the ERTMS system. These efforts have been mainly in the field of ATO, FRMCS, ERTMS Level 3 and braking curves.

While the ATO specifications are close to completion, the 2021 focus was centered on the preparation of the **"European Train Control System (ETCS) over FRMCS principles"**. These principles are essential to preparing the ETCS products for the next generation communication system.

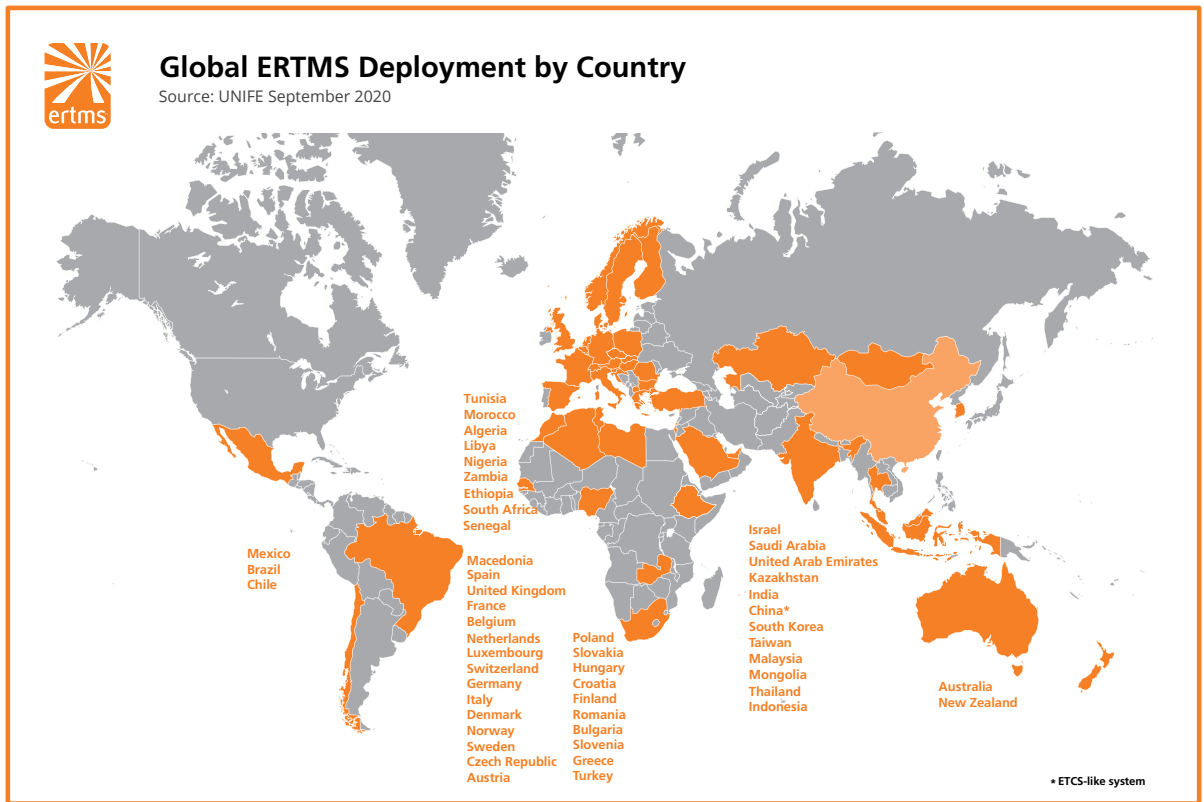
To start preparing the CCS TSI 2022, aiming to further facilitate the ERTMS deployment and introduce the mature game changers, UNISIG experts have been active in all DG MOVE and ERA coordination groups. In particular, their activities have been directed at the ERTMS Stakeholders Platform working groups for coordination, game changers, error correction, retrofit, test and validation, the ERA Control Group and the ERA CCS TSI working party.

Following pressure from some operators and their recent initiatives aiming at modularisation and standardisation of the on-board architecture, ERA has decided to create a topical group dedicated to this subject - the **ERA On-board Topical Working Group**.

Due to the possible impact of existing on-board products, UNISIG has decided to create a dedicated mirror group for the on-board architecture. This work package has been preparing the suppliers' input to the ERA topical group. This past March, UNISIG experts delivered to ERA a paper about the *Concept for the evolution of the on-board CCS architecture*. A major update was provided in September. This document clearly outlines the UNISIG considerations considering the evolution of the on-board CCS subsystem, as defined by the CCS TSI in close collaboration with UNIFE members from vehicle manufacturers, UNITEL and Shift2Rail CONNECTA representatives.



4) ERTMS deployment statistics



51
countries

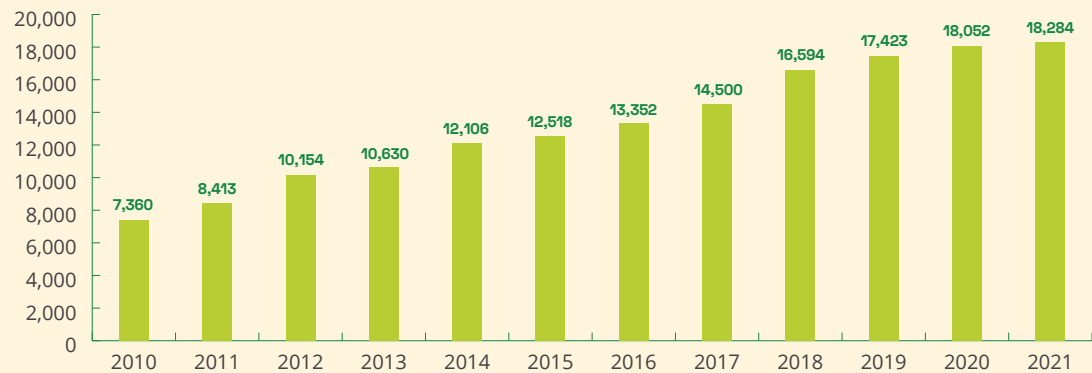
+100,000 Km
of ERTMS tracks contracted

+20,000
OBUs contracted

ERTMS trackside contracts, by year

In tracks km, comparison September 2010 - September 2021

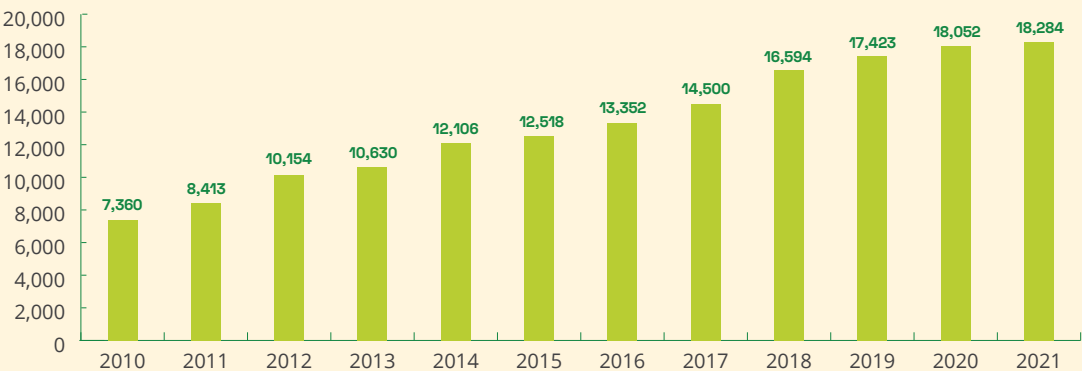
ERTMS EQUIPPED (OR TO BE EQUIPPED) TRACKS WORLDWIDE (KM) CONTRACTED (2010-2021)



ERTMS vehicles contracted

Comparison September 2010 - September 2021

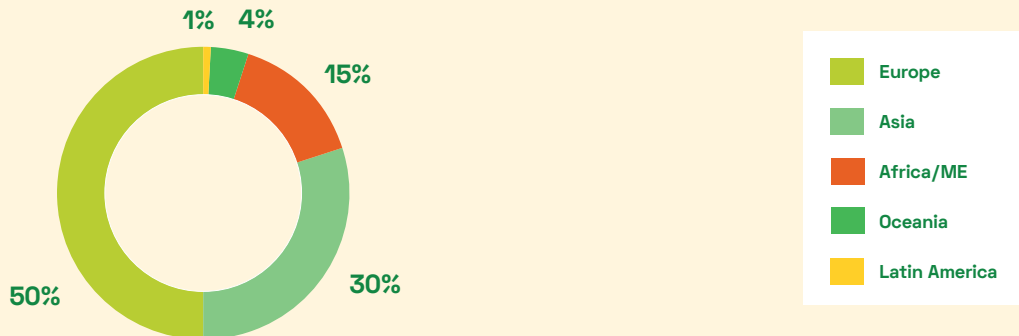
NUMBER OF VEHICLES EQUIPPED (OR TO BE EQUIPPED) WITH ERTMS IN THE WORLD (ETCS L1 &/or L2) (2010-2021)



ERTMS trackside contracted

In percentage, by region

CONTRACTED TRACKS (KM) IN THE WORLD (ETCS L &/or L2)



ERTMS vehicles contracted

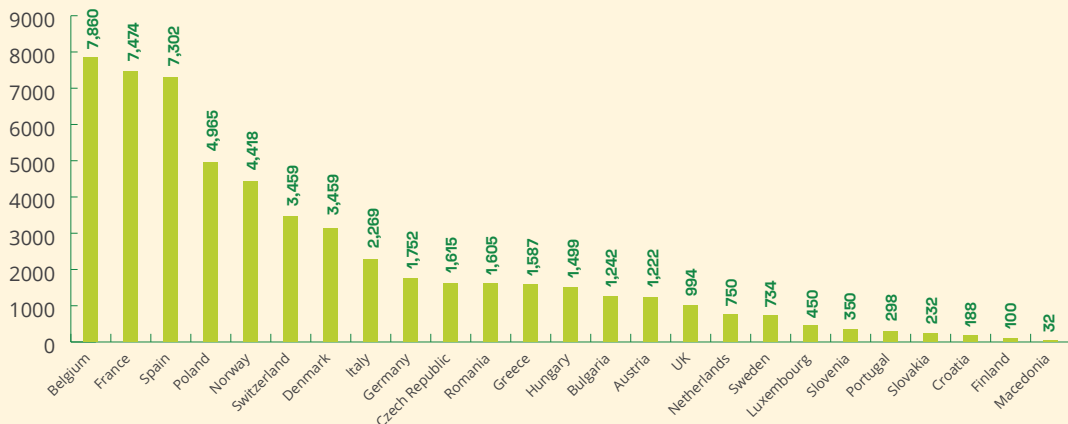
In percentage, by region

CONTRACTED VEHICLES (KM) IN THE WORLD (ETCS L1 &/or L2)



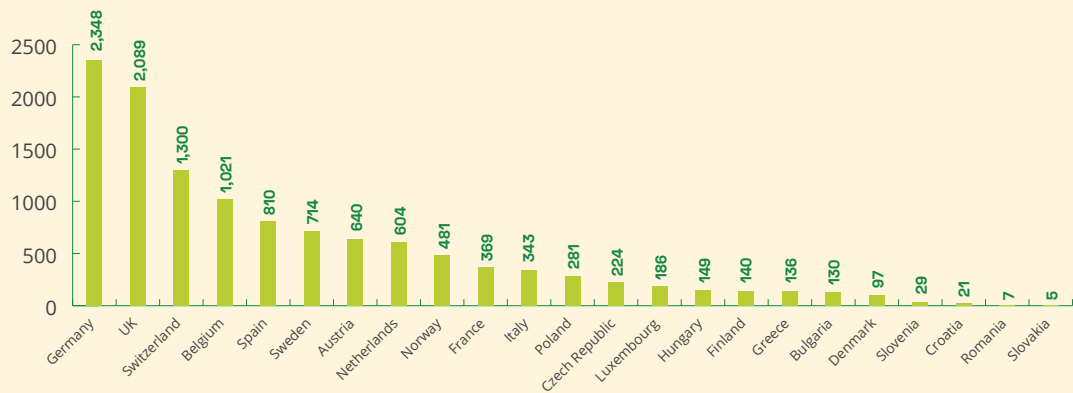
Global ERTMS contracted tracks (km) in Europe

CONTRACTED TRACKS (KM) IN EUROPE, INCLUDING SWITZERLAND (ECTS L1 &/OR L2)



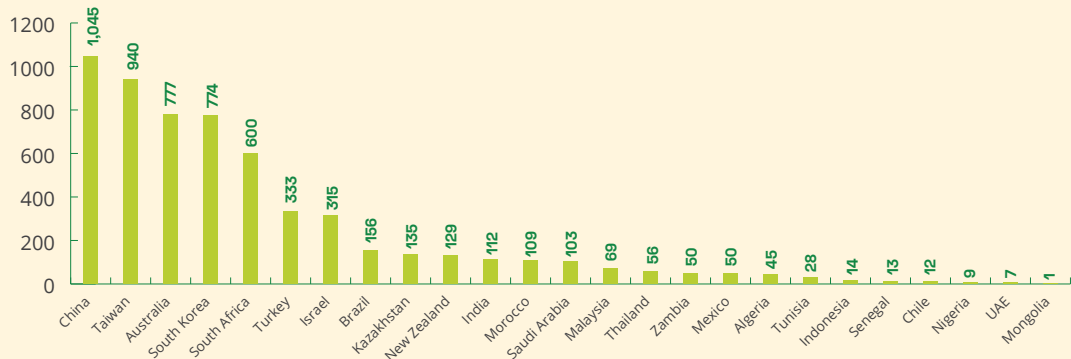
Global ERTMS vehicles contracted in Europe, per country

CONTRACTED VEHICLES IN EUROPE, INCLUDING SWITZERLAND (ETCS L1 &/OR L2)



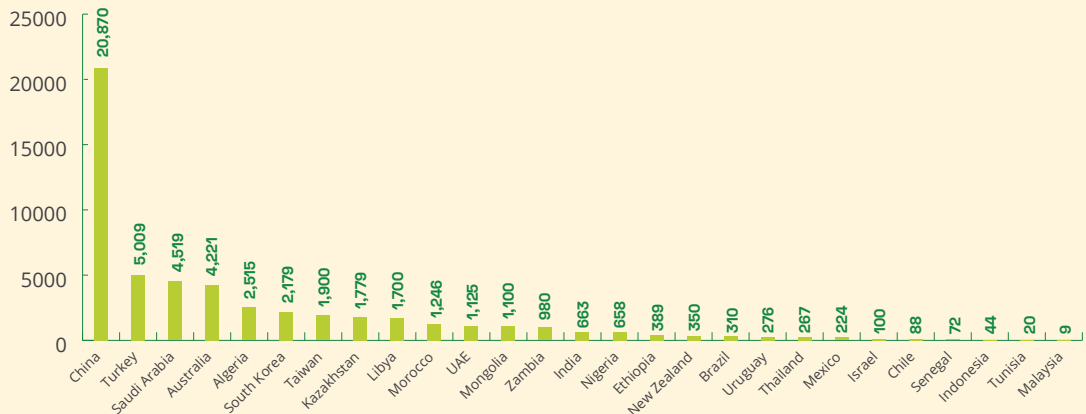
Global ERTMS vehicles contracted in non-European countries

CONTRACTED VEHICLES OUTSIDE EUROPE (ETCS L1 &/OR L2)



Global ERTMS contracted tracks (km) in non-European countries

CONTRACTED TRACKS (KM) OUTSIDE IN EUROPE (ETCS L1 &/OR L2)



The ERTMS [website](https://ertms.net) is regularly updated to provide latest updates through an interactive map regarding the system's deployment projects contracted by UNIFE members.

For more information on ERTMS and our progress during 2021, please visit ertms.net.

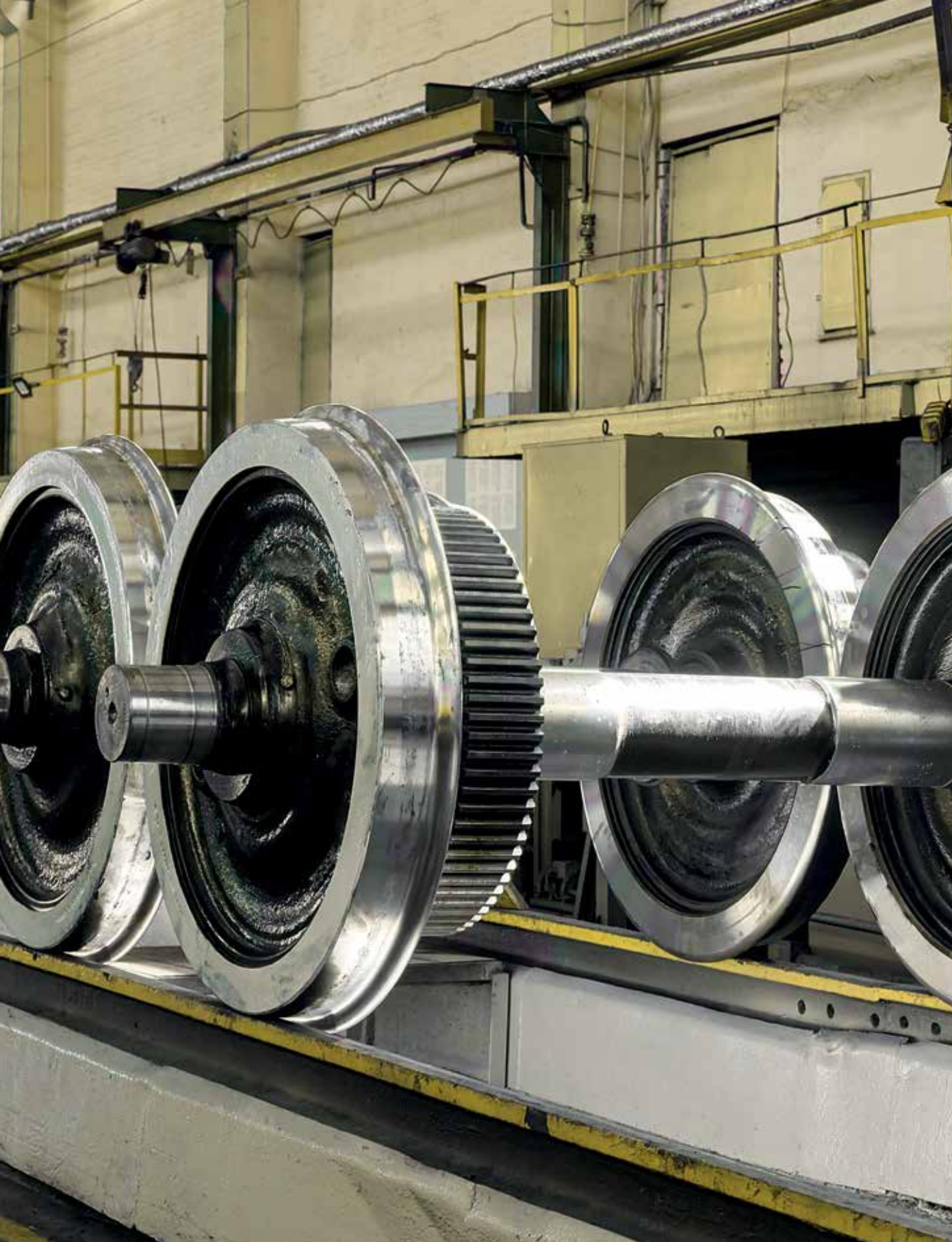


07

ERWA

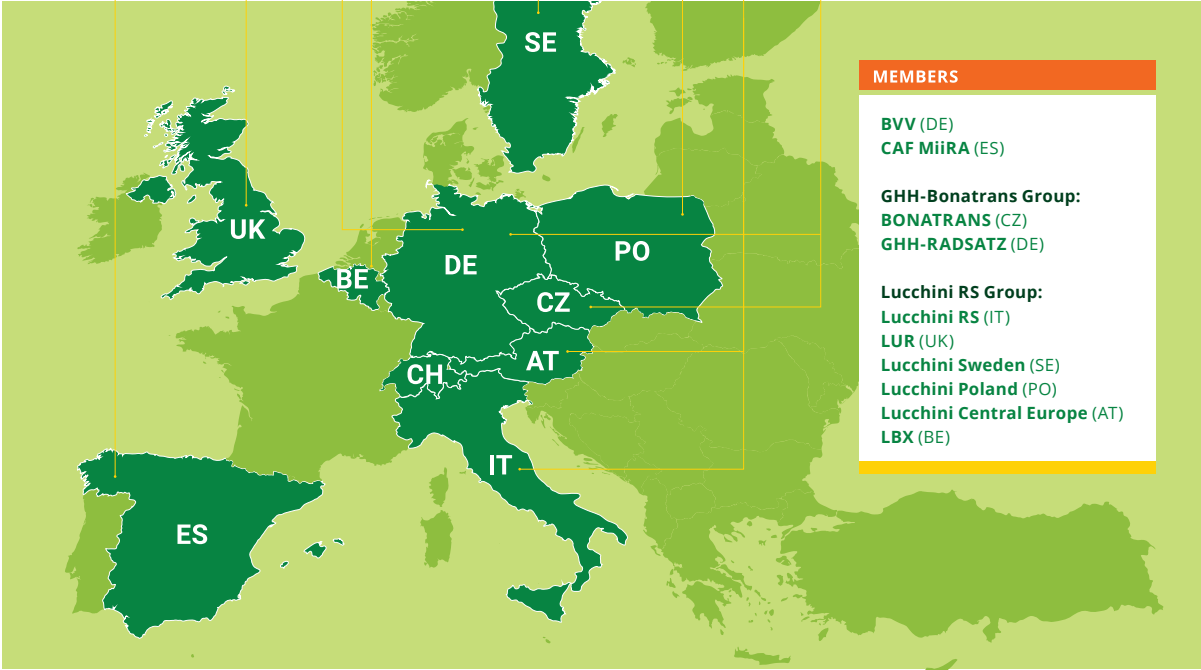
The UNIFE Railway
Wheels Committee

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UNIFE Railway Wheels Committee’s (ERWA) main mission is to contribute to the development of standards, promote safety and environmental friendliness innovations and foster both quality and best practices in the European market. ERWA members bring together over 4.300 employees in workplaces across Europe. The committee consists of the following members:

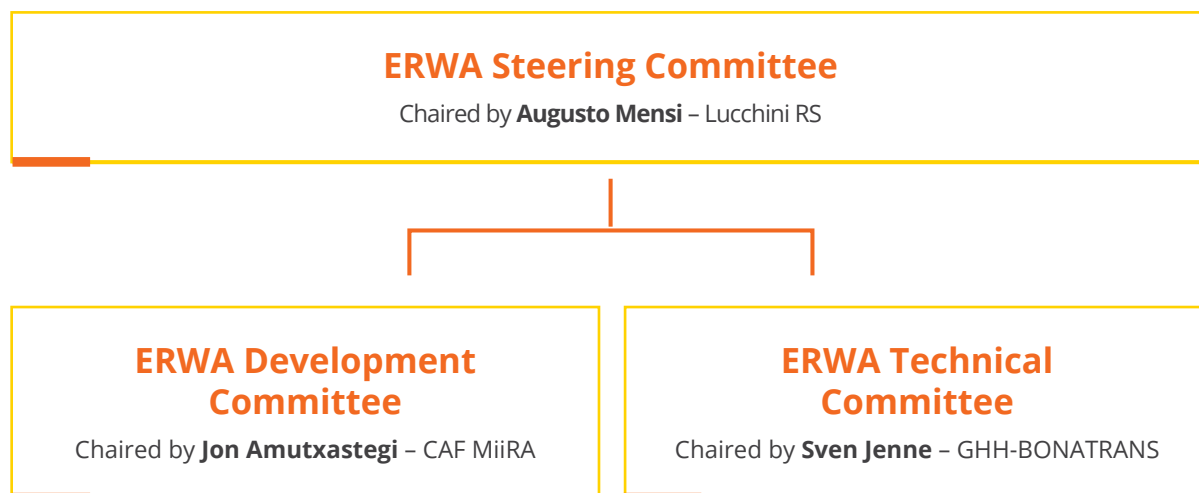


MEMBERS
BVV (DE) CAF Miira (ES)
GHH-Bonatrans Group: BONATRANS (CZ) GHH-RADSATZ (DE)
Lucchini RS Group: Lucchini RS (IT) LUR (UK) Lucchini Sweden (SE) Lucchini Poland (PO) Lucchini Central Europe (AT) LBX (BE)

Throughout 2021, ERWA carried out many important activities, these include:

- Contributing inputs to Standardisation and Regulation initiatives;
- Maintaining close links with the **EU Agency for Railways** (ERA) and standardisation bodies like CEN/ CENELEC;
- Initiating public relations activities and publications;
- Conducting market trend evaluations and forming committee statistics, along with patent and trademark monitoring;
- Carrying out analyses concerning MEAT principles compliance;
- Publishing its coating guideline document;
- Aiding in the organisation of the **International Wheelset Congress** (IWC).

These activities were carried out by the **ERWA Technical and Development Committees**, under the coordination of the **ERWA Steering Committee**. Following the 2021 ERWA General Assembly, which renewed the chairs of the three aforementioned bodies for another term, the committee's organisation is as illustrated in the following diagram:



One of the Committee's main focuses over the past year has been the publication of the coating guideline document, which aims to improve the quality of axle coatings. The intention is the assurance of a durable corrosion protection of wheelsets, a fundamental step towards a safer, more efficient and competitive railway operation.

The 20th IWC, will be held in the United States during the spring of 2023. The exact date and location have not yet been announced, but preparations are underway and attention is being paid to the establishment of various IWC committees needed to ensure the successful organisation of the congress.

For further information about ERWA, please contact: stefanos.gogos@unife.org.



08

IRIS

The International
Railway Industry
Standard

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The **International Railway Industry Standard (IRIS)** is a globally recognised system for the evaluation of business management systems unique to the rail sector. Promoted by UNIFE and supported by operators, system integrators and equipment manufacturers, IRIS complements the internationally recognized ISO

9001 quality standard, introducing rail specific requirements. It boosts customer satisfaction and implements a culture of quality in the rail sector by promoting methods and behaviours that lead sector stakeholders to pursue optimum performance.

IRIS Certification® developments

The IRIS Certification® scheme entered in a quite normal application status as there were no evolutions on neither the conformity assessment nor the connected standard ISO/TS 22163 in 2021.

Nevertheless, the impact of the COVID-19 pandemic was still perceivable - especially when contamination peaks appeared and were particularly acute when entire countries or regions took steps to limit contagion. During these challenging periods, IRIS managed to contend with these unprecedented issues as the scheme had previously implemented measures to enable approved certification bodies and IRIS-certified companies to go through their annual audit in a revised process.

These measures included:

- o Increasing the audit period from 3 to 5 months before the reference day anniversary
- o Providing more flexibility in the remote audit process when necessary
- o Communicating more about preventive management when working with certification bodies, auditors and companies
- o Closely monitoring developing scenarios from the IRIS Management Centre (IMC)

With this open and adapted approach to IRIS audits, our team could ensure that they could be performed according each companies' unique needs. After losing some certificates in 2020, this year saw an increase of new certifications and allowed IRIS to tackle the backlog of registered companies, which today leads us to forecast very promising future development.

We used the release of a new version of the IRIS Audit-tool - mainly a simplification intended to improve effectiveness of the audit plans - as an opportunity to re-train all active auditors on two additional subjects:

- o Customer perception
- o Quality performance levels

The aim was to have our assessors focus on these last implemented evaluations within the IRIS scheme as a means of highlighting the importance of their work in creating a perception of confidence and credibility for the railway sector.

The scheme's development remained consistent during 2021 with:

- o Approximately 100 witness audit days, where we monitored a third of our active auditors and re-confirmed most of their validity
- o 23 office audits, to ascertain the adequate respect of the IRIS rules in the organisation by the certification bodies

Communication was unfortunately constrained by the pandemic, but the IRIS team managed to effectively use social media to disseminate key messages during 2021. Most notably, two events allowed our team to highlight IRIS Certification® through our active participation:

- o As part of the European Union's designation of 2021 as the "Year of the Rail", we organised a digital event with the European Union Agency for Railways (ERA) on complementarity between IRIS and the Entity in Charge of Maintenance (ECM) scheme, which is compulsory for companies seeking maintenance business at the DB Rail Forum in Berlin, we advertised through the IRQB brand, our quality concept for the rail industry during this operator event,
- o The American Public Transport Association (APTA) TRANSform conference in Orlando this past November graciously allowed us to present IRIS Certification® to their Supply Chain Committee. Additionally, IRIS held a training for interested North American stakeholders in parallel to the conference.

Last, but not least, the IRIS Steering Committee has started their update of the Business Plan 2021-2030. The validation and first operational actions are expected to be completed in 2022.

Key information concerning IRIS Certification® can be found in the figure below or in the latest IRIS factsheet



2021 Key data of IRIS Certification®

IRIS 15

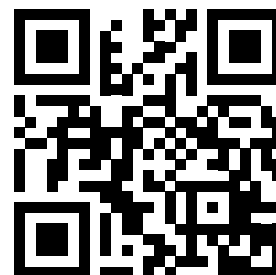
2021 was the 15th anniversary of the IRIS scheme.

Due to the prevailing health circumstances, a traditional celebration was unable to be safely coordinated. IRIS took this opportunity to use the occasion to carry out a deep analysis of its achievements over the years and the current perception of quality in the rail sector. Based on our return of experience detailed in all conducted audit reports, we could evaluate the global status of the rail companies by

geographical area, scope of activity, products, corrective actions and other classifications.

During this period, we also developed an interactive tool which will allow interested parties to make their own analysis, based on their preferred inputs.

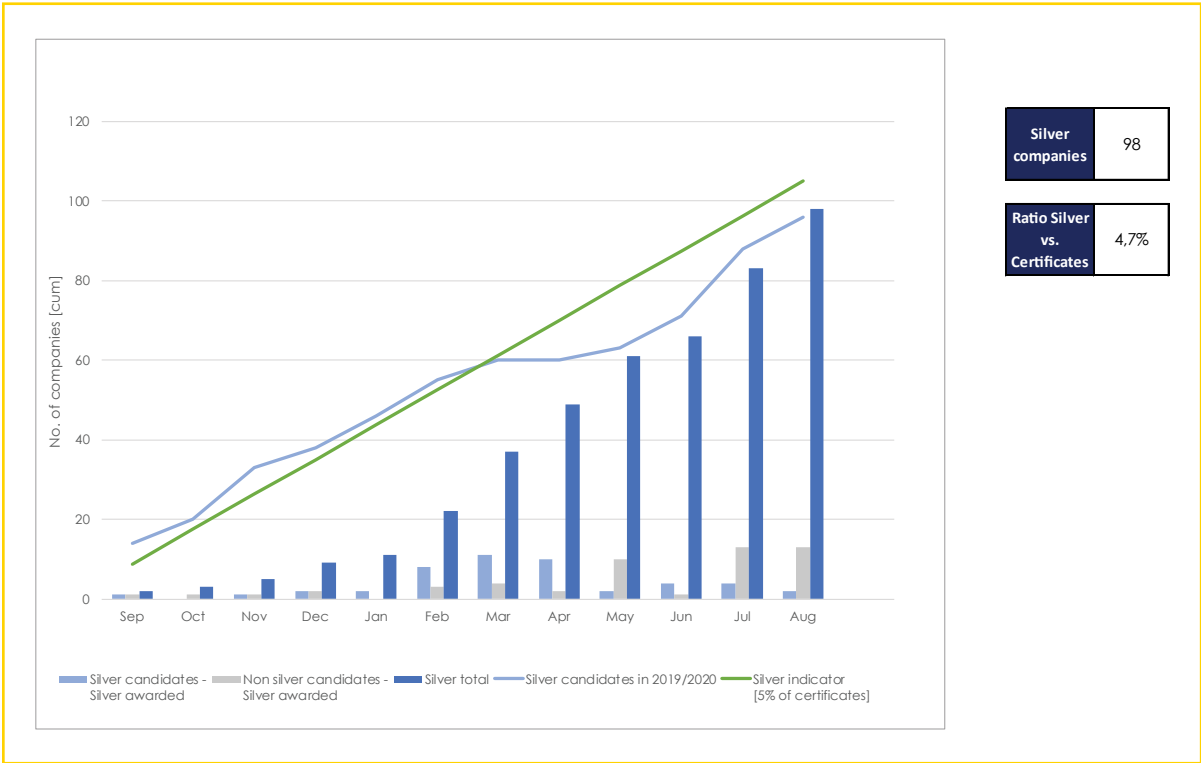
Using this innovative QR code, you can learn more about our experiences over the past 15 years and how they can contribute to your successes in the years to come.



Quality performance levels

Quality performance levels are the ultimate way for a company to demonstrate their dedication to optimal performance to its customers. The **IRIS Management Centre (IMC)** launched the Silver quality performance level – or “Transparency level” – on 1 September 2020. During the first year of application, IMC was able to award **101 Silver** designations. We closely moderated the related audits during this first year, as well as the reports through 100% documental veto-checks to guarantee the rules

were respected as they are the cornerstone for the system’s credibility. But the silver level was only a step, and a year to the date in 2021, we opened the assessment for the **Gold** quality performance level, also referred to as the “Trust level”. With such a name, expectations are very high for IRIS Certification® to ensure confidence towards product quality in the coming month. IMC will support the assessments with “calibration audits” to enhance the stakeholder’s expected degree of trust.



Silver performance status after 1 year

Towards ISO 22163



ISO/DIS 22163 cover sheet

On 30 November 2021, the *ISO/TC 269 WG 5* had its 21st and last meeting before entering the final validation phase along 2022. **Bernard Kaufmann**, IRIS General Manager and WG5 Convenor, organised nine virtual working sessions in 2021, a strategy that allowed the group to continue progress on its mandate despite the **International Standardisation Organisation's** (ISO) decision to discontinue physical meetings for the duration of COVID-19 starting in March 2020. Supported by the German secretariat, the working group finalised all pending points. Consensus could be found on the last important proposals generated by a worldwide college of experts.

In December 2021, IRIS handed the *Draft International Standard* (DIS) proposal to the **ISO Central Secretariat** in Geneva. This body is responsible for checking the document's conformity to the general ISO rules and translating it into the ISO official languages before starting a ballot phase among the membership. This phase will take place in the first semester of 2022. If the national standards bodies reject technical evolutions of the proposal, WG5 will have to propose consensual alternatives before a second ballot on a *Final Draft International Standard* (FDIS). The completed validation process should allow for the publication of ISO 22163 by the end of 2022.

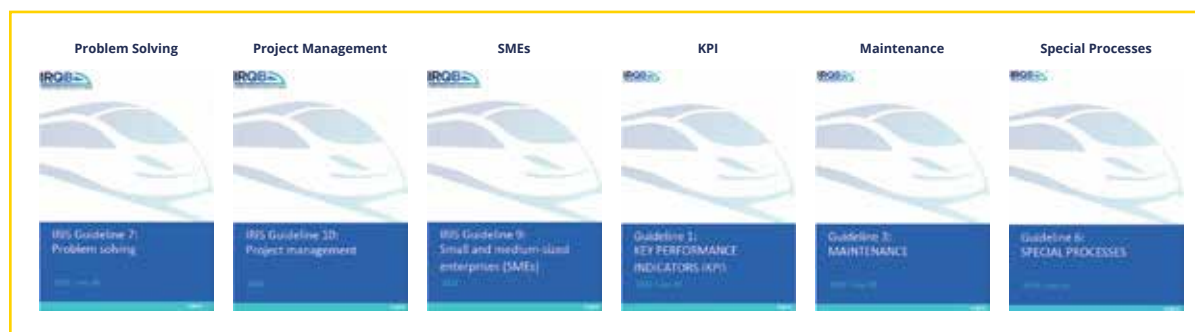
International Rail Quality Board (IRQB)

The **Alstom** and **Bombardier** merger left some space for additional membership on the **International Rail Quality Board**. To fill this void, **Svenska Kullagerfabriken** (SKF) joined the Consortium last October.

Over the year, several board meetings prepared, analysed and validated actions and outputs of the active IRQB working groups. Supporting

and strengthening the IRIS Certification® scheme was at the heart of the discussions and decisions.

Several topical working groups were reporting over the year about their achievements and especially the update or creation of guidelines was focused – their seven publications can be found on the IRQB [website](#).



IRQB Quality Monthly digital events

To discuss the benefits of IRIS Certification® and explain some of its technical requirements, IRQB held nine thematic rail quality digital events in 2021. These conversations aimed to increase the amount of IRIS certified companies by bringing further visibility to the scheme and discuss its components with companies that have already engaged with it to increase their quality performance.

These virtually-convened events attracted more than 3.000 registrations from more than 50 countries that represent rail equipment manufacturers, system integrators, rail operators, certification bodies, public authorities and consultants with roughly half of the registrations coming from Europe. It is encouraging to see that participation by country does not reflect regions that already have high numbers of issued IRIS Certificates, indicating growth potential in

geographical areas that are currently under represented in the scheme.

All IRQB seminars can be watched either live or later on the [website's](#) events section. Going into 2022, IRQB plans to continue with its monthly digital events as a mean to give further visibility to the scheme without substantial costs that accompany other communications strategies.



IRQB Quality Monthly digital events, register for future events at irqb.org/events

Looking to 2022

The coming year will be a crucial one for the evolution of the **IRIS Certification®** references: *ISO 22163* and the **IRIS Certification®** *Conformity assessment document*. These changes will consequently demand deep training and communication actions.

All UNIFE members are expected to support these further developments.



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COMMUNICATIONS

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unife

We are the European Rail
Supply Industry



1) 2021 European Railway Award

First organised in 2007, the European Railway Award celebrates and recognises outstanding contributions to the rail sector. The ceremony for the 2021 Award was the first to be held online and attracted more than 600 guests from across Europe, including politicians and transport stakeholders. This year, the European Railway Award reiterated our sector's central contributions to EU goals of sustainability and interconnectivity by recognising a wide range of actors helping to shape the future of mobility. The virtual ceremony also served as the rail sector's launch event for the year-long **European Year of Rail** campaign.



Greeted by **Philippe Citroën**, UNIFE Director General, and **Alberto Mazzola**, CER Executive Director, hundreds of participants from across Europe joined for the special edition programme, which honoured an outstanding political contributor and

citizen's initiative, in addition to the official Award voted by the jury.

The accolade of 'outstanding political contributor' went to **European Parliament** President **David Sassoli** for his leading role in the **4th Rail-**



Transport Commissioner Adina Vălean participates in the 2021 European Railway Award

way Package, aiding in the removal of the remaining legal, institutional and technical obstacles to creating a single European railway area. Speaking live from the European Parliament, President Sassoli said: “Europe is facing an unprecedented climate emergency. We all need to do more to build a more sustainable society. And one of the ways to solve this complex equation is the development and consolidation of a sustainable, intelligent and safe means of transport: the railway.”

Following her introductory remarks, EU Transport Commissioner **Adina Vălean** was joined for a round-table discussion, titled “*The resilience*

of rail”, by European Parliament and rail sector representatives. Participants, including Member of the European Parliament **Anna Deparnay-Grünenberg**, highlighted that the Year of Rail was an opportunity to “push rail as the green and innovative backbone of our transport system in Europe” but that investments in passenger and freight infrastructure – both physical and digital – was needed to “deliver tangible improvements for passengers and good travelling by rail”. They expressed that they saw the National Recovery and Resilience Plans under NextGenerationEU as playing a critical role in shaping this future transport paradigm.



In a year dedicated to bringing railways closer to citizens, author-activists Vincent-Immanuel Herr and Martin Speer were also recognised for their ‘outstanding citizen’s initiative’: the FreeInterrail movement. Their efforts, culminating in the successful DiscoverEU scheme for young people to discover Europe by train, have made rail travel a dream for young people once again and instilled a new fascination for Europe in the next generation.



Coradia iLint awarded 2021 European Railway Award

At the heart of the event was the announcement of the **2021 European Railway Award**, which the jury elected to present to the **iLINT** project. Resulting from a highly fruitful collaboration between Alstom and the **public transport authority of Lower Saxony** (LNVG), the **Coradia iLint** is the world’s first passenger train for mainline operation powered by a hydrogen fuel cell. The project proves that alternative technologies can offer the same level of performance without generating greenhouse gasses and proves that a completely emission-free railway system is possible, enabling rail to remain the most environmentally friendly land transport mode.

The project specifically targeted low-density networks where previously, due to the high deployment and maintenance costs of traditional electrification, diesel was the only propulsion technology available for rail transport. After a successful pilot, LNVG will now replace its diesel fleet with one completely composed of fuel cell trains starting in 2022. Moreover, other operators and networks across the world are following in their footsteps with new confidence in fuel cell technology. As such, the project achieved a breakthrough in the pursuit of fully decarbonised rail transport.

The award was accompanied by a donation of €10,000 to the charity of the laureate’s choice. LNVG decided to give the prize money to the children’s charities **SOS-Kinderdorf e.V.** and **SOS-Mütterzentrum Salzgitte**.



EP President David Sassoli, who sadly passed away in early 2022, received the 2021 Award for his role as an “outstanding political contributor”

2) UNIFE General Assembly

2021, much like 2020, was defined by the COVID-19 effects. Just as rail was an important tool in responding to the pandemic by transporting essential personnel, life-saving equipment and critical patients, Europe’s safest, most reliable and sustainable form of mass transport will be crucial to confronting two other ongoing crises: Economic recovery and *climate change*. During the European Year of Rail, our sector has continued to contribute to rail’s growth and positioning as the backbone of tomorrow’s sustainable transport paradigm. To further its goals, UNIFE elected to expand its membership during its annual General Assembly – held virtually due to the social distancing restrictions of the summer.



The UNIFE General Assembly, which is composed of its members takes any measures or actions required for the achievement of the mission and objectives of the association and its general policy, voted to ratify the membership of the following 13 companies:

ABB Power Grids Sécheron SA (Switzerland)	NetModule AG (Switzerland)
CS Group France (France)	Promeco Group Oy (Finland)
Dellner Couplers (Sweden)	TESMEC Rail (Italy)
ENYSE S.A.U. (Spain)	Te.Si.Fer s.r.l. (Italy)
Ingeniería y Control Ferroviario S.A.U. (Spain)	TTC Marconi s.r.o. (Czech Republic)
LCI Italy s.r.l. (Italy)	Walbo Railway s.r.o. (Czech Republic)
MER MEC Ste (Italy)	



2021 New UNIFE members

The General Assembly meeting was also an opportunity for the association to approve its **2021-2022 Advocacy Strategy**. UNIFE has agreed as an association to continue to raise awareness of the strategic importance of our manufacturing sector from both an industrial and a sustainable transport point of view; as well as to further highlight the major industrial challenges that the European rail supply industry is facing in a world of fierce competition defined by growing protectionism, restricting accessibility and increasing unfair subsidies. we will continue to advocate for strong EU measures targeting the three inseparable pillars of our lobbying strategy:

- o Ensuring the EU helps European suppliers continue to produce the best rail products on the world market (with the importance, for

example, of the new Europe Rail's Joint Undertaking to boost Research & Innovation)

- o Highlighting the need for the EU to improve the business environment, both in the EU and internationally, so that European suppliers – including Small and Medium Enterprises (SMEs) – can produce and sell their products in the best market conditions
- o Still, the best products and a satisfactory business environment are inconsequential if there is no demand for rail products. Therefore, stimulating demand in the EU and globally will remain the critical third pillar of our policy strategy, especially in the post-COVID-19 period. Hence, our advocacy campaign to secure massive rail investments in the framework of the National Recovery Plans.

Additionally, the UNIFE General Assembly saw the ratification of two changes in the association's governing body. First, members agreed to admit **Voestalpine**, to be represented by **Franz Kainersdorfer**, to the Presiding Board. UNIFE welcomes their inclusion and the invaluable perspective on rail infrastructure that they will bring to the table. The second change, is the approval of **Siemens Mobility** CEO **Michael Peter** to the board, replacing his predecessor **Sabrina Soussan**.

Lastly, the UNIFE General Assembly concluded with the approval of Paris as the host city for the 2022 edition, to be held on 16 June.

3) THE EUROPEAN YEAR OF RAIL AT A GLANCE

Recognising the mounting effects of climate change and our mode's ability to enable future economic growth, the European Commission elected to designate 2021 as the "European Union Year of Rail" (EYR).

To celebrate, raise awareness and explore further applications for our mode of transportation, the European institutions, national and local governments, civil society organisations and rail stakeholders from across the sector organised and participated in a year-long campaign that was conducted across the Union. These discussions, cultural exhibitions, digital outreach efforts, and more illustrated that the society we enjoy today and Europe's future green and just transformation into a global climate leader requires rail at the backbone of the next generation of multimodal mobility.

The most emblematic initiative of the EC was the [Connecting Europe Express](#). This train was put together with the aim of raising awareness of rail's benefits and the challenges which still need to be overcome. The train made over 120 stops, crossed 26 countries and 33 borders, travelling for 36 days on three different gauges across Europe. Throughout its journey, the train hosted several conferences and a mobile exhibition while welcoming school classes, policymakers, stakeholders and other citizens on board.

Commissioner for Transport Adina Vălean said: *"The Connecting Europe Express has been a rolling laboratory, revealing in real-time the many achievements of our Single European Rail Area and our TEN-T network to allow for seamless travel across our Union. I would like to extend my heartfelt gratitude to everyone who helped us turn the Connecting Europe Express from an idea into reality, a packed and exciting itinerary, memorable meetings – of minds and persons – and a true flag-bearer for European rail."*

More information on the Commission's work on the EYR can be found on the [dedicated page](#).



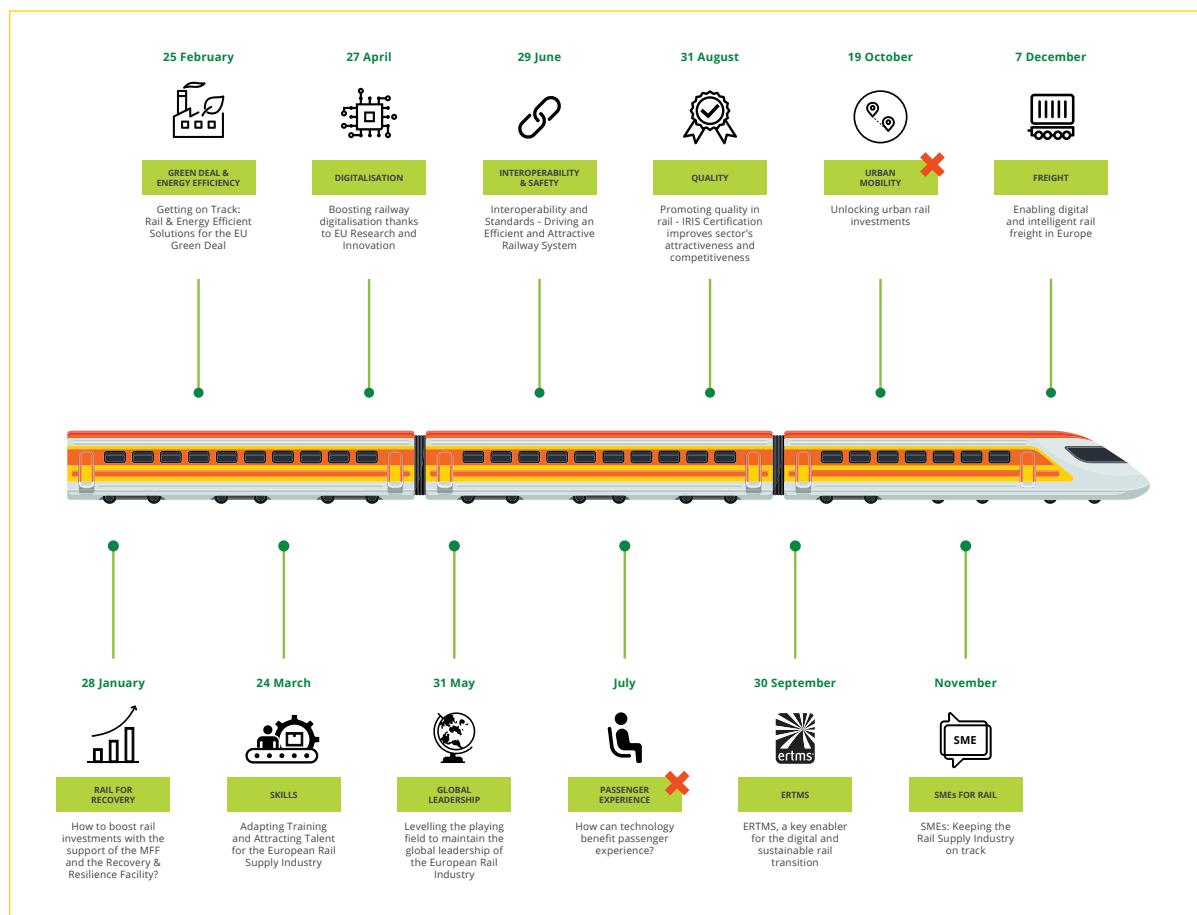
European Commissioner for Transport Adina Vălean participates in the EU Year of Rail

UNIFE EYR ACTION PLAN

The European Year of Rail represented the opportunity to push rail into the European spotlight and revitalise its public reputation. This is why, during the exchanges with our association's European Year of Rail Task Force, the

European Commission's counterparts, and other rail stakeholders, UNIFE identified several actions that would support the initiative. Based on these activities, UNIFE developed a dedicated EYR communications campaign that

ran throughout 2021. The main pillars of the multichannel communications campaign were a series of digital events, a 12-month social media calendar, and monthly thematic, interactive factsheets.



Perhaps most visibly, UNIFE presented 10 thematic digital events with leading rail sector representatives and officials from key institutions such as the **European Commission, European Parliament** and **Presidency of the Council of the EU** to explore the supply industries invaluable contributions to key European goals such as energy efficiency, digitalisation, freight, global trade and more! Conversations also delved into the best means to utilise rail as a means for economic recovery, attract and develop talent in our field, bolster our industry's international leadership and promote greater interoperability through standardisation.



► All-female panel for UNIFE's European Year of Rail digital event on skills

The campaign attracted more than **1700 registered participants** from **54 different countries**. Approximately **50% of attendees represented organisations that are not**

currently UNIFE members. These digital events were shared for later viewing on Vimeo and have continued to be accessed more than **230 times**. Furthermore, our association

more broadly engaged with Shift2Rail conferences and others, like **SIFER**, throughout the Year of Rail to share our industry's perspective during this highly visible period.

UNIFE spent 2021 coordinating the European Rail Supply Industry's engagement with this unique opportunity to present our role in the sustainable transport system of tomorrow.



UNIFE social media platforms during the Year of Rail

To reach an even wider audience, these efforts were mirrored on UNIFE's multiple social media accounts and in contributed articles to industry media. Our longest running digital campaign, UNIFE created and disseminated daily content pertaining to that month's thematic topic. Directly targeting industry and institutional stakeholders, as well as the wider public, our association generated

more than 727.000 impressions on both Twitter and LinkedIn with 435 posts – this figure does not include wider reach created by the activity of the participants and attendees. This constant, strategic **activity helped drive upwards of 102.108 visitors to view 391.752 pages on our newly designed website** that was released in 2021.



UNIFE's European Year of Rail Factsheets can be found on [our website](#)

During the year, UNIFE and its Members continuously advocated for a European transport paradigm that makes our communities healthier, more connected and increasingly able to grasp economic opportunities. In print, our association created specialised publications intended to delineate our stances while rail remained in particular focus under the Year of Rail initiative. These thematic factsheets were released monthly on the topic of that month's digital event. They delved more deeply into topics such as rail for recovery, the green deal, skills, interoperability through standardisation, promoting a culture of

quality, small and medium enterprises, ERTMS and more!

We are very proud that the European Commission and DG MOVE decided to adopt our **Hop On Rail campaign motto** as the European Union Year of Rail slogan. With this in mind we hope that more and more people and decision makers will **HOP ON the Train, Metro or Tram that will lead to a more sustainable planet!**

More information on our EYR work throughout 2021 can be found on our website in the [dedicated section](#).



4) Metrics



Google Analytics - www.unife.org



102,180
Visitors

391,752
Page views



LinkedIn - UNIFE - The European Rail Supply Industry Association



7,275
Followers

2,297
Visitors

128
Updates

138,469
Impressions:

2,745
Clicks



Twitter - @UNIFE



588,919
Impressions

55,328
Profile Visits

307
New Followers

383
Tweets

595
Mentions



Vimeo - UNIFE



1,543
Views

959
Unique viewers

19,866
Impressions:

**21 days, 4 hours,
17 minutes, 1 second**
Total watch time

UNIFE in the press



18
Interviews

148 Articles about or
mentioning UNIFE

UNIFE publications



16+ Position papers/reports UNIFE produced
or contributed to



5) Communications leadership and support for



	www.unife.org
	@unife
	UNIFE – The European Rail Supply Industry Association
	https://vimeo.com/user57233307



	www.hoponrail.eu
	@HopOnRail
	Hop On Rail
	www.instagram.com/hoponrail
	www.youtube.com/channel/UCVm3a3fKREqUeHQVidpOblg



	www.europeanrailwayaward.eu
	@EU_RailwayAward



	www.railstaffer.eu
	@Rail_Staffer
	Rail Staffer



	www.ertms.net
	@ERTMS



	errac.org
	@ERRAC_Rail
	The European Rail Research Advisory Council (ERRAC)



	www.iris-rail.org
--	--



	www.industry4europe.eu
	@Industry4Europe
	Industry4Europe



	www.irqb.org
	@TheIRQB
	IRQB - The International Rail Quality Board



	www.aegiseurope.eu
	@AEGISEurope





10

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**detached from Alstom
***acting as representative of QM370
****acting on behalf of Mindel Rail Consult

UNIFE wishes the best to those who left the team in 2021, we thank you for all of your important contributions to UNIFE's activities during your tenure



Jean-Philippe Peuziat



Michel Van Liefferinge*****



Tommaso Spanevello

*****Acted as representative of MV4TECH SCRI





11

UNIFE
MEMBERS
IN 2021



UNIFE Full Members 2021



AKKA High Tech

akka-technologies.com



Alstom

alstom.com



Altpro

altpro.hr



Arcelor Mittal

corporate.arcelormittal.com



Ardanuy

ardanuy.com



Astra

astra-passengers.ro



AZD

azd.cz



Belam LT

belam.com



Blue Engineering

blue-group.it



Bochumer Verein
Verkehrstechnik

bochumer-verein.de



Bombardier Transportation

rail.bombardier.com



Bonatrans

ghh-bonatrans.com



CAF

caf.net

CEG Elettronica

cegelettronica.com

Centralp

centralp.fr

Comesvil

comesvil.com

Constellium

constellium.com

ContiTech

continental-industry.com

CS Group

csgroup.eu

Dellner

dellner.com

ECM

ecmre.com

EKE Electronics

eke-electronics.com

Elcowire Rail

elcowire.com

Elma

elma.com



ELPA

elpa.si

ELTEC

eltec.de

ENYSE

enyse.com

Eolane

eolane.com

Ericsson

ericsson.com

ErvoCom

ervocom.ch

Evopro

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Faiveley Transport

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