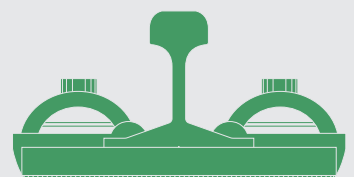
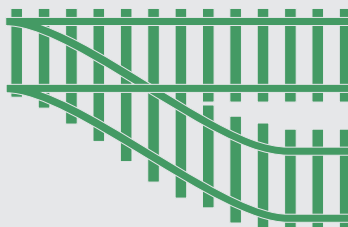
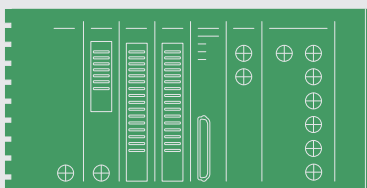
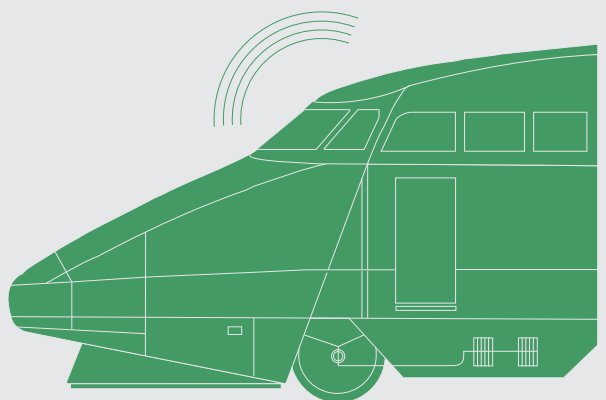
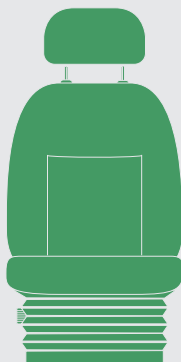
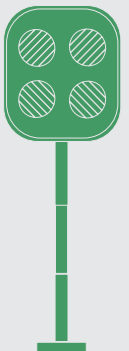
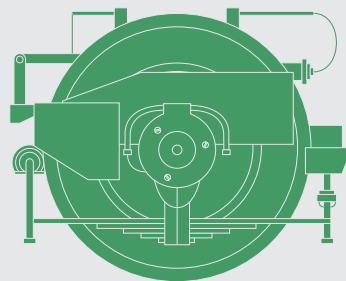
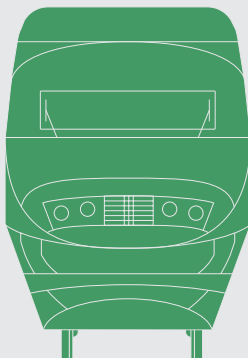
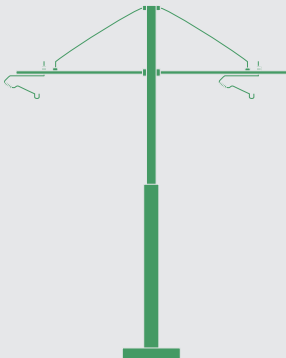
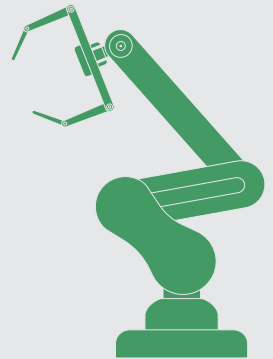
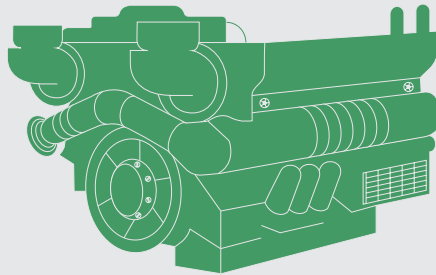


ANNUAL REPORT 2018

UNIFE – The European Rail Supply Industry Association



UNIFE – THE EUROPEAN RAIL SUPPLY INDUSTRY ASSOCIATION

ANNUAL REPORT 2018

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MESSAGE FROM SABRINA SOUSSAN, UNIFE CHAIR



2018 was a very good year for Europe's rail industry.

To begin with, there were a number of successes we could celebrate. Among them were the introduction of the London-Amsterdam rail service; the doubling of passenger numbers on the Munich-Berlin line; the demonstrator for virtually connected trams; the introduction of ATO over ETCS on mainline in the UK; auto-

matic wagon scans; or – a personal highlight the progress we've made with alternative drive systems, such as hydrogen or battery-powered trains.

Some of these successes received considerable attention in the press and on social media. Equally importantly, we received an exceptionally positive resonance for the technologies and innovations we presented at InnoTrans. All this contributes to a shifting and improved perception of our industry that I expect will help us attract more business as well as more talent.

Two other factors will undoubtedly also help the industry. First, the COP24 climate conference in Katowice once again confirmed the urgent need for decisive action to preserve our planet – and our industry is in a great position to help those seeking to implement environment-friendly transport solutions. Second, as InnoTrans 2018 highlighted, our industry is increasingly embracing the opportunities offered by the digitalisation in relation to trains, infrastructure and maintenance, and this will continue to boost our business.

We've also made progress on the policy front. I thank you for the trust you placed in me at our annual meeting in Warsaw, and I'm happy to report that we're making progress on the three strategic focus areas I outlined there for our collaboration with EU institutions.

First, in relation to promoting innovation. I am particularly proud of our joint efforts to secure funding within the next EU budget to advance innovation in our sector through Shift2Rail 2.

Second, in terms of improving business conditions. I look forward to a more streamlined approval process in Europe, when ERA becomes a one-stop-shop for vehicle authorization and safety certification as from June 2019.

Third, with regard to stimulating investment. For the EU budget 2021-2027, we continue to advocate a maximum level of public grants for rail, including for the deployment of ERTMS, to achieve a digital and interoperable rail system in Europe.

However, plenty of challenges remain and we cannot afford to become complacent. For example, the 2018 World Rail Market Study we presented at InnoTrans showed that the average market accessibility rate in our sector is only at 63%. More needs to be done to remove the hurdles we face in accessing major non-European markets, and to establish a level playing field.

I am confident that in 2019 we can count again on the great team at UNIFE to ensure that the needs of our sector are heard by EU politicians and policy-makers. However, they can't do it alone. I'm also counting on you: we need your active support and passion for rail to drive the European Rail Industry forward in 2019 – together!

I look forward to seeing all UNIFE members in Dublin this June.

Sabrina Soussan
UNIFE Chair

MESSAGE FROM PHILIPPE CITROËN, UNIFE DIRECTOR GENERAL



2018 was a busy and exciting year for UNIFE. Our prime objective has been, and will remain, to ensure the ongoing success and sustainable growth of Europe's rail supply industry. In our discussions with the EU institutions, rail sector stakeholders, and our partners in other industries, we addressed key issues that will determine the competitiveness of our sector in the coming years. These include:

digitalisation – which will generate enormous opportunities for our industry but will also lead to changes in our regulatory framework; the future financing of rail investments and research projects; the need for a level playing field and clear rules, properly enforced, to ensure fair competition in Europe and in other markets; and the current and potential impacts of climate change.

We had constructive and fruitful meetings with representatives of both Member States that held the Presidency of the EU Council (Bulgaria and Austria). In addition, we continued to promote the rail industry through our work in the European Parliament – notably on key occasions such as a roundtable on public procurement processes and a workshop on the competitiveness of the rail supply industry. Meanwhile, we have maintained our cooperation with the European Commission and the EU Agency for Railways (ERA) on various issues relating to standardisation and interoperability such as the deployment of ERTMS and the implementation of the Technical Pillar of the Fourth Railway Package.

UNIFE and several of its Members are also playing an active role in the European Expert Group on the Competitiveness of the Rail Supply Industry, which has been created in 2018 by the European Commission in response to the strong interest in our industry shown by MEPs. The Expert Group will continue its work in 2019, with the aim of reaching consensus on a series of recommendations addressed to the new Commission and to the Member States.

In May, the European Commission published its proposals relating to the size and priorities of the EU budget for the coming years, known as the Multiannual Financial Framework (MFF). UNIFE has been especially ac-

tive in making a strong case for the allocation of adequate funding to support rail projects throughout Europe – including infrastructure and rolling stock for passenger, freight, regional and urban rail, as well as ERTMS deployment. In particular, the Connecting Europe Facility (CEF) must be strengthened in order to enable the completion of trans-European networks for both high-speed and conventional rail. Funding should also continue to be made available through the EU Structural Funds for much-needed investments in rail – especially in those countries covered by the Cohesion Fund.

Research and innovation (R&I) activities are vitally important for Europe's rail supply industry as they allow UNIFE Members to preserve their status as world leaders in the development and application of new technologies. In 2018 we have been very active in making the case for maintaining and expanding support for rail-related R&I projects through the Horizon Europe programme that is due to be launched in 2021, including adequate funding for 'Shift2Rail 2'. As for digitalisation, we continue to consider it vital to develop a regulatory framework that helps our industry to profit from its opportunities

In recent years we have seen a steady increase in the level of public and political attention devoted to the current and potential impacts of climate change, and the urgent need to achieve significant reductions in CO2 emissions. This represents a major challenge for our societies, but it could also create huge opportunities for the rail industry. At the end of November, UNIFE together with CER and EIM published a Joint Position Paper on the crucial role of rail in the context of the EU's long-term strategy to reduce greenhouse gas emissions; then in December we took part in the 'Transport Day' at the UN Climate Change Conference (COP24) in Katowice.

As public authorities increasingly seek to reduce air pollution and traffic congestion in urban areas, UNIFE is working closely with stakeholders such as EUROCITIES, POLIS and UITP to promote the social, economic, health and environmental benefits of rail transport including light rail, metro and commuter train lines. At the same time, we are also actively promoting a greater utilisation of rail as a safe and sustainable solution for moving freight.

During InnoTrans, UNIFE was proud to host the signing ceremony of a Consortium Agreement, bringing together 11 suppliers (UNIFE Members) and 7 operating companies in order to establish an International Rail Quality Board (IRQB). We are hopeful that the IRQB will facilitate the involvement of stakeholders from the rail supply chain in the development and expansion of the IRIS Certification™ scheme.

InnoTrans also provided us with an excellent opportunity to unveil the seventh edition of the World Rail Market Study (WRMS). This important publication confirms that the global rail market should continue to expand in the coming years, with the fastest growth taking place in Africa and the Middle-East, followed by Latin America.

We have continued to see fierce competition for rail contracts across Europe and around the world. In UNIFE we remain committed to promoting fair competition, including transparent rules and equal conditions that create a level playing field for all suppliers. In this context, we are especially concerned about various forms of state assistance and other discriminatory and/or protectionist practices that certain countries are using to give locally-based (and often also state-owned) suppliers an unfair advantage over 'foreign' competitors.

Our commitment to promoting fair competition and mutual market access has remained at the centre of all our activities relating to international trade during 2018. In particular, we have closely followed developments regarding the EU-Japan Economic Partnership Agreement (EPA) and Industrial Dialogue on Railways, as well as the EU-China Connectivity Platform.

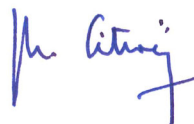
The UNIFE family continues to grow, and in June we welcomed 16 new Members on the occasion of our 27th General Assembly in Warsaw. The steady increase in membership that we have seen in recent years helps to make UNIFE more representative and thereby strengthens our ability to influence decisions that will affect our industry.

Another important activity during the last year has been our continuing participation in the Industry4Europe coalition, initiated by UNIFE, which now brings together more than 130 organisations representing a broad range of different industries. Our collective aim is to ensure that the EU will develop, adopt and implement an ambitious in-

dustrial strategy for the next five years, based on the understanding that successful industries are vital for Europe's economic sustainability and future prosperity, and they also provide meaningful jobs for millions of people.

In the following pages you can find more information on all of the topics mentioned above, and further details about our activities and achievements in 2018. We would like to thank our Members for their participation and commitment throughout the year and we look forward to working with you as we adapt to the changes and seize the opportunities that 2019 will bring.

Sincerely,



Philippe Citroën
UNIFE Director General

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UNIFE Presiding Board 2018



UNIFE IN 2018

UNIFE Mission

Promoting Rail Market Growth for Sustainable Mobility

The four priorities to achieve our mission

- Promoting European policies and programmes favourable to rail
- Working towards an interoperable and efficient European railway system
- Ensuring European Rail Supply Industry leadership through advanced research, innovation and quality
- Providing UNIFE Members with strategic and operational knowledge

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

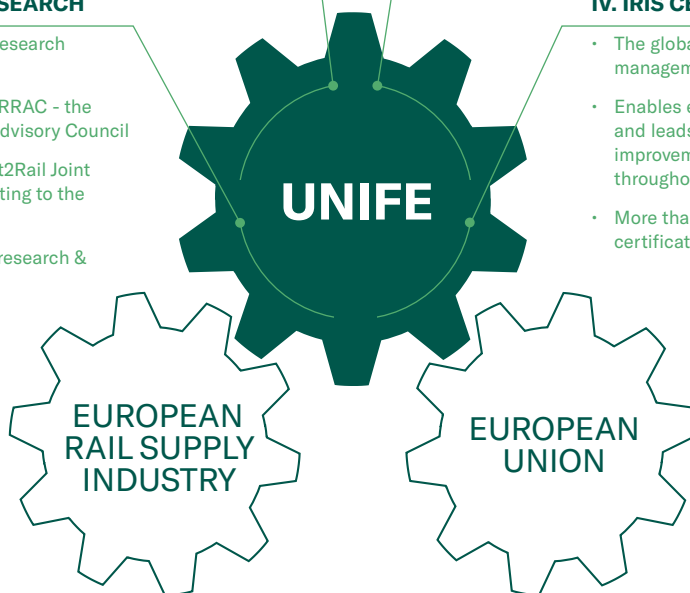
- Advocating policies that increase the global competitiveness of the European Rail Supply Industry
- Supporting modal shift policies that give priority to rail
- Encouraging investment in rail projects
- Promoting rail transport as the best solution to meet social challenges of the future

III. EUROPEAN RAIL RESEARCH

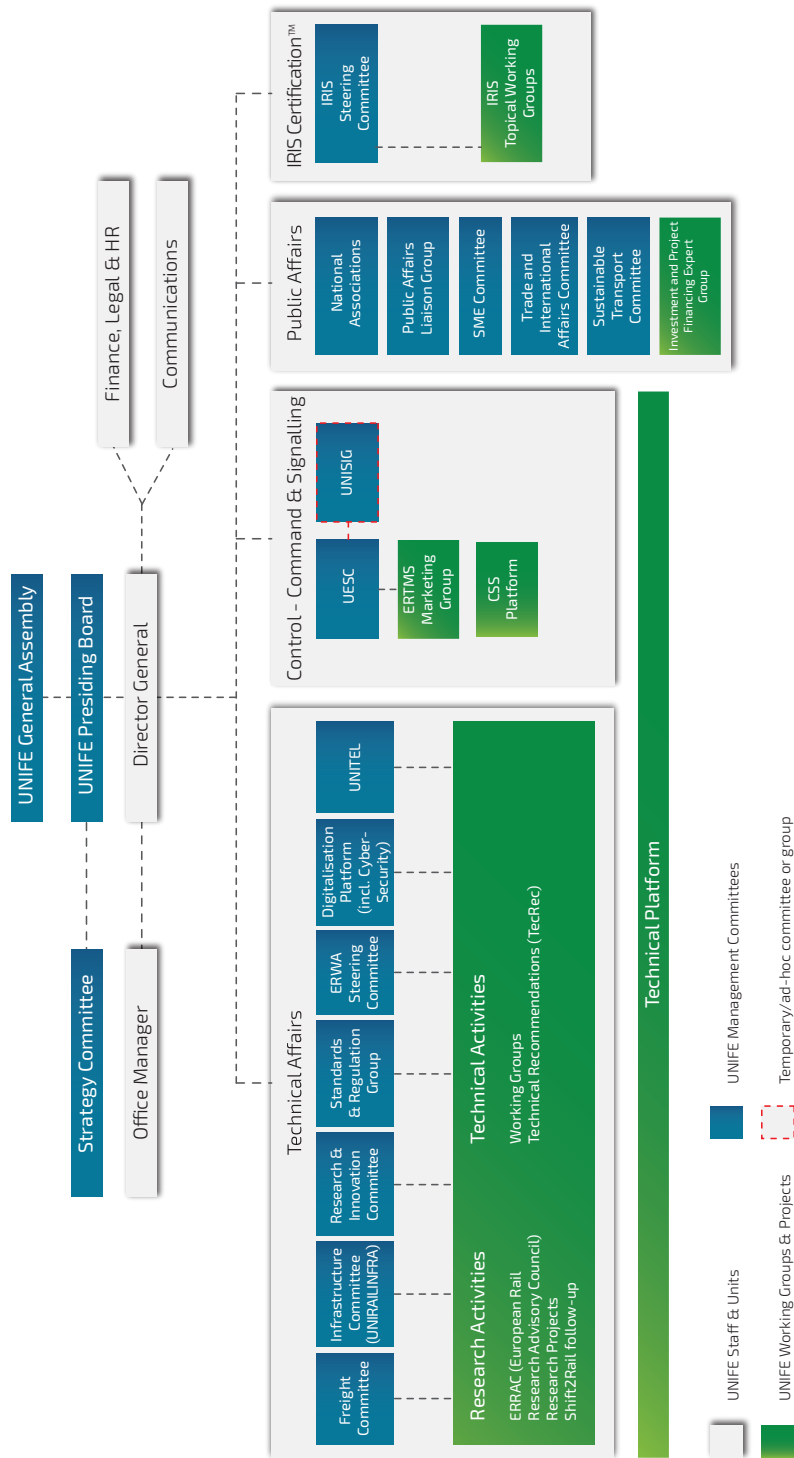
- Coordinating EU-funded research projects
- Playing an active role in ERRAC - the European Rail Research Advisory Council
- Cooperating with the Shift2Rail Joint Undertaking and contributing to the follow-up of its activities
- Shaping the future of rail research & innovation in Europe

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 1600 IRIS Certification™ certificates issued worldwide



UNIFE Structure



UNIFE Committees and Working Groups

The **Presiding Board** is the highest UNIFE Committee and is responsible for the management of the association. It takes any measure or action required to achieve the objectives and general policies of the association. It reviews applications for membership before they are submitted to the General Assembly for ratification. The Presiding Board is composed of 10 members elected by the General Assembly every three years. One seat on the Presiding Board is reserved for the Chairman of the UNIFE SME Committee.

The **Strategy Committee** steers UNIFE activities and advises the Presiding Board on all strategic and political issues. The members of this committee are high-level managers from the most prominent UNIFE Members.

The **Technical Platform** is responsible for dealing with all EU research, regulation and standardisation matters. In addition to sharing knowledge on relevant topics, this committee enables UNIFE Members to have a better understanding of issues relating to research, regulation and standardisation, as well as their background and implications for the rail industry across Europe and beyond. The Technical Platform provides proposals and recommendations to the various UNIFE technical committees and liaises directly with UNISIG regarding research, standardisation and regulation topics related to ERTMS.

The **Freight Committee** gathers companies active in the rail freight business and seeks to strengthen the position of the industry in the policy framework of the EU. The committee provides its members with information and support on EU funding opportunities for R&I projects, EU policies dedicated to rail freight, as well as opportunities to lobby the EU institutions on rail freight issues and participate in discussions on relevant TSIs/Standards.

The **Infrastructure Committee (UNIRAILINFRA)** brings together suppliers, contractors, and integrators active in the fields of engineering, production, installation, etc., in order to discuss and promote the development of the rail infrastructure and energy sector. The committee provides a platform for consensus-building on infrastructure and energy topics at a pre-competitive stage, with the aim of promoting investment and innovation in the railway infrastructure sector.

The **Research & Innovation Committee** steers UNIFE's technical activities in the field of research, technology and innovation. The committee manages the preparation of Shift2Rail 2 alongside the follow-up of projects and activities in the framework of Shift2Rail, Horizon 2020, and

ERRAC. This committee is composed of technical directors from the main UNIFE system integrators and subsystem suppliers.

The **Standards and Regulation Group (SRG)** steers UNIFE's technical activities in the fields of the European regulatory framework (Railway Directives, TSIs, and other relevant regulations) and standardisation. The SRG is composed of technical directors from the main UNIFE system integrators and subsystem suppliers.

The **ERWA Steering Committee** deals with issues related to the use, life cycle cost and standardisation of railway wheels and wheelsets. This committee brings together the CEOs of the European wheels and wheelsets manufacturers and is supported by the ERWA Development Committee and the ERWA Technical Committee.

The **Digitalisation Platform** aims to address the ongoing challenges and changes in rail transport linked to the rapid evolution of digital technologies. The platform brings together UNIFE Members providing digital solutions for smart and intelligent mobility. It closely monitors developments at European level related to the application of digital technologies in the rail sector (e.g. rolling stock, infrastructure, signalling).

The **Cyber-Security Working Group** brings together UNIFE Members with expertise in cyber-security, in order to discuss and identify opportunities for cooperation on cyber-security issues in the rail sector, with the aim of ensuring that the European rail supply industry can continue to lead in this area.

The **ETCS Steering Committee (UESC)** is in charge of coordinating UNIFE activities in relation to the European Train Control System (ETCS), which is a vital part of the European Rail Traffic Management System (ERTMS).

The **ERTMS Marketing Group (UEMG)** is in charge of coordinating marketing activities related to ERTMS, in particular deployment data, events, common publications and the ERTMS website.

The **Control Command and Signalling Systems Platform** provides expertise in the field of signalling and telecommunications to UNIFE. It is a platform for building consensus on signalling-related issues, in order to promote investment and innovation in the railway signalling sector. The committee is composed of representatives of UNIFE Members who are experts in signalling.

The **UNITEL Committee** focuses on the development and implementation of the future interoperable railway communication system (FRMCS/Next Generation), which will eventually replace GSM-R in the framework of ERTMS. UNITEL brings together the major railway telecommunications products suppliers and companies that have significant expertise in relation to the use of ERTMS. The committee members aim to ensure that the communica-

tion system for railways fulfils existing and future requirements in relation to signalling, train control and traffic management, and to support European railway research initiatives.

The **National Associations Committee** gathers 14 National Associations representing more than 1,000 large and medium-sized rail supply companies from all over Europe. As Associate Members of UNIFE, they engage in an important exchange, promoting UNIFE positions nationally while bringing national issues to the European level. The committee brings together the Directors of 13 National Associations from 12 different countries.

The **Public Affairs Liaison Group** aims to provide a platform for sharing information and ideas on EU policy dossiers, reflecting on lobbying strategies and identifying potential synergies between the advocacy activities of UNIFE and its Members. The group is composed of relevant experts nominated by UNIFE Members.

The **SME Committee** brings together the small and medium-sized companies that are members of UNIFE. The purpose of this committee is to provide the SMEs of our sector with information on EU policies and funds intended for SMEs, support them in accessing these funds and facilitate a direct and fruitful dialogue between SMEs in the rail-supply industry and the EU institutions.

The **Trade & International Affairs Committee (TIAC)** is in charge of monitoring EU trade negotiations with important stakes for the European rail industry and coordinating UNIFE's positions in relation to trade. The TIAC is also a platform for exchanging and disseminating information on bilateral cooperation activities undertaken by UNIFE on international markets.

The **Sustainable Transport Committee (STC)** is the platform for sharing knowledge and defining common positions on environmental sustainability topics. The STC provides UNIFE members with timely information on EU policy changes and develops targeted outreach actions. It also addresses questions related to the environmental performance of products and growing stakeholder demands for more eco-efficient products and service solutions. The STC is supported by several Topical Groups, which investigate specific issues and provide regular reports to the STC.

| SUSTAINABLE TRANSPORT COMMITTEE | | |
|---|--------------------------------|---------------------------------------|
| Life Cycle Assesement Topical Group | Chemical Risk Topical Group | Energy Efficiency Topical Group |

The **Investment and Project Financing Expert Group** brings together high-level executives responsible for the long-term financing of infrastructure and industrial projects (including PPPs) and in charge of their companies' relationships with multilateral development banks (such as the European Investment Bank and the European Bank for Reconstruction and Development).

The **IRIS Steering Committee** coordinates activities relevant to the promotion and development of IRIS Certification™, the globally recognised method for the assessment of business management systems that is tailored to the specific requirements of the rail sector. The committee brings together senior representatives of System Integrators and Equipment Manufacturers within UNIFE's membership.

The **Communications Committee** contributes to developing and implementing the UNIFE Communication Strategy. It is composed of Communications Directors from UNIFE Members.

| UNIFE TECHNICAL WORKING GROUPS | |
|-------------------------------------|--|
| Aerodynamics | Life Cycle Assessment (LCA) |
| Brakes | Noise |
| Cabin | Persons with Reduced Mobility (PRM) |
| Chemical Risks | Railway Dynamics |
| Crash Safety | Rolling Stock |
| Cyber Security | Safety Assurance |
| Diesel | Signalling |
| Electromagnetic Compatibility (EMC) | Telematic Application for Passengers & Freight (TAP & TAF) |
| Energy | Train Control Management System (TCMS) |
| Energy Efficiency | Vehicle Authorisation |
| Fire Safety (SRT) | Wagon (WAG) |
| Infrastructure | |

UNIFE Presiding Board 2018



Sabrina Soussan

UNIFE Chair

CEO, SIEMENS MOBILITY



Henri Poupart-Lafarge

Member of the Presiding Board

CHAIRMAN AND CEO, ALSTOM



Roger Dirksmeier

Member of the Presiding Board

MANAGING DIRECTOR, FOGTEC
(REPRESENTING THE UNIFE SME COMMITTEE)



Laurent Troger

Member of the Presiding Board

PRESIDENT, BOMBARDIER TRANSPORTATION



Klaus Deller

Member of the Presiding Board

CHAIRMAN OF THE EXECUTIVE BOARD AND
RESPONSIBLE FOR THE RAIL VEHICLE SYSTEMS
DIVISION KNORR-BREMSE AG



Andrés Arizkorreta García

Member of the Presiding Board

CHAIRMAN, CAF GROUP



Augusto Mensi

Member of the Presiding Board

CEO, LUCCHINI RS



Stephane Rambaud-Measson

Member of the Presiding Board

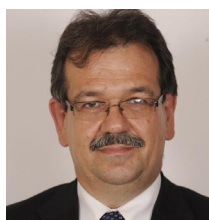
CHAIRMAN AND CEO, FAIVELEY TRANSPORT



Aike Schoots

Member of the Presiding Board

CEO, STRUKTON RAIL



Millar Crawford

Member of the Presiding Board

EXECUTIVE VICE PRESIDENT, GROUND
TRANSPORTATION SYSTEMS, THALES GROUP

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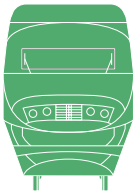
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Rail Forum Europe



EUROPEAN AFFAIRS

Relations with the Presidencies of the Council



The Presidency of the Council of the European Union rotates among the Member States every six months. The Presidency's function is essential as the responsible Member State determines the political agenda and sets the work programme for the semester as well as facilitating dialogue at Council meetings and with the other EU institutions. For this reason, UNIFE strives to establish close contacts with each EU Presidency well in advance of the start of its mandate in order to convey our messages and influence the Council's political agenda.

In 2018, Bulgaria and Austria held the Presidency of the EU Council during the first and second halves of the year. UNIFE's Director General therefore met with Bulgarian Deputy Transport Ministers Velik Zanchev and Anguel Popov, as well as with the Austrian Director General of the Transport Ministry Christian Weissenburger and Austrian Minister of Economic Affairs Margarete Schramböck's Cabinet, in order to present them with the special Briefing that UNIFE publishes for each Presidency.

UNIFE's contacts with the Council Presidencies delivered significant results, including the following achievements:

- UNIFE encouraged the Bulgarian Presidency to organise a European conference on "EU support for the development of rail transport in Bulgaria and the Western Balkans" (in Sofia on 13 April);

- Austrian Minister of Economic Affairs Margarete Schramböck invited UNIFE's Director General to speak about industrial competitiveness and the work of the Industry4Europe coalition in front of Ministers from all EU Member States during the Competitiveness Council on 29 November.

As it is extremely important to meet with officials from the relevant ministries as early as possible, in order to influence their work programmes, UNIFE also had several meetings with high-level representatives of the two Member States that will hold the Council Presidency in 2019: Romania and Finland.

Industrial Policy

a Rail supply industry leadership and competitiveness

The European rail supply industry requires proactive efforts from the European institutions and Member States to maintain its leadership of the global rail supply market and its 400 000 jobs in Europe. In this respect, UNIFE particularly welcomed the unanimous adoption by the European Parliament on 9 June 2016 of an official Resolution on the Competitiveness of the European Rail Supply Industry, prepared by MEP Martina Werner, which puts forward strategic measures that should be taken by the EU institutions in order to boost the competitiveness of the European rail supply industry and create a more level playing field in the global market for rail equipment.

In order to ensure a concrete follow-up, the European Commission created in 2018 a European Expert Group on the Competitiveness of the Rail Supply Industry. This Expert Group is composed of a total of 56 members, including representatives from the national governments of 10 EU Member States and 38 companies and organisations representing the rail supply industry (including UNIFE).



EC Expert Group meeting, 10 April 2018, Brussels

Three meetings took place in 2018, which allowed the group to identify all the main topics of interest for its members. The Expert Group will finish its work at the end of 2019 and is expected to reach consensus on a series of recommendations addressed to the new European Commission, the new European Parliament and the Member States.

b The Industry4Europe campaign

Early in 2017, UNIFE initiated a large and unprecedented coalition called Industry4Europe which now brings together 133 European industrial federations representing all manufacturing sectors and calling on the European Union to implement a long-term strategy to help safeguard the world leadership of European manufacturers and industrial jobs in Europe.



In January and February 2018, UNIFE – together with several other members of the coalition – met with EU Industry Commissioner Elżbieta Bieńkowska and European Parliament President Antonio Tajani to present them with our [Joint Paper For an ambitious EU industrial strategy: Going further.](#)



Philippe Citroën (Director General UNIFE) next to Elżbieta Bieńkowska (European Commissioner, DG GROW) during the Competition Council meeting in November, 2018

At the request of the Council's High-Level Group on Competitiveness and Growth, the Industry4Europe coalition prepared and adopted in 2018 two further Joint Papers, entitled [Setting indicators for an ambitious EU industrial strategy](#) and [A governance structure for an ambitious EU industrial strategy](#).

UNIFE presented these Joint Papers to the Council's Industry Working Party on 10 September 2018, and the Austrian Minister of Economic Affairs Margarete Schramböck invited UNIFE's Director General to present the coalition's views in front of Economy Ministers from all EU Member States during the Competitiveness Council on 29 November 2018.

The Austrian Presidency also took over in its *Presidency Report on Industrial Policy: Governance and Mainstreaming* – presented at the same Council meeting – some major recommendations of the Industry4Europe coalition, such as calling “on the next European Commission to [...] appoint a Vice-President dedicated to industrial policy [who] would be responsible for developing and coordinating the future EU industrial policy strategy”.

Last but not least, in order to convince the next European Parliament and the next European Commission to put industry at the top of their political agendas during the next institutional cycle (2019-2024),

the Industry4Europe coalition issued in October 2018 a Joint Call to the candidates for the 2019 European Elections entitled *Let's put industry at the core of the EU's future!* This Joint Call has been co-signed by 131 European Associations – representing all industrial branches – as well as by a total of 419 national industrial Federations from 26 Member States.



Industry4Europe coalition presents two Joint Papers to the Austrian Minister of Economic Affairs Margarete Schramböck's Cabinet

Research & Innovation Policy

Staying at the forefront of research and innovation is critical if Europe wants to maintain its industrial leadership within the context of increasing foreign (and particularly Asian) competition. In this respect, and as rightly pointed out by the European Parliament in its *Resolution on the Competitiveness of the European Rail Supply Industry* (June 2016), the Shift2Rail Joint Undertaking (JU) – a public-private partnership (PPP) supported by the EU through the Horizon 2020 framework programme – plays a key role in helping Europe “maintain a technological and innovative advantage”.

Since it became fully operational in the first half of 2016, Shift2Rail has provided financial support to numerous research and innovation projects. In this regard, UNIFE is actively supporting the continuation of Shift2Rail activities during the next programming period, beyond 2020, to be financed through the Horizon Europe Framework Programme 2021-2027.

In this context, UNIFE:

- Prepared and disseminated among decision-makers two Position Papers entitled *Shift2Rail 2.0: the much-needed EU R&I tool to maintain jobs and the global leadership of the European rail supply industry and Horizon Europe – The European Research and Innovation Framework Programme 2021-2027*
- Cooperated actively with like-minded organisations such as BusinessEurope and EARTO (European Association of Research and Technology Organisations), plus other associations directly involved in research and innovation PPPs within the framework of a ‘Joint Technology Initiatives (JTIs) Task-Force’
- Committed to organising several field trips for key decision-makers in different Member States and organised workshops on the key importance of the Shift2Rail JU (e.g. in the framework of Rail Forum Europe, in April 2018)



Carlo Borghini, Executive Director of Shift2Rail Joint Undertaking (S2R JU) presenting during the conference on “EU support for developing rail transport in Croatia”, 5 June 2018, Zagreb (Croatia)

Public Procurement in Europe

2014, the modernisation of the EU public procurement framework marked a positive step by making the so-called ‘Most Economically Advantageous Tender’ (MEAT) principle the basis for the awarding of contracts. However, the MEAT principle can be assessed in different ways and awarding contracts purely on price-based criteria is still a possibility. In 2017, the European Commission admitted that 55% of procurement procedures still use price as the principal selection criterion and acknowledged that “to achieve optimum outcomes in public procurement, strategic criteria need to be applied systematically”.

In June 2018, UNIFE drafted and widely shared a position paper on the MEAT principle setting out recommendations to rail contracting authorities and the EU institutions. UNIFE used this paper to promote the use of the MEAT principle to public authorities in Europe and beyond (through its bilateral cooperation activities). With this paper, UNIFE has also pursued its cooperation within the European rail community to elaborate joint sectoral guidelines on best value procurement. Furthermore, in September 2018, UNIFE organised a roundtable at the European Parliament with Romanian MEP Maria Grapini to discuss how the implementation of best value procurement can lead to a more sustainable approach to public procurement for infrastructure.



Roundtable discussion in the European Parliament, with MEP Maria Grapini

SME Policy

With a third of our membership composed of Small and Medium-sized Enterprises (SMEs), UNIFE continues to actively call on the European Commission to further develop and intensify its efforts to:

- support SMEs' internationalisation
- enhance SMEs' capacity to innovate
- facilitate SMEs' access to finance
- make national authorities more responsive to SMEs' needs, and
- expand skills training to overcome shortages of skilled labour

Members of UNIFE's SME Committee conveyed this message directly to Commission officials during meetings with the Directorates-General for Industry and SMEs (DG GROW) and for Research & Innovation (DG RTD), which took place in February and November respectively.

Furthermore, UNIFE's SME members were offered numerous opportunities to take the floor during high-level meetings and events dedicated to the competitiveness of our industry, notably in the framework of the European Commission's Expert Group on the Competitiveness of the Rail Supply Industry.

EU Investment Policy and Financing for Rail

2018 marked the beginning of the negotiations on the Multiannual Financial Framework (MFF) for the 2021-2027 period, so it was a crucial year for UNIFE's ongoing efforts to advocate for more EU funding to support investments in mainline, regional, and urban rail projects.

a Laying tracks for the future: the 2021-2027 Multiannual Financial Framework

With regard to the MFF, UNIFE has been actively calling for continued EU funding to support rail projects – including infrastructure, rolling stock and signalling (especially ERTMS deployment). With the EU institutions entering the negotiations that will shape EU expenditure over the 2021-2027 period, UNIFE has put forward key messages concerning funding and financing for rail projects in a Position Paper – published in September 2018. While calling on the EU institutions to agree ambitious budget allo-

cations for rail projects, UNIFE has consistently insisted that grants should remain the main EU funding tool for rail projects – be it through the Connecting Europe Facility (CEF) or the Structural Funds. UNIFE has also voiced its Members' concerns regarding the need for a better overview of planned investments to ensure consistent business planning, and insisted that in the 2021-2027 programming period there should be a streamlined approach with sufficient funds being clearly earmarked for rail projects.

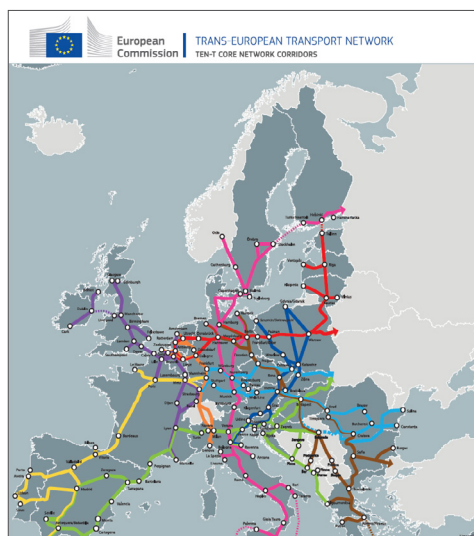
In order to ensure that EU funding is used as a lever to boost the economy and contribute to the reindustrialisation of Europe, UNIFE has also advocated that the next MFF should also be used as an opportunity to incentivise the Member States – when receiving support from EU Funds – to swiftly implement the 2014 EU public procurement framework, particularly the MEAT principle and 'best quality/price ratio' approach, as well as to raise awareness about Articles 85 and 86 of Directive 2014/25/EU*. Specific guidance should be provided within the next MFF concerning the application of the MEAT principle, which should be established as a guiding principle of all EU funding and financing mechanisms that are relevant to the European Rail Supply Industry.

These crucial points should be also considered when developing greater connectivity through EU investments in the accession countries and in the EU neighbourhood. Given the increased presence of non-EU financing in the enlargement countries and the EU neighbourhood (particularly Chinese financing), it is important to increase the total amount of grants being provided for renovation and modernisation of existing railway lines, the building of new lines and acquisition of rolling stock.

In this context, UNIFE, during numerous meetings with Transport Ministers and key decision-makers in capitals across Europe, expressed the industry's concern that negotiations on the next MFF should be concluded as early as possible to ensure that the EU funding would be available in due time, i.e. from the very beginning of the next programming period in January 2021.

*Directive 2014/25/EU of the European Parliament and of the Council of 26 February 2014 on procurement by entities operating in the water, energy, transport and postal services sectors

b TEN-T Policy and Connecting Europe Facility (CEF)



TEN-T Core Network Corridors

UNIFE has expressed its strong support for the continuation of the Connecting Europe Facility (CEF) in the 2021-2027 period in order to support the implementation of the Trans-European Transport Network (TEN-T) Policy, in particular its core network corridors. Efficient EU funding support will be key to achieving by 2030 a single multimodal European core network as outlined in the TEN-T Guidelines, as the European Commission estimates that EUR 430 billion is needed in rail investment by 2030. By 2050, the broader comprehensive network should be completed in order to ensure the accessibility of all regions, with common standards to enable the highest level of interoperability.

In view of the very high demand for EU co-funding (from 2 to 6 times the budget available, taking all eligible projects into account), UNIFE welcomed the European Commission's proposal to devote EUR 30.6 billion to CEF Transport, from which EUR 12.83 billion would be allocated to the general envelope, EUR 11.285 billion to the cohesion envelope, and EUR 6.5 billion to enhancing military mobility. However, leaving aside the military mobility envelope, the proposed CEF Transport budget did not foresee a real increase (from EUR 24.1 billion in the 2014-2020 period), therefore UNIFE fully supports the European Parliament's strong request to increase the budget for transport infrastructure to EUR 37.8 billion over the next seven-year period.

During 2018, UNIFE has had numerous meetings with the European Commission and participated in several high-level events organised by the Commission, such as the TEN-T Days in Ljubljana on 25-27 April 2018.



EU Commissioner for Mobility and Transport, Violeta Bulc speech during the TEN-T Days in Ljubljana

UNIFE also fully supports the role of the European Coordinators appointed for each of the nine TEN-T Core Network Corridors. UNIFE and its member companies continued to actively support the activities of Karel Vinck, European Coordinator for the deployment of ERTMS, and UNIFE also looks forward to supporting the new Coordinator Matthias Ruete. In April 2018, UNIFE published a [Position Paper on 'CEF funding for ERTMS deployment in the post-2020 MFF'](#), putting forward many concrete proposals on how to improve the business case for ERTMS deployment and raising several issues in relation to the management of grants that should be taken into account when preparing the CEF for the 2021-2027 period. In particular, UNIFE has insisted on the need for greater flexibility between project milestones and financing period, so as to avoid any possible loss of funding for ERTMS deployment due to the lack of alignment with the life cycle of ERTMS projects which can vary depending on testing and certification procedures or changes in technical specifications and/or national implementation strategies.

c Cohesion Policy and Rail Investments in Central and Eastern Europe

Through the Cohesion Fund and the European Regional Development Fund (ERDF), the EU provides significant support for rail projects across Europe. While 2018 saw an acceleration of the implementation of projects funded by the Member States' Operational Programmes for the 2014-2020 programming period, unfortunately, some Central and Eastern European (CEE) Member States still found it challenging to make full use of the funds which would enable them to rebuild their respective railway infrastructures. By facilitating cooperation and exchange of information between all rail stakeholders, and through meetings with decision makers in many CEE Member States, UNIFE has continued to promote an efficient absorption of EU funds available for rail. This was a key message conveyed during the event on "EU support for devel-

opening rail transport in Croatia” that UNIFE co-organised with Davor Škrlec MEP at the Croatian Parliament in Zagreb on 5 June 2018. This will, of course, remain a critical task for railway companies and public authorities in the coming years.



‘EU support for developing rail transport in Croatia’ event in Zagreb

As regards the 2021-2027 programming period, UNIFE has insisted that the EU Member States, and particularly the Cohesion countries, should continue to benefit from Structural Funds support for rail projects, as many countries still need to bridge a significant investment gap. In view of the above-mentioned absorption problems, capacity-building measures should be prioritised to ensure that the available resources are spent efficiently and produce the maximum results. These issues have been discussed in several meetings with the European Commission, members of the EP Committee on Regional Development, and responsible officials in various Member States. UNIFE has expressed its disappointment regarding the Commission’s proposal to significantly reduce the budget of the Cohesion Fund (by 45%) and asked the co-legislators to ensure that any reduction of the overall budget resources for Cohesion Policy will not prevent necessary investments in the rail sector.

d Mobilising Private Investment for Rail

While public grants will remain of vital importance to the financing of rail projects, UNIFE has cooperated closely with the EU Institutions and with the European Investment Bank (EIB) to ensure that EU initiatives aimed at mobilising private investment for strategic projects also benefit the rail sector. The UNIFE High-Level Expert Group on Investment and Project Financing has been particularly engaged throughout 2018 in considering ways to mobilise more investment for rail projects. UNIFE is insisting that, given the limited results of the European Fund for Strategic Investments (EFSI) in the rail sector, the so-called ‘blending’ of CEF and Structural Funds grants with the EFSI (and with the proposed InvestEU

programme in the 2021-2027 period) should be used only as an additional approach.

In 2018, UNIFE continued to actively cooperate with the European Parliament’s Long-Term Investment and Reindustrialisation Intergroup. Chaired by Dominique Riquet MEP (ALDE Group, France), the Intergroup is an important forum which brings together more than 70 Members of the European Parliament from various political groups, and UNIFE is one of its official partner organisations.

e Boosting investments in urban rail projects



Given the great potential of rail (including tram and metro lines) to contribute to sustainable urban mobility and the EU’s climate policy goals, UNIFE has been actively involved in looking for ways to boost investments in urban rail projects. On 15 May 2018, UNIFE co-organised with the Ministry of Transport of the Republic of Cyprus and POLIS (European Cities and Regions Network for Innovative Transport Solutions) a special session on ‘Integrating urban rail in a multimodal public transport system: Economic and environmental benefits, and financial solutions’ during the 5th European Conference on Sustainable Urban Mobility Plans (SUMP) in Nicosia (Cyprus). This event brought together experts from local and regional authorities, policy makers, urban mobility planners, and other interested stakeholders.

Transport

Decarbonisation and EU Climate Policies

The transport sector accounts for around a quarter of the EU's greenhouse gas emissions, which makes it the second-biggest sector, after energy, for greenhouse gas emissions. However, not only does rail rely very little on imported fossil fuels, it clearly stands out for its high energy efficiency, low specific emissions of CO₂, and growing use of energy from renewable sources (such as solar and wind).



UNIFE has therefore continued to be very vocal in promoting the essential role of rail in meeting EU targets for decarbonising the transport sector. At a time when political attention is increasingly focused on automated and/or connected road vehicles, UNIFE – also in the framework of the Platform for Electromobility – has continued to advocate more strongly than ever for a modal shift from road and air to rail, the most environmentally-friendly major mode of transport. In December 2018, UNIFE took part in the 'Transport Day' side event at the UN Climate Change Conference (COP24) in Katowice, promoting rail solutions as the key to achieving transport decarbonisation and sustainable urban mobility. UNIFE is a major supporter of the international climate agreement reached during the 21st Conference of Parties (COP21), which took place in Paris in December 2015 – committing to limit the increase in the global average temperature to 1.5°C above pre-industrial levels.



COP24 Transport Day event in Katowice, Poland

Furthermore, UNIFE also supports the European Commission's strategic long-term vision for a prosperous, modern, competitive and climate-neutral economy by 2050, as presented on 28 November 2018. We believe that this strategy can be a game changer and provide the

framework for the EU to achieve net zero emissions by moving towards a low-carbon economy, while also reaching high efficiency standards. The decarbonisation of the transport sector should mean, above all, more rail-based public transportation solutions and further electrification of the system.

With the goal of ensuring that Europe's rail sector plays a positive role in the framework of the EU's long-term strategy for a climate neutral economy, UNIFE has worked with other associations in the rail transport sector (i.e. CER and EIM) to prepare a joint Position Paper highlighting why rail must remain at the heart of EU policies aimed at decarbonising transport. UNIFE presented this joint Position Paper at the 'Transport Day' event in Katowice on 6 December 2018, which was organised as an official side event of COP24.

Digitalisation

The European rail industry plays a key role in the development and deployment of new digital technologies in relation to automation, sensors and monitoring tools, traffic/asset/energy/data management solutions (including ERTMS/ETCS) and security systems. In particular, driverless technologies, notably in metro systems, and automation projects for rail have long been pioneered and are also being supported via the Shift2Rail Joint Undertaking.

Nevertheless, the potential benefits of digital technologies in the rail sector have not yet been fully realised. With the support of its Digitalisation Platform, UNIFE adopted in 2016 an ambitious Position Paper on the Digitalisation of Railways, which sets out short and long-term priorities and targets for the rail supply industry's contribution to the digital transformation of rail. UNIFE also coordinated in 2017 the drafting of a Joint Rail Sector Declaration on Digitalisation of Railways, which was co-signed by CER, EIM, ERFA, UIP, UITP Europe and UNIFE.



Yves Perreal (Thales) Chairman of UNIFE's Digitalisation Platform presenting during the 'Digital Rail Revolution' Conference in Paris

During the last two years, there have been many significant developments in relation to new digital concept and trends – such as Artificial Intelligence, robotics and blockchain. Therefore, UNIFE and its Digitalisation Platform have started to work on a new Vision Paper – to be finalised in the first half of 2019. Throughout 2018, UNIFE and its members have been very active in promoting the European rail supply industry's views on digital topics. In this regard, UNIFE contributed two articles to the Global Railway Review magazine: 'The Connected Railway' and 'The Future of Rail'. Moreover, the Chairman of UNIFE's Digitalisation Platform, Mr Yves Perreal from Thales, was invited to take part in the final panel discussion at the "Digital Rail Revolution" Conference in Paris on 21 November 2018.

Urban Mobility

Urbanisation has been a major trend of recent decades which is expected to continue. As a result, urban transport now accounts for 40% of CO2 emissions and 70% of emissions of other pollutants arising from road transport. In addition, it is the main source of congestion, which has been calculated to cost around €100 billion, or 1% of the EU's GDP, annually. Urban transport must therefore meet the challenge of growing demand for mobility and safety while simultaneously reducing emissions of CO2 and other pollutants which represent a direct threat to human health.

The European rail supply industry provides solutions for urban transport with low or even zero emissions of CO2 and other pollutants. Light rail, metros and commuter trains, which in most cases are powered by electricity, are the least polluting mode of public transport in urban areas. Moreover, the rail supply industry is committed to improving the energy-efficiency of rail transport through various technologies and methods such as hybrid technologies, weight reduction, regenerative braking, energy storage, new traction technologies, optimised operational parameters and alternative power supply solutions.

During 2018, UNIFE has continued its active involvement in ongoing debates on urban mobility and strengthened its partnerships with associations such as POLIS, EUROCITIES and UITP. Funding and financing for urban rail projects has been a particularly important topic for UNIFE in 2018, as urban mobility is a key market segment for our members. Notably, UNIFE participated in the Sustainable Urban Mobility Plans (SUMP) Conference, held in Nicosia (Cyprus) in May 2018, and in the annual POLIS Conference, held in Manchester (UK) in November 2018.

Freight Transport

Over the course of 2018, UNIFE has continued to advocate for sustainable freight transport, convinced that the revitalisation of rail freight is closely linked to interoperability (notably through ERTMS deployment), innovation and streamlined authorisation processes. Although rail's share of the freight market has been relatively stable for several years, it is not growing and in some Member States it is declining.



Workshop on 'Inspiring the future for a more competitive rail freight system in Europe'

Decisive support for the modal shift objectives will come from the Shift2Rail Joint Undertaking, and Shift2Rail's Innovation Programme 5 (IP5) should be the backbone of a European strategy to make rail freight more sustainable and attractive.

Moreover, UNIFE played an active part alongside other rail stakeholders in the Sector Statement Group (SSG), which is working to follow up on the Joint Declaration signed during the TEN-T Days in Rotterdam in 2016. The rail sector has committed itself to the aim of enhancing the competitiveness of the Rail Freight Corridors for the benefit of all customers, and to improving the quality, reliability and efficiency of transporting goods by rail across Europe. Two years after the endorsement of the 2016 Joint Declaration, an assessment of the implementation of this document was carried out, in order to identify any new priorities that should be addressed in the coming years.

UNIFE is supporting the Commission's efforts to make rail freight more competitive and attractive through the UNIFE Freight Committee. In this context, on 25 October 2018, UNIFE organised a Workshop on 'Inspiring the future for a more competitive rail freight system in Europe' to officially present the European Rail Industry Freight

Agenda (ERIFA). This Workshop focused on innovation and technology for rail freight, highlighting the work carried out by the rail supply industry and its commitment to making rail freight more competitive.

Furthermore, UNIFE participated in two high-level conferences organised by the European Commission in the framework of the Year of Multimodality: one on 'European Intermodal freight Transport for Better Connectivity of Europe' in Sofia on 20 March 2018 and another on the 'Future of intermodal transport' in Brussels on 16 May 2018.

UNIFE was also pleased to take part in the 5th EU Rail Freight Day in Vienna on 6 December 2018, which was organised by the European Commission (DG MOVE) and RailNetEurope (RNE), in partnership with the Austrian Presidency of the Council of the EU. This event provided an opportunity for UNIFE and its partners (CER, CLECAT, EIM, ERFA, EUG, ESC, RNE, UIP and UIRR) to present the progress achieved so far in implementing the Sector Statement agreed at the 2016 TEN-T Days in Rotterdam.

Rail Forum Europe



In 2018, UNIFE continued to successfully manage the secretariat of Rail Forum Europe (RFE), which was established in 2011 in order to facilitate dialogue between Members of the European

Parliament, the European Commission, the Member States and key stakeholders on policy issues that are relevant for the rail sector in Europe. The Forum's role is very well-perceived by stakeholders and decision-makers, and RFE events are widely recognised as providing a valuable platform for fruitful exchanges on topics of interest to the European rail community.

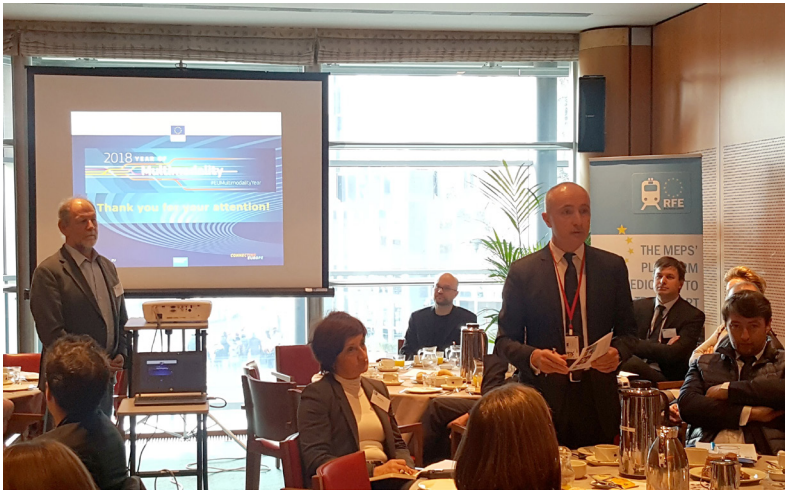
Rail Forum Europe was chaired during 2018 by Michael Cramer MEP, supported by two Vice-Chairs: Gesine Meissner MEP and Georges Bach MEP. Other full Members of RFE included the following MEPs: Ines Ayala-Sender, Ismail Ertug, Jo Leinen, Dominique Riquet, Andreas Schwab, Karima Delli, Boguslav Liberadzki, Lucy Anderson, Tomasz Poreba, Franck Proust, Christine Revault d'Allonnes-Bonnefoy, Jozo Rados, Massimiliano Salini, Istvan Ujehlyi, Wim Van de Camp and Martina Werner. Additionally, 41 companies and associations from the European rail sector also participate in RFE as associate members.

In 2018, Rail Forum Europe organised the following events, which provided opportunities to discuss key topics on the agenda of the EU institutions, with an average attendance of between 40 and 50 participants:

- 27 February 2018: The Internet of Trains: Heading for Data-Driven Rail Systems (sponsored by Siemens)
- 23 April 2018: Shift2Rail 2.0 – The next chapter for rail research & innovation in Europe (sponsored by UNIFE)
- 5 June 2018: Synergies between sectors: how innovation in rail can help Europe meet its energy & climate objectives? (sponsored by ABB)
- 5 September 2018: New competition perspectives for passengers in European railways (sponsored by BLS)
- 7 November 2018: Maximising the impact of EU funds – The road to a successful MFF 2021-2027 (sponsored by CER)

Rail Forum Europe activities will continue in 2019 with a number of events during the year, addressing some of the legislative dossiers of interest to the EU institutions and the European rail community. Following the European Parliament elections in May, a new Chairperson will be elected.

[FOR MORE INFORMATION ON RAIL FORUM EUROPE,](#)
[PLEASE VISIT \[WWW.RAIL-FORUM.EU\]\(http://WWW.RAIL-FORUM.EU\) OR](#)
CONTACTTOMMASO.SPANEVELLO@UNIFE.ORG



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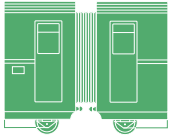
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Trade relations between the EU and China



Over the past few years, UNIFE members have encountered increasing difficulties in the Chinese rail market, the accessibility of which has steadily decreased to only 18% for the period 2015-2017. Not only are some market segments now effectively closed to foreign suppliers, but additional constraints (e.g. non-transparent public procurement procedures, increasing

localisation requirements, etc.) are regularly imposed by contracting authorities in the few market segments that remain accessible. At the same time, Chinese state-owned companies have become increasingly powerful players in all product segments and on all continents, often through unfair competition.

Against this background, UNIFE has closely monitored several initiatives and dossiers throughout 2018:

a Access to China's rail market

Negotiations between the EU and China on an Investment Agreement were officially launched in November 2013. Following an agreement on the scope in 2016, both parties confirmed that the future agreement should improve market access opportunities for investors by establishing a genuine right to invest and by guaranteeing that there be no discrimination against foreign companies – a key priority for European rail suppliers. In 2018, the parties exchanged initial offers on market access, but there is still a long way to go before an agreement can be reached. Therefore, UNIFE revised its existing position paper on access to China's rail market and called upon the European Commission to accelerate its negotiations with China. UNIFE has also continued to monitor China's ongoing efforts to join the WTO Agreement on Government Procurement (GPA) and supports China's accession to the GPA on the basis of reciprocity with the EU's offer. Throughout 2018, the European Commission pursued its actions to encourage Chinese authorities to come up with a new and more ambitious offer that would also include

state-owned enterprises, as previous offers have been deemed insufficient in terms of guarantees and coverage of procuring entities. Meanwhile, China's commitment to joining the GPA was reconfirmed during the EU-China Summit in July 2018.

b Cooperation and competition with China

In September 2015, a Memorandum of Understanding (MoU) was signed on the 'EU-China Connectivity Platform' to enhance synergies between China's 'One Belt One Road' initiative and the EU's connectivity initiatives (including the TEN-T policy). In July 2018, the third Chairs' meeting between the European Commission (DG MOVE) and China's National Development and Reform Commission (NDRC) was held, along with a meeting of the expert group on investment and financing. An agreement was reached on a short-term action plan for the EU-China Connectivity Platform, while discussions on potential pilot projects continue. UNIFE has been actively supporting the joint commitment to promote transparency and a level-playing field based on market rules and international norms, and has defended this position throughout 2018 (e.g. in the Asia-Pacific Research and Advice Network roundtable on connectivity). However, it would appear that things are progressing very slowly.

Regarding cooperation and competition with China, UNIFE is:

- Advocating for a further review of the OECD Sector Understanding on Export Credits for Rail Infrastructure (RSU) and the promotion of this agreement to the Chinese government
- Promoting the enforcement of EU public procurement rules in relation to rail projects, so that a level playing field can be guaranteed between all rail market players
- Following all relevant initiatives such as the dialogue on state aid control between the European Commission (DG Competition) and China
- Monitoring Trade Defence Instruments and their developments in Europe

Framework for screening of foreign direct investments into the EU

In response to growing concerns about non-European investments in strategic sectors, the European Commission made a proposal in September 2017 to set up a European framework for screening foreign direct investments into the European Union. This proposal aims at enabling Europe to preserve its essential interests and includes a European framework for the screening of foreign direct investments by Member States on grounds of security and/or public order, as well as a cooperation mechanism between Member States and the Commission.

An agreement during the trilogues of EU institutions was reached on 20 November 2018, and the INTA Committee of the European Parliament endorsed the compromise on 11 December. The text will head to a plenary vote in February 2019. Throughout the year, UNIFE continued its actions – in line with its 2017 position paper – to promote an EU framework with a credible and efficient cooperation mechanism, working especially with MEP and Rapporteur Franck Proust as well as with EU Member States.

Brexit



On 29 March 2017, the United Kingdom notified the European Council of its intention to leave the European Union, in accordance with Article 50 of the Treaty on European Union.



Brexit could present major challenges for both seamless mobility and a more competitive European rail supply industry. In a position paper disseminated in June 2018, UNIFE therefore called on the EU institutions and the UK government to swiftly reach an agreement that minimises any disruptions of trade flows and also provides for continuing EU-UK cooperation on technical topics, skills and innovation.

UNIFE met with the EU negotiating team and closely monitored the negotiations on the Withdrawal Agreement (on which an agreement was reached in November 2018) and on the future relationship between the EU and the UK. The next steps will be particularly important, as the Withdrawal Agreement will need to be ratified by the EU and by the UK in order to avoid a 'no deal' situation; while negotiations on the future relationship will be key to maintaining frictionless trade with the UK.

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Trade relations with US, Mexico and Mercosur

a EU-US economic relations



Following the suspension of the Transatlantic Trade and Investment Partnership (TTIP) negotiations between the EU the United States, UNIFE continues to monitor the situation regarding access to the US market, including issues related to public procurement and trade tensions between the US and the EU – as well as between the US and China. Against this background, UNIFE

has maintained regular contact with the European institutions and with US rail stakeholders to monitor the evolution of the situation, notably regarding the rail sector.

b Free Trade Agreements with Mexico and Mercosur



In 2016, the EU and Mexico launched negotiations to update and modernize their Global Agreement, which has been in force since 2000. After reaching an 'agreement in principle' in April 2018, negotiators from both sides are continuing their work to resolve the remaining technical issues and finalise the full legal text. Although the results on public procurement seem promising,

especially with respect to the question of national treatment only the final text will provide clarity on the coverage of procuring entities at state and local levels – which has been a key request from UNIFE.

In 2010, the EU started negotiations with the four founding members of Mercosur (Argentina, Brazil, Paraguay and Uruguay). These negotiations were put on hold in 2012 and resumed in 2016 but intensified afterwards as both blocs would like to strike a deal as soon as possible.

On both of these files, UNIFE has worked in close cooperation with the European Commission to convey the concerns and wishes of European rail suppliers regarding public procurement. In particular, UNIFE has stressed the need to tackle discrimination against foreign suppliers (e.g. by giving preference to domestic suppliers) and provide guarantees of transparency and non-discrimination at both central and sub-central levels.

Cooperation with Gulf Countries (GCC-SG)



The Gulf countries region remains a priority market for the European rail supply industry, and the 2018 World Rail Market Study foresees considerable investments in this region in the next years, especially for metro systems (e.g. Madinah and Dammam metros in Saudi Arabia).

Since 2014, UNIFE has built a solid cooperation with the GCC Secretariat General (GCC-SG), which oversees economic developments in the region. In December 2017, both organisations signed a Memorandum of Understanding (MoU) in Paris and agreed to further discuss market developments for freight and passenger transport, EU and GCC railway standards, interoperability of rail networks on cross-border corridors, and the deployment of the European Rail Traffic Management System (ERTMS).

During the Middle East Rail Conference, which was held in March 2018 in Dubai, UNIFE presented the contribution of the European rail supply industry to a competitive rail network in the region. Follow-up discussions on research and innovation, interoperability of the rail system in the region, IRIS certification and public procurement were also held with representatives of the GCC-SG and GCC Member States, the European Commission and the EU Agency for Railways (ERA). Finally, during the InnoTrans trade fair in Berlin (September 2018), a delegation from the GCC-SG gave a presentation at the UNIFE stand about the current state of play, opportunities and challenges of railway projects in the Gulf countries.

Cooperation with the US (APTA)



The US rail market remains key for many European rail suppliers wishing to export their products worldwide. According to the 2018 World Rail Market Study, the total rail market in North America (USA, Canada and Mexico) is forecast to grow at around 3% per year

until 2023. Significant investments are expected in the USA with respect to freight locomotives and wagons, alongside very high speed rail services and urban public transport.



Cooperation Signature of Memorandum of Understanding between APTA and UNIFE (September, 2018)

Throughout 2018, UNIFE has reinforced its existing cooperation with APTA (American Public Transportation Association). On 10-13 June, UNIFE participated in the APTA Rail Conference which was held in Denver, Colorado. During a panel on 'An International Perspective on Best Value', UNIFE's Director General presented the vision of the European rail supply industry regarding best value procurement. Then on 19 September, UNIFE and APTA signed a revised Memorandum of Understanding extending the scope of their cooperation activities. Furthermore, APTA CEO Paul Skoutelas presented the challenges and opportunities of public transportation in the USA, focusing on the financing of rail projects, the development of the PTC train protection system and the expected evolution of new mobility trends.

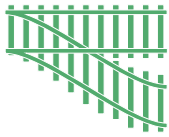
Cooperation with Russia (NP UIRE)



Russia continues to be an important and attractive market for the European rail industry. According to the 2018 World Rail Market Study, rolling stock demand is expected to grow in the 2021-2023 period due to investments in the mainline and freight segments, while significant urban rail projects are also foreseen in the coming years.

In 2018, UNIFE maintained solid cooperation with its Russian counterpart, the Union of Industries of Railway Equipment (UIRE). During the InnoTrans trade fair in Berlin (September 2018), the President of UIRE and Senior Vice-President of RZD, Valentin Gapanovich, gave a presentation at the UNIFE stand in which he spoke about the cooperation between UIRE and UNIFE, including two joint technical publications which aim to facilitate mutual understanding and market access.

4



WORLD RAIL MARKET STUDY

The seventh edition of the World Rail Market Study, which was once again produced by Roland Berger on behalf of UNIFE, was unveiled by UNIFE Chair Sabrina Soussan and UNIFE Director General Philippe Citroën on 18 September 2018 at the InnoTrans fair in Berlin.

The World Rail Market Study has been published biennially since 2006 and provides both an overview of the market in its current form and a forecast of its future development in the different regions and segments. The main results of the 2018 edition indicate that:

- The global rail supply industry hit a new record in 2017, reaching a total market volume of more than EUR 163 billion. Overall the sector grew 1.2% per year between 2015 and 2017, with the services, infrastructure and rail control segments performing best
- The global rail market is forecast to continue growing with an average annual rate of 2.7% up until 2023. Africa/Middle East and Latin America are the regions with the highest expected growth rates, at 5.2% and 4.8% respectively, followed by North America at 3.1%. The replacement and expansion of rolling stock in Denmark, Germany, the UK and France are a source of positive stimulus in Western Europe, where growth is forecast to be 2.2%

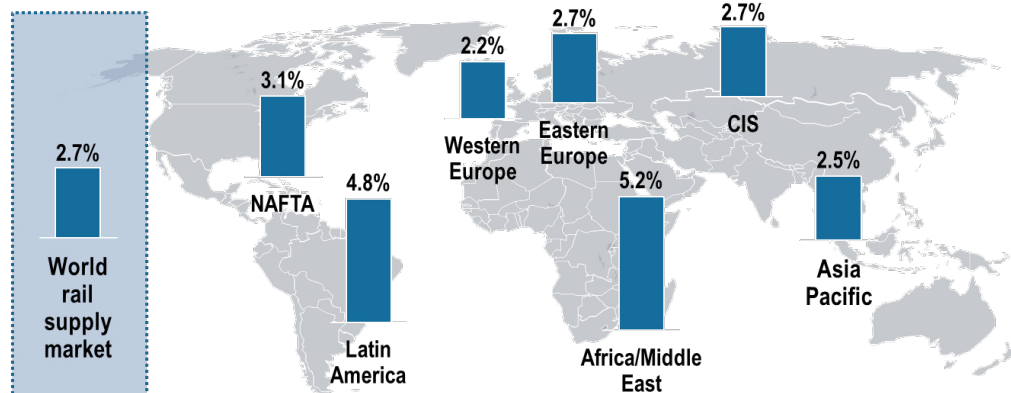


German Minister of Transport and Digital Infrastructure Andreas Scheuer receives the first copy of the World Rail Market Study from UNIFE Chair, Sabrina Soussan during his visits to the UNIFE stand at InnoTrans 2018

The 2018 edition of the study qualitatively analyses the advantages of rail as a means of transportation and confirms that rail – whether for mainline, urban/suburban, or freight transportation – has significant advantages compared to other modes of transportation, including relatively low CO2 emissions, a strong safety record and a high capacity for both passengers and freight. Megatrends such as urbanization, globalization and sustainability are leading to greater demand for rail solutions and driving the growth of the rail supply industry. On top of this, the industry is also being transformed by develop-

All regions predicted to grow – **Africa/Middle East and Latin America** are expected to show **strongest growth rates**

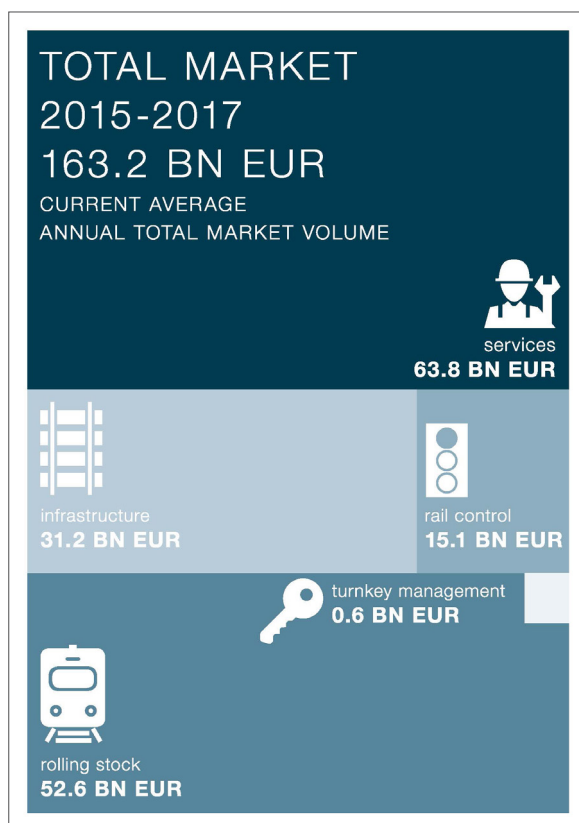
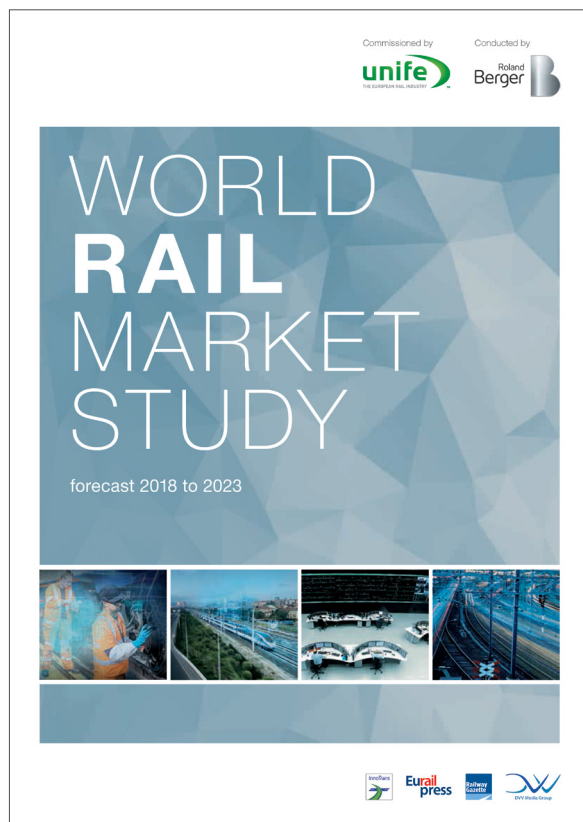
Total market growth rates per region [CAGR¹, %]



Compound annual growth rate 2021-2023 vs. 2015-2017

ments in digitalization, artificial intelligence and e-mobility, as well as private financing and the liberalisation of rail services in many countries.

Last but not least, the 2018 edition of the study looks at market accessibility, which is a key factor affecting the business of the rail supply industry. Since the last study, there has been no change in the average market accessibility rate, which remains at 63%. However, some significant markets remain difficult to access for European Rail Suppliers (e.g. Japan, China, South Korea). Therefore, further political efforts are needed to level the playing field.



TO ORDER A COPY OF THE UNIFE WORLD RAIL MARKET STUDY,
PLEASE VISIT THE UNIFE WEBSITE: WWW.UNIFE.ORG

5



STANDARDS & REGULATION

Overview

As the official Representative Body for the European rail supply industry, UNIFE continues to coordinate the contributions and positions of the rail supply industry towards the development of regulations, decisions, guidelines and other documents drafted by the European Union Agency for Railways (ERA) and the European Commission. The UNIFE Standards and Regulation Group (SRG) and the supporting UNIFE technical working groups are platforms for UNIFE members to influence technical regulations that relate to the interoperability and safety of the European railway system. UNIFE has actively participated in the numerous working groups and workshops organised by the European Institutions to support the drafting of these regulations. The SRG plays a pivotal role in coordinating the technical position of UNIFE for all activities relating to the implementation of the European Union's Fourth Railway Package, which was formally adopted in 2016.

The UNIFE SRG also interacts with other stakeholders in the European rail sector (CER, EIM, UIP, etc.) via the Group of Representative Bodies (GRB), and with the European Standardisation Organisations, particularly CEN and CENELEC, through the Sector Forum Rail.

Holding the status of observer in the ERA Management Board and ERA Executive Board, the UNIFE Director General regularly attends these meetings and, where relevant, provides input on important topics such as ERA's annual work programme and the ongoing activities supporting the implementation of the Fourth Railway Package.

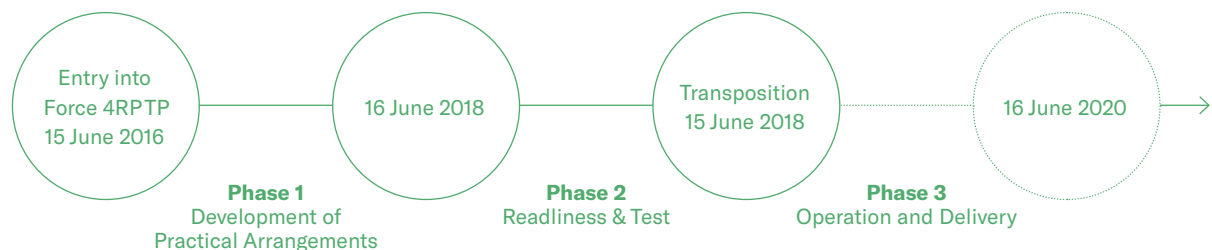
2018 Key Highlights

IMPLEMENTATION OF THE TECHNICAL PILLAR OF THE FOURTH RAILWAY PACKAGE

2018 proved to be another eventful year for the implementation of the Technical Pillar of the Fourth Railway Package, comprising the recast Interoperability and Safety Directives and the revised ERA Regulation, which entered into force on 15 June 2016. With a three-year transposition period, plus the possibility of a one-year extension if requested by Member States, the new regime – with the EU Agency for Railways becoming the European authorising entity – will enter into operation from 16 June 2019. UNIFE has therefore worked intensively throughout 2018 to support ERA and the European Commission in the drafting and adoption of the necessary practical arrangements and implementing regulations that are required under the recast Interoperability and Safety Directives. The main focus now shifts to remaining milestones including the development of the 'One-Stop Shop' IT tool, the revision of Technical Specifications for Interoperability (TSIs), and efforts to raise awareness and improve understanding of the changes that are currently being implemented in the framework of the Fourth Railway Package (4RP).

UNIFE strongly supported the adoption of the Technical Pillar of the Fourth Railway Package, which we see as being of paramount importance for the competitiveness of the rail industry by removing the remaining technical barriers to the creation of a single European rail area. A harmonised European authorisation process with the ERA as authorising entity should result in a convergence of requirements, with less duplication of checks and testing, and a more consistent, quicker and cheaper process.

TIMELINE OF THE FOURTH RAILWAY PACKAGE

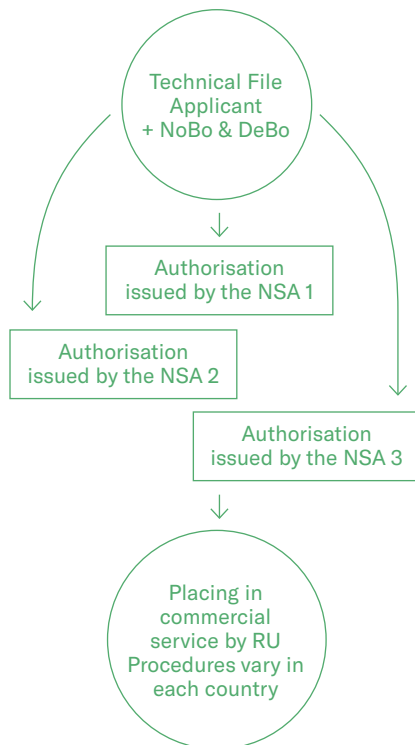


A major milestone in the Technical Pillar implementation was the positive vote by the Railway Interoperability and Safety Committee (RISC) in November 2017 and the subsequent publication in April 2018 of Implementing Regulation (EU) 2018/545 establishing practical arrangements for the railway vehicle authorisation and railway vehicle type authorisation process pursuant to Directive (EU) 2016/797.

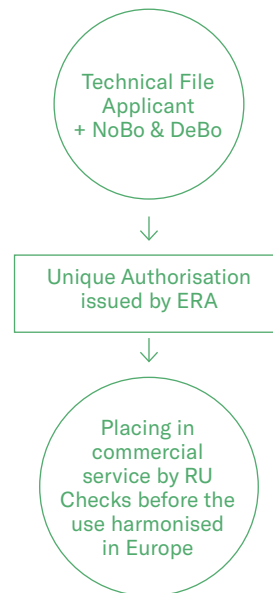
This is the key Regulation setting out the new vehicle authorisation regime (from June 2019) and establishing the harmonised European process. Key activities in 2018 included the development of detailed guidelines for this regulation, as well as necessary amendments to the Technical Specifications for Interoperability (TSIs).

FOURTH RAILWAY PACKAGE - THE IMPACT ON VEHICLE AUTHORISATION

Today until June 2019



The Fourth Railway Package from June 2019



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EUROPEAN COMMISSION EXPERT GROUP ON THE TECHNICAL PILLAR OF THE FOURTH RAILWAY PACKAGE

UNIFE is a permanent member of the European Commission's Expert Group on the Technical Pillar of the Fourth Railway Package, together with representatives of Member States and other official Representative Bodies. The role of this group is to fully consult on the legal acts to be voted, to give recommendations on the draft texts and to help prepare the discussions and votes to be held in the Railway Interoperability and Safety Committee (RISC).

In 2018, the Expert Group played a fundamental role in the consultation, drafting and adoption of the legal acts arising from the Technical Pillar of the Fourth Railway package, in particular the Implementing Regulation on Fees and Charges and Board of Appeal, as well as detailed consultation on the ongoing revision of the Technical Specifications for Interoperability (TSIs). UNIFE attended all meetings of the expert group, providing comments from the rail supply industry to the forum and to the European Commission representatives on the various topics discussed. It is important to note that this Expert Group is intended to complement but not replace the RISC, where only representatives of the EU Member States may attend and vote on the final Implementing Acts.

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COOPERATION WITH THE GROUP OF REPRESENTATIVE BODIES (GRB)

As an official Representative Body of the European railway sector, UNIFE is member of the Group of Representative Bodies (GRB). The GRB is a grouping of railway associations in Europe with the role of supporting, in a transverse way, the rail sector's input to the EU Agency for Railways (ERA) work programme with a particular focus on safety and interoperability.

The GRB has been highly active throughout 2018, with the sector working as a whole to find common positions regarding the implementation for the Fourth Railway Package. Several joint position papers relating to both regulation and standardisation have been adopted by the GRB and submitted to the European Commission and ERA, and the GRB continues to closely follow all ERA activities.

From January 2019, Christian Rausch, Chairman of UNIFE's Standards and Regulation Group (SRG), will be the new GRB Chairman with a mandate of two years. Strong leadership and good cooperation among all stakeholders will be vital during the final stages of implementing the Technical Pillar of 4RP.

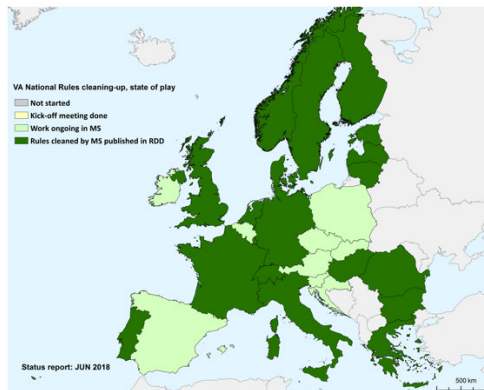
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CLEANING-UP OF NOTIFIED NATIONAL TECHNICAL RULES

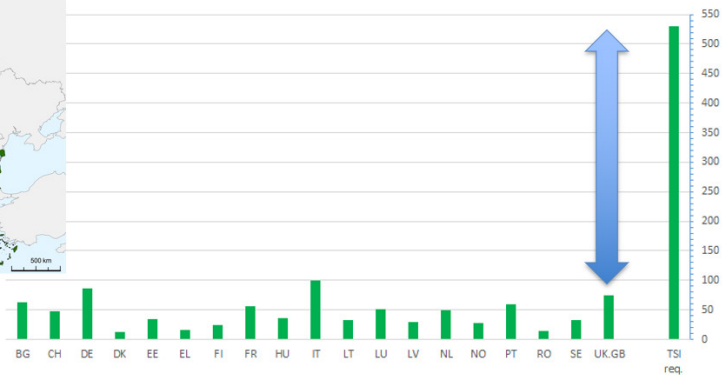
The EU Agency for Railways (ERA) has continued to actively pursue its goal of reducing the number of Notified National Technical Rules (NNTRs). After several years of intensive work, ERA reports that the clean-up of rules related to vehicle authorisation is almost complete, with the number of NNTRs reduced from 14000 to approximately 1200 once the project is finished. UNIFE is continuing to carefully monitor the finalisation of this activity, and with its network of experts aims to ensure that the goal of greatly facilitating the authorisation process and establishing a clear and comprehensive set of rules (TSIs and necessary NNTRs) will be achieved.

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~ 900

Starting point: 14 000 in 01/2016



TSI requirements and NRs for VA (vehicles covered by TSIs) for 19 MSs which published cleaned rules in RDD

Image demonstrating the reduction of NNTRs for vehicle authorisation (European Railway Agency)

COOPERATION WITH OTIF



OTIF is the intergovernmental organisation for international carriage by rail. Its membership includes most European countries as well as several Middle Eastern states and former Soviet republics. Its objective is to facilitate international railway traffic. It has developed legislation, for instance, regarding contracts for the international carriage of passengers and goods (CIV and CIM), and also of dangerous goods (RID).

UNIFE follows the activities of OTIF in order to avoid any clashes between the requirements of EU Directives and TSIs, which are law throughout the EU, and requirements stemming from OTIF. This is particularly relevant for the validation of technical standards and the adoption of uniform technical prescriptions for railway material (APTU), as well as the procedure for the technical admission of railway vehicles and other railway material used in international traffic (ATMF), plus their updates in the framework of the Fourth Railway Package. UNIFE has supported the transferral of European Technical Specifications for Interoperability (TSIs) into OTIF documents, and extending the scope of the TSIs as required. Whereas in the majority of cases OTIF transposes TSI requirements into its own documents without modifications of the technical content, some initiatives might clash with the European legal framework, therefore UNIFE's cooperation with OTIF

is necessary in order to ensure a sound legislative framework in Europe and beyond.

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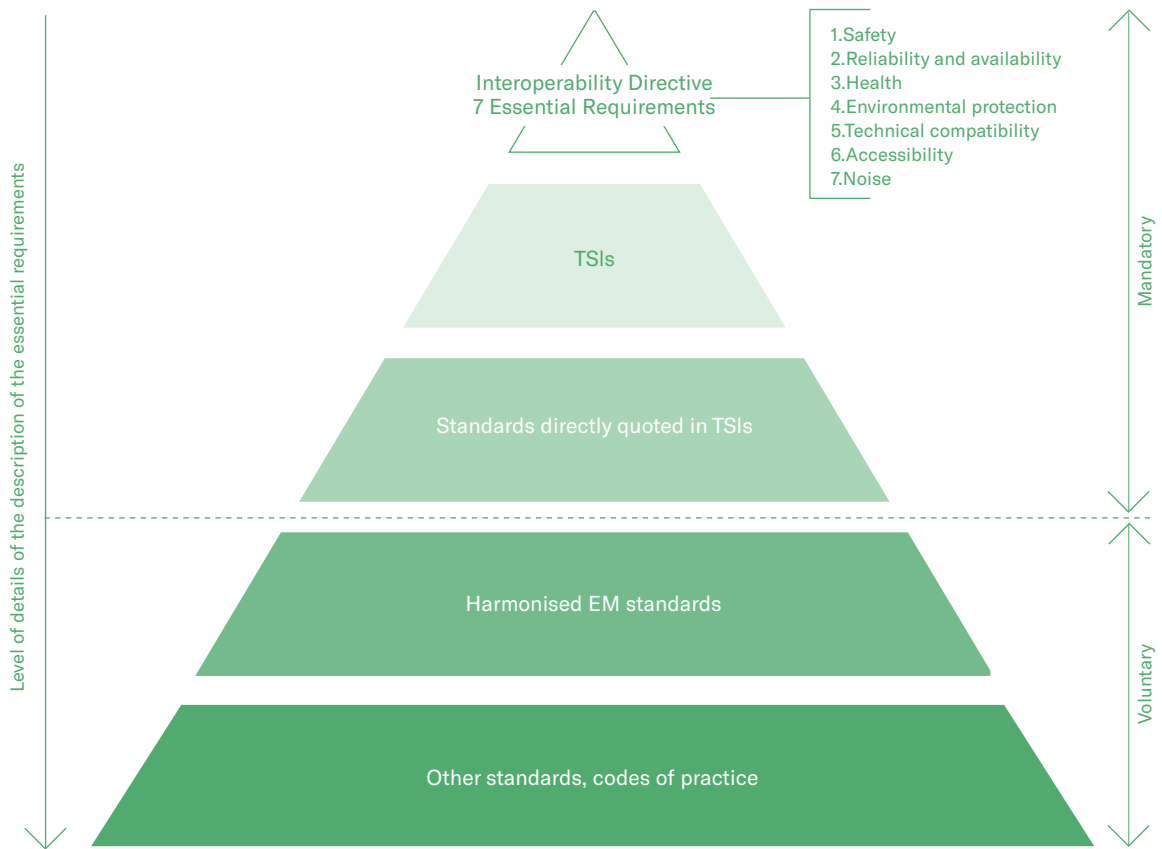
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UNIFE INVOLVEMENT IN STANDARDISATION

Standardisation is extremely important for our industry and many UNIFE members are involved in European and global standardisation activities via their respective National Standardisation Bodies. UNIFE provides a platform for its members to coordinate their standardisation activities and to agree on the standardisation priorities of the industry. The UNIFE Standards and Regulations Group (SRG) is responsible for monitoring developments in both the regulation and standardisation fields, which make up the complete technical framework as represented by the pyramid below. The careful coordination of activities in both areas is required in order to ensure that the work carried out by the EU Institutions and European Standardisation Organisations is complementary and improves the functioning and competitiveness of the rail sector.



To support the work that is done by its members at national level, UNIFE has established close links with the relevant European Stand-



ardisation Organisations, namely CEN and CENELEC. UNIFE works closely with the European Commission, which sets the policy framework in which standardisation takes place at European level, and with the CEN-CENELEC Management Centre, which coordinates the activities of both organisations. UNIFE is part of the Sector Forum Rail, formerly known as the Joint Programming Committee Rail (JPC-R), in which the standardisation priorities of the sector are discussed directly between the CEN-CENELEC Management Centre and the Representative Bodies.



At the international (global) level, UNIFE holds A-Liaison status for the ISO Rail Technical Committee 269 (ISO TC 269), which enables UNIFE to take part in the regular meetings of this committee.

UNIFE is also a member of the Rail Standardisation Co-ordination Platform for Europe (RASCOP). Initiated by the European Commission in 2016, this platform brings together parties involved in the planning and development of railway-related legislation, standards and technical documents in Europe, in order to coordinate all of the activities related to the development of European Stand-

ards and other related technical documents that are relevant to the railway sector. The platform is chaired by the European Commission (DG MOVE) supported by the EU Agency for Railways (ERA).

In 2018, UNIFE continued to take part in the RASCOP Steering Group and follow various actions linked to the 'Joint Initiative on Standardisation' that brings together the European Commission, European Standardisation Organisations and cross-industry standardisation community, which UNIFE signed in 2016. The Joint Initiative sets out a shared vision for modernising the European standardisation system, laying out a series of proposed actions to achieve this. UNIFE is continuing to follow and support this initiative, which should help to consolidate Europe's leadership in international standardisation.

Furthermore, UNIFE has continued its cooperation with urban transport operators in the field of standardisation in the framework of the Urban Rail Platform, a forum driven by UNIFE and UITP (the International Association of Public Transport). The Urban Rail Platform aims to support standardisation in urban rail following a mandate issued by the Commission, and it also provides its members with a forum for discussing matters related to regulation as well as Research and Innovation.

In parallel with its involvement in standardisation, UNIFE is also a partner of the EuroSpec initiative, which complements the work of the European Standardisation Organisations. EuroSpec is a consortium of several large European railway operators who work together to develop joint technical specifications that can be used in their tender documents. As part of a Memorandum of Understanding, the EuroSpec initiative shares draft documents with UNIFE prior to publication, in order to obtain feedback from the manufacturing industry on the content and proposed requirements with the aim of improving the quality, clarity and applicability of its specifications.

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UNIFE Technical Working Groups

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

- UNIFE Mirror Groups (MG) are temporary groups which are active during the drafting and revision of regulations and Technical Specifications for Interoperability (TSIs), mirroring the working groups of ERA where delegates from UNIFE participate as official representatives of the European rail supply industry.
- UNIFE Topical Groups (TG) follow specific topics, mainly related to standardisation and research activities.



UNIFE Technical platform meeting in December 2018

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

a UNIFE Mirror Groups (MG) ENERGYWORKING GROUP (ENE MG)

Following the adoption of the Commission Delegated Decision (EU) 2017/1474 on the TSIs, ERA reopened the ENE Working Party to begin the necessary TSI amendments under the Fourth Railway Package. The ENE TSI concerns the energy subsystem and part of the maintenance subsystem of the Union rail system. In view of the increased use of coupled locomotives and multiple units, ENE TSI has been reviewed as regards to requirements in case of simultaneous operation of multiple pantographs in contact with overhead contact lines resulting from the use of such vehicles. Related operational issues have also been considered. UNIFE experts will continue to provide input to the ERA working parties to develop the necessary concepts and modifications, introduced by the recast Interoperability Directive, that will enter into force in June 2019.

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INFRASTRUCTURE WORKING GROUP (INF MG)

Following the adoption of the Commission Delegated Decision (EU) 2017/1474 on the TSIs, ERA reopened the INF Working Party to begin the necessary TSI amendments under the Fourth Railway Package. The INF TSI concerns the infrastructure subsystem. UNIFE experts will continue to provide input to the ERA working parties to develop the necessary concepts and modifications, introduced by the recast Interoperability Directive, that will enter into force in June 2019.

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NOISE WORKING GROUP (NOI MG)

ERA launched the revision of the Noise TSI on 18th October 2017 following the adoption of the Commission Delegated Decision (EU) 2017/1474 on the TSIs. Working group members have contributed and followed the activity of ERA working parties that in 2018 addressed the revision of the TSI regarding existing wagons and the Noise TSI alignment with the 4th Railway Package. Existing wagon provisions addressing rail freight noise have been included. For this purpose, retrofitting of existing freight wagons with composite brake blocks has been analysed together with other appropriate solutions always following the 'quieter routes' implementation strategy defined in the report ERA-REP-155.

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PERSON WITH REDUCED MOBILITY WORKING GROUP (PMR MG)

The PRM TSI defines common priorities and criteria to further improve accessibility for persons with reduced mobility and provides clear definitions of the requirements applicable to manual and electric wheelchairs so that their users can safely access passenger trains. UNIFE experts continue to provide input to the relevant ERA Working Parties in relation to the revision of the application guide and inventory of assets.

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ROLLING STOCK WORKING GROUP (RS MG)

Following the adoption of the Commission Delegated Decision (EU) 2017/1474 on the TSIs, at the end of 2017 ERA reopened the TSI LOC&PAS/WAG Working Parties to begin the necessary TSI amendments under the Fourth Railway Package. The main activity for the UNIFE Rolling Stock Working Group in 2018 was therefore to closely follow and provide expertise to the two separate subgroups at ERA undertaking this task. Subgroup 1 focused on developing the concept of route compatibility and the parameters to be checked before use of an authorised vehicle, while subgroup 2 developed the concept of basic design characteristics and vehicle modifications which would require an application for a new authorisation. The texts related to these two concepts should be introduced to the 2019 TSIs amendments, so as to be in place when the new authorisation regime starts in June 2019.

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SAFETY ASSURANCE WORKING GROUP (SA MG)

The Safety Assurance Working Group supports the work done by ERA related to the Railway Safety Directive, and also supports 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 2018, the Safety Assurance Mirror Group has continued to provide extensive support to the SRG regarding the Implementing Regulation on practical arrangements for the railway vehicle authorisation process (C(2018)1866/954626) and the introduction of CSM requirements, also providing valuable input to the guidelines developed by the Agency.

The Safety Assurance Mirror Group provided the industry's position to the ERA Working Party on the revision of

the ECM (Entities in charge of maintenance) Regulation (EU) 445/2011, with regard to the development of Safety Critical Components as introduced by the recast Safety Directive.

The working group continues to follow and provide industry input to the consultations of ERA's Common Occurrence Reporting (COR) project, and also coordinates the UNIFE position with regard to ERA activities on Human and Organisational Factors and Safety Culture.

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TELEMATIC APPLICATION FOR PASSENGERS AND FREIGHT WORKING GROUP (TAP/TAFTSI MG)

In 2017/2018, UNIFE members were involved in several EU activities related to interoperability issues. The work was focused on the TSIs related to freight and passenger subsystems. Launched in July 2017, the TAP TSI revision process continued. UNIFE members were involved in the analysis of NeTEX data exchange format used in the public transport area. The minimum connecting time and the role of Station Manager was also discussed from the process point of view. As regards the TAF TSI, the EU Agency for Railways continued to organise regional workshops across Europe, with a special focus on the Balkan countries, to promote its implementation. The activities related to the cooperation between ERA, UIC and OSJD concerning the extension of interoperability for passengers and freight into non-EU countries were also monitored and followed by UNIFE.

During 2018, UNIFE's involvement was even bigger than in previous years, with the focus being on the processes of change management and monitoring of implementation of TAF TSI, and also on contributing to the RNE TrainID Pilot project, where UNIFE is a member of the Steering Group and co-chaired the Impact Assessment working group together with Trenitalia, which is representing CER. On the level of change management, individual change requests related to technical annexes of each TSI are negotiated. The implementation process has been developed successfully and UNIFE members submitted a number of CEF project proposals to support the implementation of TAF TSI at small and medium sized RUs or were engaged as a supplier of individual projects submitted by RUs or IMs. These activities require constant familiarity with the implementation process, because requests for changes to be reflected in the technical annexes of TSIs are generated from this process. Therefore, the active involvement of UNIFE members is also required in the executive bodies of TAF and TAP TSI, including the TAP TSI Services Governance Association (TSGA) (which replaces the TAP TSI Steering Committee).

In terms of the next steps, the working group will focus on the finalisation of the TAP revision and on the preparation of some very significant changes in the TAF TSI Regulation (legal text revision of TAF TSI started in October 2018). The main focus in the TAF TSI Revision process is to prepare changes in ETI/ETA, a transparent compliance process, and conditions for the TAF TSI for the period of automation of the train operation. Cybersecurity topics are also one of the most important parts of TAF and TAP TSI, especially with regard to the analysis of potential cyber-attacks. UNIFE members are considered as significant actors in the TAF and TAP TSI sector community and contribute to preparing the rail sector to remain competitive in the coming years.

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VEHICLE AUTHORISATION WORKING GROUP (VA MG)



Joseph Doppelbauer, ERA Executive Director

The UNIFE Vehicle Authorisation Mirror Group has been established to follow the development of the Implementing Regulation establishing practical arrangements for the railway vehicle authorisation and railway vehicle type authorisation process pursuant to Directive (EU) 2016/797 (C(2018)1866/954626). Following the positive vote of the Implementing Regulation by RISC in November 2017, the activities of ERA and the focus of the UNIFE Vehicle Authorisation Working Group moved to developing the guidelines to the Implementing Regulation. The group have been active in further workshops and meetings with the Agency and great efforts were made to clarify the text of the regulation with the goal of developing a single and harmonised understanding of the authorisation process under the new Interoperability Directive. In addition, this group provided input to the European Commission regarding the content of Implementing Regulations on Fees and Charges ((EU) 2018/764) and the ERA Board of Appeal ((EU) 2018/867), as well as continuing to follow and provide input to the development of the One-Stop Shop IT tool and other register/database groups at ERA.

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b UNIFE Topical Groups (TG) CABIN WORKING GROUP (TG)

The Cabin Working Group members have continued their work on harmonising standardisation activities at European level regarding the specifications of the driver's cabin elements. The main purpose is to identify possible synergies, differences, inconsistencies and overlaps in current cabin specifications. The outcome of this work was the establishment of recommendations to relevant standardisation bodies in order to develop more consistent specifications.

The UNIFE Cabin Working Group agreed to actively participate in the Driver-Machine Interface sub-group, which has been established in the framework of RASCOP. The working group members have also contributed to the revision of the LOC & PAS TSI, for instance regarding the viewing conditions for drivers of rail vehicles.

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CHEMICAL RISK WORKING GROUP (TG)

The Chemical Risk Working Group aims to develop a common understanding and harmonised rules for the rail industry, as well as providing support to railway system integrators and their suppliers in understanding legal obligations. This working group has closely followed the evolution of European legislation – including REACH, CLP, WEEE, and RoHS – and presented the point of view of the rail supply industry during relevant consultations.

In 2012, the UNIFE Chemical Risk Working Group developed and launched the 'UNIFE Material Declaration Template', with the aim of harmonising the reporting on hazardous substances. Based on feedback from stakeholders, the group began working on a more simplified version of the template in order to optimise the answers received. The next step will be to establish a data material portal for the industry to access information on materials in one place. In order to achieve this, the working group will review potential solutions, define the data field and compliance aspects needed, and go through the list of standards one at a time.

The European rail supply industry is committed to ensuring compliance with EU legislation on chemical substances, and the Railway Industry Substance List section of the UNIFE website is regularly updated with the latest list of prohibited substances under the REACH regulation (<http://unife.org/railway-industry-substance-list.html>).

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DIESEL WORKING GROUP (TG)

The non-road mobile machinery (NRMM) Regulation (EU) 2016/1628 was published in September 2016, setting out more stringent emission limit values for internal combustion engines installed in non-road mobile machinery and repealing the previous NRMM Directive. The UNIFE Diesel Topical Group provides a forum for UNIFE members to monitor and discuss the implementation of the NRMM Regulation and the development of supplementary regulations detailing the test methods, EU type-approval procedures and in-service monitoring of future NRMM engines.

In 2018, the UNIFE Diesel TG has monitored the implementation and worked with EUROMOT and UIC on developing a Guide to Regulation 2016/1628 specific to rail vehicle applications. The working group is also following in detail the proposed introduction of in-service monitoring on Stage V rail vehicle engines and will provide the rail supply industry's position to the European Commission's 'Group of Experts on Machinery Emissions under the Non-Road Mobile Machinery Directive' (chaired by DG GROW), where the texts are being developed for publication in 2019.

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ELECTROMAGNETIC COMPATIBILITY WORKING GROUP (EMC TG)

UNIFE experts are working in close cooperation with EIM and CER experts within the Train Detection Compatibility Working Group, coordinated by ERA. This working group is providing inputs to the updates of the mandatory ERA/ERTMS/033281 specification, describing the interfaces between CCS track-side and other subsystems. Topics discussed in 2018 included the specifications on minimum axle distance and metal free space between wheels, the update of the frequency management for axle counters, the definition of axle counter as interoperability constituents and the Minimum Vehicle Input Impedance.

EMC Working Group members have also collaborated with the ERA CCS TSI Working Party on the revision of the TSI on Control-command and Signalling (CCS). The UNIFE contribution was mainly focused on the revision of the text relating to train detection systems and their safety requirements.

[FOR MORE INFORMATION, PLEASE CONTACT
JOSE.BERTOLIN@UNIFE.ORG](#)

FIRE SAFETY WORKING GROUP (TG)

The Fire Safety Working Group has closely followed and contributed to the progressive implementation of European Standards relating to fire protection on railway vehicles (EN 45545 series) and continues to monitor the revision of this series of standards. The Working Group also contributes to related activities such as the development of a new standard for non-physical fire barriers, officially known as FCCS – Fire Containment and Control Systems. Moreover, the group has developed a fire certificate inventory list template. UNIFE experts continue to provide input to the ERA Working Parties on the development of the fire safety requirements in the TSI on safety in railway tunnels (SRT).

[FOR MORE INFORMATION, PLEASE CONTACT
MARTA.ANDREONI@UNIFE.ORG](#)

LIFE CYCLE ASSESSMENT WORKING GROUP (LCA TG)

The Life Cycle Assessment Topical Group (LCA TG) works on improving the environmental performance of the rail sector and optimising production and tendering costs, taking into consideration both increasing customer demands and legislative and standardisation requirements, especially at EU level. To achieve this, the working group engages in various activities such as the monitoring of the last phase of the EC Product Environmental Footprint (PEF) and the ISO Recycling Calculation.

Members of the LCA TG also closely follow the management of the Product Category Rules (PCR) and provide continuous recommendations on how to update these rules. The group also has plans to prepare a position paper comparing rail with other modes of transport in terms of environmental footprint.

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RESEARCH & INNOVATION

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Horizon 2020

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UNIFE Digitalisation Platform
Activities



RESEARCH & INNOVATION

Horizon 2020

a Shift2Rail



After years of intense work by the European rail industry under the coordination of UNIFE, Shift2Rail was established in July 2014 as a

Joint Undertaking supported by the European Union's 'Horizon 2020' programme. The main aim of Shift2Rail is to promote the competitiveness of the European rail industry by accelerating the integration of new and advanced technologies into innovative rail product solutions.

Shift2Rail (S2R) is the first large-scale European Joint Undertaking (JU) dedicated to supporting Research and Innovation (R&I) activities that will boost the competitiveness of Europe's rail industry and meet changing transport needs. Funded by the European Union's Horizon 2020 programme, S2R supports Research and Innovation activities that contribute to creating technologies that are necessary to help complete the Single European Railway Area (SERA), to increase the capacity of the European rail system and improve the reliability and quality of rail services, whilst also reducing costs. In order to meet these ambitious goals, S2R has a robust framework and a multiannual budget of EUR 920 million, jointly funded by the private sector (EUR 470 million) and the EU (EUR 450 million).

MAIN ACTIVITIES OF THE SHIFT2RAIL JOINT UNDERTAKING IN 2018

Support For Research And Innovation Projects

Following the publication of calls for proposals in early 2018, 19 grants have been awarded for a total value of EUR 152.6 million (including EUR 77.3 million through S2R).

The 27 S2R JU members (not including the EU), have submitted project proposals to all seven call topics reserved to them, for a total value of EUR 134.1 (including EUR 59.6 million through S2R).

The S2R open calls covered 12 topics. The combined budgets of these projects have a total value of EUR 18.5 million, over 95% of which will be funded by the European Union through Horizon 2020.



List of Shift2Rail Members

Launch of the Shift2Rail Annual Work Plan 2019

The S2R JU published its Annual Work Plan 2019 (AWP 2019) in December 2018. The AWP 2019 contains descriptions of the 2019 calls for proposals for S2R members (Calls For Members) and non-members (Open Calls). The calls for members are reserved only to the 27 S2R JU members including both Founding Members and Associated Members. The open calls are addressed to any non-member of the S2R JU and cover all S2R Innovation Programmes and cross-cutting activities.

As it did for previous S2R Open Calls, UNIFE organised a dedicated workshop for non-members of S2R at the UNIFE Technical Plenary in December 2018. The participants learned about the Open Call topics for 2019 and how to submit a successful bid. UNIFE will coordinate some project proposals based on the feedback received from its members and will try to ensure the highest possible participation of its members in the consortia that will be created for the proposed projects.

[FOR MORE INFORMATION ON SHIFT2RAIL, PLEASE VISIT](https://www.shift2rail.org)

[WWW.SHIFT2RAIL.ORG](https://www.shift2rail.org)

[FOR FURTHER INFORMATION, PLEASE CONTACT](mailto:nicolas.furio@unife.org)

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Shift2Rail User Requirements/Implementation and Deployment working group

The S2R User Requirements/Implementation and Deployment working group met twice in 2018, with both meetings attended by UNIFE. The role of this working group is notably to assist the S2R JU in ensuring the mar-

ket uptake of the technical solutions developed through S2R activities, and facilitate exchanges of information on initiatives, projects and partnerships dealing with the thematic areas of each of the Innovation Programmes/ Cross-Cutting Activities.

[FOR MORE INFORMATION, PLEASE CONTACT
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Shift2Rail Award for IT2RAIL project

During InnoTrans2018, the EU Commissioner for Transport, Violeta Bulc, presented IT2Rail, one of the Shift2Rail lighthouse projects coordinated by UNIFE, with the Shift2Rail R&I Award 2018 in the 'Digitalisation' category. This project developed a crucial technical enabler which sets the foundations for future developments in the 4th Innovation Programme of Shift2Rail. Stefanos Gogos from the UNIFE Technical Affairs Unit and IT2Rail Project Coordinator collected the Award on behalf of the IT2Rail consortium.

[FOR MORE INFORMATION, PLEASE CONTACT
STEFANOS.GOGOS@UNIFE.ORG](#)



IT2Rail Representative, Stefanos Gogos (UNIFE Technical Manager) receiving the Shift2Rail R&I Award from Violeta Bulc (Commissioner for Mobility and Transport) and Carlo Borghini (Executive Director, S2R JU) during InnoTrans

SHIFT2RAIL LIGHTHOUSE PROJECTS

IT2Rail



The IT2Rail project was one of the Shift2Rail 'lighthouse' projects and for this reason it was the first step towards the longer-term Innovation Programme 4 (IP4) – 'IT Solutions for Attractive Rail-

way Services', which is one of five Innovation Programmes promoted by Shift2Rail. The IT2Rail project aimed at providing a new seamless travel experience, giving access to a complete multimodal travel offer which connects the first and last miles to long distance journeys. This was achieved through the introduction of a ground-breaking technical enabler based on two concepts:

- Giving passengers the ability to access multimodal travel services (including shopping, ticketing and

tracking) through a travel-companion application

- An open published framework providing full interoperability whilst limiting impacts on existing systems, without requiring any additional standardization

IT2Rail started in May 2015 together with all the other Shift2Rail lighthouse projects and was concluded in April 2018, with the final conference taking place in Vienna, in conjunction with TRA2018. During InnoTrans2018, the EU Commissioner for Transport, Violeta Bulc, presented the IT2Rail consortium with the Shift2Rail JU R&I Award 2018 for the 'Digitalisation' category.

[FOR MORE INFORMATION ON IT2RAIL, PLEASE VISIT
WWW.IT2RAIL.EU OR CONTACT STEFANOS.GOGOS@UNIFE.ORG](#)

In2Rail



The In2Rail project was one of the Shift2Rail 'lighthouse' projects and the first step towards the longer-term Innovation Programme 3 (IP3) on 'Cost-efficient, Sustainable and Reliable High Capacity Infrastructure' in the framework of Shift2Rail. The In2Rail project laid the foundation for a resilient, consistent, cost-efficient, high capacity European rail network.

The project made significant advances towards Shift2Rail objectives through a holistic approach covering Smart Infrastructures, Intelligent Mobility Management (I2M), Rail Power Supply and Energy Management.

In2Rail started in May 2015 together with all the other lighthouse projects and was concluded in April 2018, with the final conference taking place in Vienna, in conjunction with TRA2018.



Opening remarks from Carlo Borghini (Executive Director, Shift2Rail) during the final conference In2Rail, IT2Rail and Roll2Rail Lighthouse Projects

[FOR MORE INFORMATION ON IN2RAIL, PLEASE VISIT
WWW.IN2RAIL.EU OR CONTACT NICOLAS.FURIO@UNIFE.ORG](#)

SHIFT2RAIL PROJECTS

DynaFreight



The DynaFreight project focused on innovative technical solutions for improved train dynamics and operation of longer freight trains and is a project directly linked with the 5th Innovation Programme of Shift2Rail. This project, which started in November 2016, contributed to the objectives of the EU White Paper on Transport in terms of increasing the share of freight carried by rail.

The project addressed two main areas: freight running gear for locomotives and the operation of long freight trains, with the following high-level objectives:

- Improving performance (traction, speed, running dynamics and wheel/rail efforts)
- Reducing rail freight noise at the source
- Enhancing capacity with the operation of longer trains (up to 1500m)
- Reducing operational and maintenance costs

DynaFreight was concluded in June 2018, with the final conference taking place in Brussels.

[FOR MORE INFORMATION ON DYNAREIGHT, PLEASE VISIT
WWW.DYNAREIGHT-RAIL.EU](http://WWW.DYNAREIGHT-RAIL.EU) OR CONTACT
NICOLAS.FURIO@UNIFE.ORG

GoF4R



GoF4R (Governance of the Interoperability Framework for Rail and Intermodal Mobility) is a project directly linked with the 4th Innovation Programme of Shift2Rail. This 2-year project was concluded at the end of October 2018.

The main goal of GoF4R was to analyse the economic determinants of the market for customer-centric mobility services as they are shaped by the introduction of the Interoperability Framework technology.

Additionally, the project aimed at designing specific governance structures and processes that maximize the effect of market forces on adoption of the technology, while providing mitigating measures for residual market failures. Lastly, it generated recommendations on possible needed adaptations of the legal framework regulating the provisioning of compatible networked customer-centric mobility services.

[FOR MORE INFORMATION ON GOF4R, PLEASE VISIT
WWW.GOF4R.EU](http://WWW.GOF4R.EU) OR CONTACT STEFANOS.GOGOS@UNIFE.ORG

ST4RT



ST4RT (Semantic Transformations for Rail Transportation) is a project directly linked with the 4th Innovation Programme of Shift2Rail. This 2-year project was concluded at the end of October 2018.

The main objective of ST4RT was to develop cost-reducing translation technologies drawing from the ontology repository and the service registry hosted by the Interoperability Framework. It achieved this by:

- Analysing the availability and maturity of semantic transformation tools and technologies
- Designing methodologies for annotation/mapping between legacy data models and ontologies
- Developing extensions to the IT2Rail reference ontology
- Developing automatic mapping between the IT2Rail reference ontology and legacy data models (i.e. TAP-TSI)
- Developing KPIs and metrics for the transformation evaluation

[FOR MORE INFORMATION ON ST4RT, PLEASE VISIT
WWW.ST4RT.EU](http://WWW.ST4RT.EU) OR CONTACT STEFANOS.GOGOS@UNIFE.ORG

RUN2Rail



RUN2Rail (Innovative Running gear solutions for new dependable, sustainable, intelligent and comfortable rail vehicles) is a project within the 1st Innovation Programme (IP1) of S2R. The project started in September 2017 and is due to finish in August 2019.

The project explores an ensemble of technical developments for future running gear, looking into ways to design trains that are more reliable, lighter, less damaging to the track, more comfortable and less noisy. These innovations are proposed in the form of case studies supported by the methods and tools elaborated in the project.

The project is being developed across four thematic workstreams addressing: innovative sensors and condition monitoring (WS1); optimised materials and manufacturing technologies (WS2); active suspensions and mechatronics (WS3); as well as noise and vibration (WS4).

These workstreams are not seen as developing separately, but rather as modules that are closely connected, exploiting cross-fertilisation between different fields of technology and fully considering their inherent interrelations. Therefore, the research conducted is multidisciplinary.

nary and establishes models and formal methods to explore a full set of technological developments.

Within the four workstreams, the project also performs a preliminary evaluation of the related regulatory and standardisation issues, together with a careful assessment of the impacts of the new solutions proposed.

The RUN2Rail project was publicly presented on several occasions in 2018, such as during InnoTrans (at the UNIFE stand) and at the Midterm event of the PIVOT project, in order to ensure the alignment of these two projects in terms of activities and the sharing of results.

[FOR MORE INFORMATION ON RUN2RAIL, PLEASE VISIT
WWW.RUN2RAIL.EU OR CONTACT MARTA.ANDREONI@UNIFE.ORG](#)



ETALON (Energy harvesting for signalling and communication systems) is a project with the 2nd Innovation Programme (IP2) of S2R. The project started in September 2017 and is due to end in

January 2020.

The main objective of the project is the adaptation of energy harvesting methodologies for trackside and on-board signalling and communication.

ETALON envisages the specification and development of energy harvesting solutions to support on-board train integrity and Smart Radio connected wayside objects which are economically viable and suitable. It will take into consideration onboard and offboard radio communication solutions, safety critical aspects as well as reliability and availability in difficult rail environments.

In 2018, the ETALON project has developed and simulated the physical prototype for on-board communication systems and radiofrequency components and has also identified the solution/adaptation of devices for on-board energy harvesting solutions. For this purpose, the consortium has used the functional and system requirements specification also developed in this first period of the project. Regarding the trackside energy harvesting solution, a first Trade-off Analysis has been performed to identify the best possible solution and the highest confidence in the potential for reliability that could be used to deliver and test a TRL4 prototype.

[FOR MORE INFORMATION ON ETALON, PLEASE VISIT
WWW.ETALON-PROJECT.EU OR CONTACT
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IN2DREAMS

IN2DREAMS (Intelligent Solutions Towards the Development of Railway Energy and Asset Management Systems in Europe) is a project within the 3rd Innovation Programme (IP3) of S2R. The project started in September 2017 and is due to be completed in August 2019.

IN2DREAMS aims to develop novel data-driven ICT solutions that will enable monitoring, analysis and exploitation of energy and asset information for the entire railway system including power grid, stations, rolling stock and infrastructure. The project will address these challenges through two distinct workstreams focusing on the management of energy-related data (WS1) and the management of asset-related data (WS2).

IN2DREAMS will develop and demonstrate a modular cloud-based open data management platform (ODM) facilitating ubiquitous support of both energy and asset services. WS1 will provide energy metering services through a dynamically reconfigurable platform offering improved reliability, ease of monitoring and on-the-fly optimisation for the entire railway system. WS2 will concentrate on defining IT solutions and methodologies for business-secure decision support in the field of data processing and analytics for railway asset management. The general aim is to study and proof the application of smart contracts in the railway ecosystems, by addressing also legal and regulatory implications, and advanced visual and rule-based data analytics, including metrics for performance assessment.

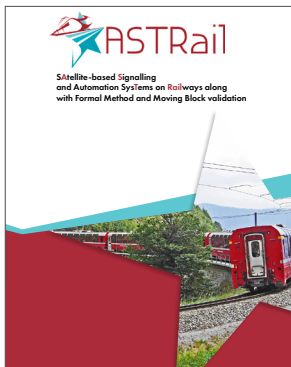
[FOR MORE INFORMATION ON IN2DREAMS, PLEASE VISIT
WWW.IN2DREAMS.EU OR CONTACT
STEFANOS.GOGOS@UNIFE.ORG](#)

ASTRail



ASTRail (Satellite-based Signalling and Automation Systems on Railways along with Formal Method and Moving Block Validation) is a project within the 2nd Innovation Programme (IP2) of S2R. The project started in September 2017 and will finish in August 2019.

The project aims to improve technologies for signalling and automation investigating new applications and solutions that must be carefully analysed in terms of safety and performance. The ASTRail rationale and aims are split into 4 main technical work streams addressing: GNSS technology into the ERTMS signalling system (WS1); Hazard analysis of the railway system with a focus on 'moving block signalling' (WS2); Automatic driving technologies for Automatic Train Operations (WS3); and a formal language and method to be applied in the railway field (WS4).



sis of new signalling methods.

The project partners meet regularly to share the work done in the different research areas. The last in-person meeting took place in September 2018 at UNIFE premises in Brussels. The plenary was followed by an Advisory Board meeting, where representatives from the corresponding S2R projects X2Rail 1 and X2Rail 2 also took part.

FOR MORE INFORMATION ON ASTRAIL, PLEASE VISIT
WWW.ASTRAIL.EU OR CONTACT MARTA.ANDREONI@UNIFE.ORG

SMaRTE



SMaRTE (Smart Maintenance and the Rail Traveller Experience) is a project that fits into the 'Cross-Cutting Activities' category of S2R. The project started in September 2017 and will finish in August 2019.

The project is being developed across two thematic work-streams:

- Smart Maintenance: SMaRTE aims to improve current train maintenance systems, through the integration of predictive data analysis algorithms and online optimization tools within an improved Condition Based Maintenance (CBM) strategy
- Human Factors: SMaRTE aims to understand the current and future needs of rail passengers characterised by rapid advances in technology and demographic changes. The project aims to develop a human-centred design system by identifying the most relevant aspects of the travellers' experience which could be improved and simplified through information and mobility support

These two work-streams will culminate in a joint impact assessment activity which should ensure a full system approach.

FOR MORE INFORMATION ON SMARTE, PLEASE VISIT
WWW.SMARTE-RAIL.EU OR CONTACT
MARTA.ANDREONI@UNIFE.ORG

INNOWAG



INNOWAG (Innovative monitoring and predictive maintenance solutions on lightweight Wagon) is a project within the 5th Innovation Programme (IP5) of S2R. The project started in November 2016 and is due to be completed in April 2019.

The aim of INNOWAG is to develop intelligent cargo monitoring and predictive maintenance solutions integrated on a novel concept of lightweight wagon, which would respond to major challenges in rail freight competitiveness, in terms of increased capacity, improved logistical capability, better reliability, availability, maintainability and safety (RAMS) and lower life cycle costs (LCC).

The INNOWAG project intends to effectively integrate innovative technologies for cargo condition monitoring into a novel high performance lightweight freight wagon, supported by effective health monitoring technologies, and predictive maintenance models for sustainable and attractive European rail freight.

FOR MORE INFORMATION, PLEASE VISIT
WWW.NEWRAIL.ORG/INNOWAG OR CONTACT
MARTA.ANDREONI@UNIFE.ORG

PINTA



In the framework of Shift2Rail, UNIFE attended the final conference of the PINTA project (S2R IP1), which was held in Rabat (Morocco) on 12 December. This was also an excellent opportunity for UNIFE's Director General to present the challenges and R&I priorities of Europe's rail supply industry and compare them with rail stakeholders from Morocco, which is the first African country to have implemented a high-speed rail line.

FOR MORE INFORMATION ON PINTA, PLEASE CONTACT
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SHIFT2RAIL PROJECTS LAUNCHED IN 2018

SPRINT



SPRINT (Semantics for Performant and scalable Interoperability of multimodal Transport) is a project linked with the 4th Innovation Programme (IP4) of Shift2Rail.

The objectives of the project are to improve the Interoperability Framework performance and scalability to sustain a large deployment and to simplify/automate all the necessary steps needed to integrate new services and

sub-systems in the IP4 ecosystem. Moreover, SPRINT will contribute to the realisation of the Interoperability Framework by publishing standardised abstractions of services which will enable travel applications to communicate with them. Lastly, SPRINT will provide additional technical means to operate on the 'web of transportation data', so that the Interoperability Framework will be able to act as a (distributed) broker to communicate with different services. The project's kick-off meeting is planned for January 2019 in Brussels.

[FOR MORE INFORMATION, PLEASE CONTACT
STEFANOS.GOGOS@UNIFE.ORG](#)

GATE4RAIL



GATE4RAIL (GNSS Automated Virtualized Test Environment for Rail) is a project within the 2nd Innovation Programme of S2R.

The main objective of the project is the implementation of a geo-distributed simulation and verification platform connecting GNSS centres of excellence and ERTMS/ETCS laboratories. This platform will be used to evaluate the GNSS performances in the railway environment with agreed methodologies and tools. The entire process will be evaluated by an independent Notified Body already engaged on GNSS assessment for rail applications. A demo for a representative railway line will be deployed in Italy and Spain to demonstrate the functionalities and tools in real operational conditions. The GATE4RAIL kick-off meeting took place on 10 December 2018 in Brussels.

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JOSE.BERTOLIN@UNIFE.ORG](#)

TER4RAIL



TER4RAIL
Transversal Exploratory
Research Activities for Railway

TER4RAIL (Transversal Exploratory Research Activities for Railway) is the latest open call project linked with ERRAC's activities. The project's kick-off meeting was held in December 2018 in Brussels.

The project will identify and monitor new opportunities for innovative research and facilitate the cross-fertilisation of knowledge from other disciplines. The project will determine and assess the existing roadmaps that drive the future of railways and compare them with the interpretations obtained from the observatory. Finally, the work performed under TER4RAIL will be communicated to the transport community.

[FOR MORE INFORMATION, PLEASE CONTACT
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b Horizon 2020 Project Proposal

UNIFE participated in the preparation of a project proposal (name: ESPRIT) responding to the H2020-SU-INFRA-2018-2019-2020 Call on 'Protecting the infrastructure of Europe and the people in the European smart cities'. The overall aim of ESPRIT will be to develop a conceptual approach for management of both physical and cyber threats and incidents on critical railway infrastructure. Creating this approach is essential to achieve interoperable, secure transport systems, which will be resilient, safe and sustainable for European citizens and environment.

The ESPRIT project proposes an innovative view of infrastructure in terms of safety, its connection to ITS infrastructure, and contribution to the security and resilience of digitalized society. The project will also make a significant contribution to extending interoperability and standardization to the area of railway cybersecurity activity as a part of the Single European Railway Area. It will help to accelerate the process of digitizing traffic and protecting sensitive data, and the outputs of this project will become a basis for a sectorial and regulatory analysis.

The results of the evaluation will be released at the beginning of 2019.

[FOR MORE INFORMATION, PLEASE CONTACT
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c European GNSS Agency activities

Satellite-based technologies are very important for the various next generation train control solutions, including train positioning, telecommunications and precise time synchronization. The European GNSS Agency, situated in Prague, has an important role in promoting and enabling new or improved services that properly respond to user needs. UNIFE, which is recognised by the Agency as representing the railway industry, has been consulted throughout the year on several topics, contributing to the definition of the future of European satellite-based services, most significantly Galileo and EGNOS. In this context, UNIFE attended several workshops and events in 2018, discussing the usage of the satellite positioning for modern signalling.

[FOR MORE INFORMATION, PLEASE CONTACT
JOSE.BERTOLIN@UNIFE.ORG](#)

STARS



STARS (Satellite Technology for Advanced Railway Signalling) is a two-year Horizon 2020 research project, which started in February 2016. The aim of this project is to fill the gap between ERTMS needs for safety critical applications and E-GNSS services, through a characterisation of the railway environment and of GNSS performances assessment in that environment.

In 2018, the project consortium focused on: finalising the characterisation of the railway environment from the GNSS signal reception perspective; evaluating the EGNSS safety performances achievable in railway environment in terms of integrity, continuity and availability; identifying possible evolutions of EGNSS services and system to meet the expected performances in the rail environment; and finally, analysing the economic benefits and preparing an implementation roadmap.

The preliminary results of the STARS project were presented at InnoTrans 2018, Where Jose Bertolin (project coordinator) and Bernhard Stamm (technical leader) presented the objectives, structure and preliminary results of the project.

The final event of the project was held in November 2018 in Prague. Key stakeholders from the rail and aerospace sectors as well as research centres were invited to participate. The event provided an opportunity to discuss the results of the STARS project and how these results could be followed-up in the framework of future projects.

FOR MORE INFORMATION, PLEASE VISIT WWW.STARS-RAIL.EU OR
CONTACT JOSE.BERTOLIN@IUNIFE.ORG

ERSAT GCC



ERSAT GCC (ERTMS on Satellite Galileo Game Changer) is a two-year research project, supported by the European Union's Horizon 2020 programme, which started in January 2018.

The primary goals of this project are to launch an operational line using satellite technology into ERTMS by 2020 and to accelerate the standardisation process at European level for the inclusion of satellite requirements into the new ERTMS specifications.

The ERSAT GCC project was presented at the UNIFE stand during InnoTrans 2018, where Jose Bertolin (UNIFE) presented the structure and the high-level objectives of the project, together with the main activities and technical work packages.

FOR MORE INFORMATION PLEASE VISIT WWW.ERSAT-GCC.EU OR
CONTACT JOSE.BERTOLIN@UNIFE.ORG

d ERRAC



Throughout 2018, ERRAC (European Rail Research Advisory Council) continued to implement the restructuring that was decided in 2016. The new structure is intended to ensure a good level of cooperation between ERRAC stakeholders in order to enhance the rail sector's market position and competitiveness by mobilising research and innovation efforts.

The structure of ERRAC includes a Plenary, a Steering Committee and 3 Working Groups : Strategy (WG1), Mobilisation (WG2) and Dissemination/Communication (WG3). In addition, ERRAC has two permanent advisory groups (PAGs), one comprising representatives from Academia, and the other comprising representatives of Member States.

During the ERRAC Plenary event that took place in May 2018 in Brussels, representatives of the European Commission (DG MOVE and DG Research) presented the next European Research Framework Programme (Horizon Europe), as well as the current state of play with the Shift2Rail programme and the potential for a future rail Joint Undertaking (Shift2Rail 2). During this plenary meeting, the composition of the team that will be leading ERRAC for the next 3 years was endorsed by the attendees.

During the same ERRAC Plenary, Alberto Parrondo (UNIFE, VP Strategy Ground Transportation Systems, Thales) was elected as the new ERRAC Chairman. He will be supported by Vice-Chairs Carole Desnost (UIC, Head of Research and Innovation SNCF) and Sebastian Stichel (Academia, KTH Sweden). In his acceptance statement, Alberto Parrondo emphasised the importance of collaboration and teamwork, not only in the rail sector but also with other sectors.



ERRAC Management:
Vice-Chair Carole Desnost (UIC, Head of R&I SNCF), Chairman Alberto Parrondo (UNIFE, VP Strategy Ground Transportation Systems, Thales) Vice-Chair Sebastian Stichel (Academia, KTH)

FOR MORE INFORMATION PLEASE VISIT WWW.ERRAC.ORG OR
CONTACT NICOLAS.FURIO@UNIFE.ORG

SETRIS

SETRIS (Strengthening European Transport Research and Innovation Strategies) was a three-year Horizon 2020 European Coordination and Support Action project that began in May 2015. The SETRIS Project brought together five Transport European Technology Platforms (ETPs) – road, rail (ERRAC), air, water and logistics – and several of their members as partners within one consortium.

UNIFE represented ERRAC in the SETRIS project, which aimed to deliver a cohesive and coordinated approach to research and innovation strategies for all transport modes in Europe. The main objective of SETRIS was to update the strategic, research and innovation agendas (SRIAs) of the different ETPs within a multi-modal and integrated transport system framework.

Several sessions on SETRIS were organised in Vienna, in conjunction with TRA2018.

FOR MORE INFORMATION PLEASE VISIT
WWW.NEWRAIL.ORG/SETRIS OR CONTACT
NICOLAS.FURIO@UNIFE.ORG.

e TRA



The 7th European Transport Research Conference (TRA) took place in Vienna from 16 to 19 April 2018. Under the heading of “A digital Era for Transport: solutions for society, economy and environment”, TRA 2018 was an opportunity to explore, discuss and demonstrate these major paradigm shifts that are specifically directed at important areas of our lives, such as transport, mobility, logistics and industrial production.

UNIFE was pleased to welcome at its stand Violeta Bulc (EU Commissioner for Transport), Henrik Hololei (Director General, DG MOVE), Carlo Borghini (Executive Director, Shift2Rail) and many other high-level representatives from the European Commission, the Member States and the rail sector, and to present research and innovation projects in which UNIFE and its members have been actively involved.



Violeta Bulc (Commissioner for Mobility and Transport) visiting the UNIFE stand during TRA

TRA 2018 was an excellent opportunity for UNIFE to:

- Convey key messages to EU decision makers on the future of the Rail Research & Innovation programme (including the extension of Shift2Rail)
- Promote the ERRAC Rail 2050 Vision
- Promote UNIFE's Vision for Shift2Rail 2 (based on UNIFE's 9 Key Enablers)
- Report on the progress and results of various research & innovation projects
- Meet EU and Member States' decision-makers
- Meet rail stakeholders, EU agencies and associations

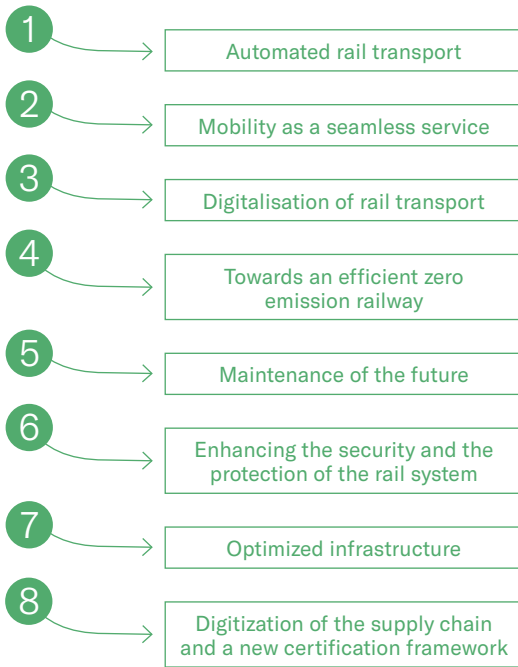
The rail sector was very well represented in the exhibition at TRA 2018. This was a significant improvement compared to the previous edition that took place in Warsaw in April 2016.

FOR MORE INFORMATION PLEASE VISIT
WWW.TRACONFERENCE.EU OR CONTACT
NICOLAS.FURIO@UNIFE.ORG

f Preparation of Shift2Rail 2/ Horizon Europe

In 2018, the UNIFE Research & Innovation Committee updated UNIFE's vision for Shift2Rail 2, which would extend the Shift2Rail initiative beyond 2020 in the framework of the Horizon Europe programme. This vision is based on the need to address global trends impacting rail transport in the 21st Century (such as digitalisation, urbanisation and societal changes).

UNIFE Research & Innovation Committee members identified nine Key Enablers that should be addressed by a potential Shift2Rail 2:



The Key Enablers were discussed with all UNIFE members during the UNIFE 2018 General Assembly and UNIFE 2018 Technical Platform, and they were also presented to mainline operators, infrastructure managers and urban operators. All the stakeholders have shown a great interest in UNIFE's Key Enablers as a basis for developing the objectives of Shift2Rail 2.

FOR MORE INFORMATION, PLEASE CONTACT
NICOLAS.FURIO@UNIFE.ORG

UNIFE Digitalisation Platform Activities



The UNIFE Digitalisation Platform brings together around 30 UNIFE members representing the entire value chain of the European rail supply industry. It serves as open, dynamic forum driving the priorities and initiatives of UNIFE members on digital matters, and helping to shape the view of the rail industry with regard to the future of the sector.

After releasing its Position Paper on the Digitalisation of Railways at InnoTrans 2016 – identifying the six major digital trends in the railways – the UNIFE Digitalisation Platform has called for a permanent dialogue with the rail sector stakeholders, including the other sector associations and decision makers, notably the EU institutions. One of the most important outcomes was the Joint rail sector declaration on the digitalisation of railways of November 2017, which brought together the most important associations of the European rail sector in acknowledging the importance of digitalisation within a fast-moving technology environment.

In 2018, the UNIFE Digitalisation Platform has worked on the implementation of its two main priorities: emerging cybersecurity threats; and access to data for greater efficiency of the railway system.

A fruitful cooperation has been started with the UNIFE Cybersecurity Sub-Group after a joint presentation by the Chairman of the Digitalisation Platform Yves Perre-al (Thales) and the Chairman of the Cybersecurity Sub-Group Christian Paulsen (Siemens) at the Dialogue Forum on Digitalisation during the UNIFE General Assembly in Warsaw, June 2018. The activities of the Platform and the Sub-Group have been coordinated, in order to ensure a harmonized and coherent approach to common challenges and foster a permanent exchange among the experts.

The UNIFE Digitalisation Platform has begun to work on updating its Position Paper in order to remain at the forefront of the digitalisation process in Europe. Besides developing further its two main 2018 priorities (cybersecurity and access to data), the rail supply industry has identified new focus areas to work on such as artificial intelligence (AI), robotics and Blockchain.

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a Cybersecurity

Securing network and information systems in the EU is essential to keeping the economy running and ensuring prosperity, as repeatedly declared by the European Commission. UNIFE is fully aligned with the EU's vision and has taken a number of initiatives in order to place itself at the forefront of cybersecurity in Europe.

UNIFE set up a dedicated working group dealing with cybersecurity and dependent on the wider UNIFE Digitalization Platform established in May 2016. Its main goal is to develop a clear and coherent cybersecurity roadmap to address the main threats facing the European Union.

Working closely and coordinating its activities with the UNIFE Digitalisation Platform, the UNIFE Cybersecurity Sub-Group provides UNIFE members with a forum to discuss and identify opportunities of cooperation in relation to cybersecurity issues in the European rail sector, thereby strengthening the position of the European rail industry in relation to its competitors and stakeholders.

The Sub-Group worked on and released a Position Paper on Rail Cybersecurity Transformation which was presented at the Dialogue Forum on Digitalisation during the UNIFE General Assembly in Warsaw. This Position Paper sets out priorities and targets for the short and long term, as a basis for further interactions with the EU institutions and the other rail stakeholders.

UNIFE is very aware of its members high level of interest in the subject of cybersecurity, which will become increasingly crucial in an ever-more digitalised world. In this regard, UNIFE is actively involved in developing research activities linked to cybersecurity such as the ES-PRIT project proposal which responds to the Horizon 2020 Call on 'Protecting the infrastructure of Europe and the people in the European smart cities'.

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SIGNALLING & ERTMS

Overview



The European Rail Traffic Management System (ERTMS) is one of the main pillars of the Digital Railway and it remains a political priority for the European Commission with a particular focus on the implementation of the European Deployment Plan (EDP). In support of this goal, a new ERTMS Deployment Action Plan

was developed and presented by the European Commission at the CCRCC event organised by the EU Agency for Railways (ERA) in November 2017. Furthermore, in 2018 significant progress has been made with respect to the commitment of various stakeholders.

The European Commission's Directorate-General for Mobility and Transport (DG MOVE) together with the European ERTMS Coordinator (until 31 December 2018), Karel Vinck, have underlined the importance of successfully implementing the Deployment Action Plan, which is being followed-up by the Coordination Sub-Group of the ERTMS Stakeholders Platform.

Members of the UNISIG consortium have proved themselves to be committed to solving any remaining interoperability issues within UNISIG, and also to proposing actions that will help to reduce costs and accelerate delivery in the fields of engineering and authorisation.

In parallel, UNISIG remains fully devoted to the development of the future 'ERTMS game changers', in coordination with the 2nd Innovation Programme (IP2) of Shift2Rail, which focuses on the development of advanced traffic management and control systems. In 2017-2018, priority was given to 'quick wins', mainly to the development of the ATO specifications, looking to minimise the impact on the core ETCS specifications. Also, UNISIG remains active in all ERA coordination groups dealing with the ERTMS game changers (i.e. ATO, Level 3 and the future communication system).

ERTMS – Main Political Highlights and Communication Activities in 2018

a 1st UIC Global Conference on Signalling

UNIFE/UNISIG attended and chaired some of the sessions of the 1st UIC Global Conference on Signalling (Milan, 25-28 March 2018), co-organised by UIC and Ferrovie dello Stato Italiane (FS Group), which focussed on 'The Evolution of ERTMS'. Some 500 participants from all continents and from different stakeholders gathered in Milan to discuss the evolution of ERTMS and address the main challenges ahead.



Michel Van Liefferinge at the 1st UIC Global Conference on Signalling

In his introductory keynote speech, UNIFE's Director General took stock of recent developments and highlighted the future ERTMS challenges as well as the rail supply industry's vision. The session focusing on cybersecurity was chaired by UNISIG General Manager Michel Van Liefferinge, who stressed that cybersecurity affects not only railway standards but also the processes of rail stakeholders.

b TEN-T Days



UNIFE participated in the TEN-T Days organised by the European Commission in Ljubljana, Slovenia on 20-27 April 2018, which was attended by four European Commissioners, numerous European and national key decision-makers and over 2000 participants from various stakeholders, covering all transport modes.

The UNIFE ERTMS stand boasted an ETCS simulator provided by Siemens Mobility, attracting great interest from decision-makers and other participants. EU Transport Commissioner Violeta Bulc, after testing the simulator, emphasized the importance of ERTMS for interoperability of the European rail system. Several Members of the European Parliament and high-level officials from the European Commission and Member States also took the opportunity to get practical insights into how ERTMS works.



EU Commissioner for transport, Violeta Bulc testing the ETCS simulator provided by Siemens Mobility

UNIFE Director General Philippe Citroën also took part in a panel discussion during a special session on ERTMS. He used this opportunity to highlight many of the points put forward in the [UNIFE Position Paper on CEF funding for ERTMS deployment in the post-2020 MFF](#).

c InnoTrans

Visitors to UNIFE's stand at InnoTrans 2018 (Berlin, 18-21 September 2018) had the chance to explore the latest developments of ERTMS worldwide deployment through an interactive workstation as well various marketing materials. This was also a great opportunity to discuss future ERTMS developments and key challenges with Karel Vinck, the outgoing EU ERTMS Coordinator (until 31 December 2018) and his successor, Matthias Ruete.

HIGH LEVEL EVENT BETWEEN CEOS OF UNISIG MEMBERS AND DG MOVE

On 18 September 2018, Henrik Hololei, Director General of DG MOVE (European Commission) met with the CEOs of the UNISIG member companies to take stock of the situation and discuss the implementation of the ERTMS Deployment Action Plan. This meeting followed-up on the previous meeting held in February 2017, in the framework of the 2016 Memorandum of Understanding between the European Commission, the EU Agency for Railways and the European rail sector associations (including UNIFE and UNISIG) concerning the cooperation for the deployment of the ERTMS.



UNISIG Companies CEOs meeting with DG Move DG Henrik Hololei (Director General, DG MOVE), Josef Doppelbauer (Executive Director, ERA), Carlo Borghini (Executive Director Shift2Rail JU) and Pio Guido (Head of Unit, ERA)

Further to the approval of Baseline 3 Release 2 in 2016, the industry reinforced its commitment to a period of stabilisation of the specification (i.e. no further legal release before 2022 at the earliest), to be used also to prepare the evolution of the system and the inclusion of additional functionalities (such as ATO, ETCS Level 3, Next Generation Telecommunication System and Satellite Positioning) in the ERTMS/ETCS specifications.

With regard to the future evolution of ERTMS, it was emphasised that UNIFE/UNISIG members are actively involved in the development of the so-called 'ERTMS game changers', in coordination with Shift2Rail Innovation Programme 2 (IP2) and within the ERA coordination groups dealing with the ERTMS game changers.

In conclusion, there was a clear message for all the stakeholders involved to work together to ensure that the Single European Rail Area will be delivered and to accelerate the ERTMS deployment in order to enhance capacity and ensure interoperability.

ERTMS DIALOG FORUM

On 20 September, a fully packed room of ERTMS stakeholders and other interested participants gathered at InnoTrans to listen to high-level speakers explaining why ERTMS should be considered as the backbone of the digital railway. Representatives of the European rail industry alternated on stage to debate on how active the suppliers have been in the development of ERTMS, especially concerning Hybrid Level 3 which can deliver better capacity and increase reliability while remaining fully compatible with ERTMS Level 2, as well as necessary cybersecurity protection measures.



Pio Guido (Head of Unit, ERA) presenting at the ERTMS Dialog Forum

Representatives from the European Commission, the EU Agency for Railways (ERA) and the Shift2Rail Joint Undertaking emphasised that there is still a strong business case for ERTMS deployment at European level and pointed out the positive collaboration with the industry in the definition of Research and Innovation (R&I) activities. The great job done by the ERTMS Stakeholders Platform Test & Validation subgroup (led by UNISIG members) was also underlined.

Following the main presentation there was an interesting debate, which highlighted once again the need for a swift and timely implementation of digitization projects in order to support the expansion of railway capacity.

d ERTMS Stakeholders Platform Board Meeting

The EU Agency for Railways (ERA) together with the European Commission (DG MOVE) organised the ERTMS Stakeholder Platform Board meeting, which was held at the National Railway Museum of Pietrarsa in (Italy) on 26 October 2018.

Members of the Platform Board, which includes UNIFE and UNISIG as observers, were invited to make a strategic reflection on the ERTMS deployment, agree and commit to the next steps necessary to achieve the targets of ERTMS deployment, as stated in the European Deployment Action Plan. Major accomplishments such as achievements in terms of deployment, the significant reduction of National Technical Rules and the encouraging indications of good compliance of Baseline 2 infrastructure with Baseline 3 trains were also highlighted during this meeting.



ERTMS Stakeholder Platform Meeting in Naples

Regarding the next steps, a number of priorities needed to achieve the objectives of the ERTMS MoU were set out in a declaration, including the need to focus on reducing costs for retrofitting, improving testing and validation processes, avoiding delays by preventing future slippage and mitigating delay risks in order to comply with deadlines in the EDP and NIPs.

e New ERTMS factsheets

UNIFE's ERTMS Marketing Group (UEMG) has published two new ERTMS Factsheets on ERTMS deployment in Latin America countries (Brazil, Chile, Mexico) and in Germany.



factsheet #25

SEPTEMBER 2018



THE DEPLOYMENT OF ERTMS IN LATIN AMERICA

The lack of investment policies and the very low priority for maintenance of the railway network in this important area of the world, as a whole, has caused a paralysis of the railway activity of both passengers and cargo. It is significant to note that among the 50 countries with the largest rail network in the world, only 5 are located in Latin America, in this order: Argentina (8), Brazil (10), Mexico (11), Chile (20) and Cuba (25).

Nowadays in the different Latin American countries they have realized that to be competitive in the export of their regional products, they must improve the internal transport cost structure, and therefore the railway reactivation justifies the investment plans that are being carried out. There is a wave of reawakening in the different railway networks. Naturally, in terms of passenger transport, suburban railways have become a priority in the larger large cities, as a feeder arm for metro networks, in order to reduce the dependence on cars and acquire great improvements in environmental impact.

Within this wave of expansion and modernization, three countries have stood out and continue to invest in the introduction of ERTMS in their Networks: namely Brazil, Chile and Mexico.



BRAZIL

Brazil has been the first Latin American country to implement ERTMS technology in Superia railway infrastructure but in a limited manner.

The project is part of an overall upgrade program being undertaken to improve services on the five-line Rio commuter network by 2015. The aim was to be transporting one million passengers every day – safely, swiftly, reliably and happily on the 225 kilometres of line and between the 88 stations. The new system will enable a three-minute headway in the densest sections of the network between the Central and the Dendro stations, foreseen to start service in November 2012.

ERTMS Level 1 technology allows automatic management of the time between trains, with the system automatically stopping the train even if a driver ignores a signal instruction to stop the train or a speed limit. The ATP solution, when associated with the traffic management system, reduces headways and optimizes the speed, therefore increasing the capacity of the line while placing safety at a top level.



CHILE

CHILEAN State Railways (EFE) has decided to implement and install ERTMS Level 1 on the 22km Santiago Alameda – Nío line, the first commercial deployment of ERTMS in Chile and only the second in South America. The line connects further south to Rancagua (85 km) and then to Chillán (400 km).

The contract also includes on-board equipment and five-year's maintenance plus the supply of computer based interlocking, control centre and track detection systems.

The installation of ERTMS together with other infrastructure enhancements has allowed the introduction of high-frequency MetroTren suburban services between Santiago and Nío, with trains running at four-minute interval at peak times. This project is supplemented by an enhanced Rancagua Xpress, which will operate at 15-minute intervals in peak periods, running non-stop from Santiago to Nío, and calling at all remaining stations to Rancagua.

Due to the implementation of ERTMS technology improvements to suburban rail services in Santiago to increase MetroTren ridership from around 7.5 million passengers to 18 million passengers.

This automatic train protection (ATP), when associated with the traffic management system, reduces headways and optimizes speed. This results in increased line capacity with safety as a top priority.



factsheet #26

SEPTEMBER 2018



ERTMS DEPLOYMENT IN GERMANY

ERTMS THE BASIS FOR DIGITAL RAIL PROGRAM



Germany is located in the heart of Europe and is therefore a central node of the European railway network with borders to many countries. There are 6 ETCS corridors crossing Germany, thus Germany forms the hub in rail traffic for people and goods and plays an important role for the deployment of ERTMS in Europe. Whilst many countries have already started implementation of ambitious ERTMS roll out programs, Germany is now pushing the implementation of ERTMS. In 2018 Deutsche Bahn has introduced its ambitious program "Digitale Schiene Deutschland" (digital rail Germany) which is based on the rollout of ERTMS on the railway network in Germany.



Status of ERTMS deployment in Germany

GERMANY A PIONEER IN ERTMS

In 1997 it was decided to equip the first line, Halle/Leipzig-Berlin, with ETCS Level 2 in Germany. More than 1100 ballies were installed on this 153km long line and 4 radio block centers (RBC) were connected to existing electronic interlocking.

On July 7th, 2003 for the first time in Europe an ERTMS-controlled passenger train operated at a speed of 200km/h between Jüterbog and Bitterfeld. Germany became a technical pioneer in the testing and development of ERTMS in Europe.

Deutsche Bahn has subsequently tested ETCS Level 1, Level 2 as well as ETCS ULS systems on its network between Berlin – Frankfurt/Oder. All operational systems were evaluated under real operating conditions.



How about ERTMS fitted Rolling Stock in Germany?

A significant number of rolling stock is being equipped with ERTMS in Germany. The majority of the so called "White Fleet" – the long distance passenger high speed trains of Deutsche Bahn – have been retrofitted with ERTMS already. The fleet comprises of more than 185 high speed trains of several classes – "ICE 1", "ICE 2" and "ICE 3" – trains. The trains are the backbone of the high speed long-distance passenger transportation network (ICE) in Germany with additional links to its neighbourhood countries like Switzerland and France for example.

In 2010 Deutsche Bahn ordered the next generation trains which are equipped with ERTMS by default. The new train class is branded with "ICE 4" and enlarges the existing ICE fleet by 119 vehicles and also replaces the obsolete Intercity (IC) trains for medium and long distance operation. On the other hand, Deutsche Bahn also drives the modernization of its cargo fleet. A frame contract covering the delivery of 450 ERTMS fitted locomotives has been awarded in 2013. Beside of these major investments into ERTMS onboard continuing fitment of yellow fleet and existing rolling stock can be seen. The number of ERTMS fitted vehicles will continuously increase in the future along with further deployment of ERTMS lines in Germany.



ERTMS – Latest Technical Achievements

In 2018, UNISIG continued to focus its activities on the maintenance of the ERTMS specifications, including the associated Baseline Compatibility Assessment. Under the leadership of ERA, UNISIG and the ERTMS Users Group carried out the analysis and assessment of a set of Change Requests, considered necessary in order to consolidate the interoperability target. To conclude this work, ERA issued the Opinion ERA/OPI/2017-2, including not only proposed technical solutions, but also the recommended process to implement them. This Opinion paves the way for the long-term ERTMS maintenance process, which is mandatory for any modern software system.

To complement this work, all UNISIG suppliers communicated to ERA the specific behaviours of their on-board units to evaluate in the field the possible changes to be implemented by the IMs, with the target to allow all compliant on-boards to run on compliant infrastructures.

The UNISIG suppliers proposed also a process to handle possible interoperability issues encountered within project execution, which has been endorsed by the Stakeholders Platform members and shared with ERA and DG MOVE.

Testing, Certification and Authorisation remains a crucial topic for ERTMS. All stakeholders recognise that, on top of constituents testing, compatibility testing between on-board equipment and real trackside configurations is mandatory.

The Test & Validation sub-group of the ERTMS Stakeholders Platform, which is chaired by UNISIG, and brings together experts from the various representative bodies, has developed the ERTMS System Compatibility (ESC) process which is to be included in the draft of the next version of the CCS TSI.

Among other UNISIG achievements in 2018, with regards to the European Deployment Action Plan, there is the Re-certification and re-authorization process after minor modifications of CCS interoperability constituents and subsystems, to be included in the draft of the next version of the CCS TSI. Also, the suppliers' agreement, in the field of errors correction, to disclose the information regarding equipment's technical behaviour, upon specific request of an IM and the finalisation of the On-Board Unit tender checklist as proposed by CER.

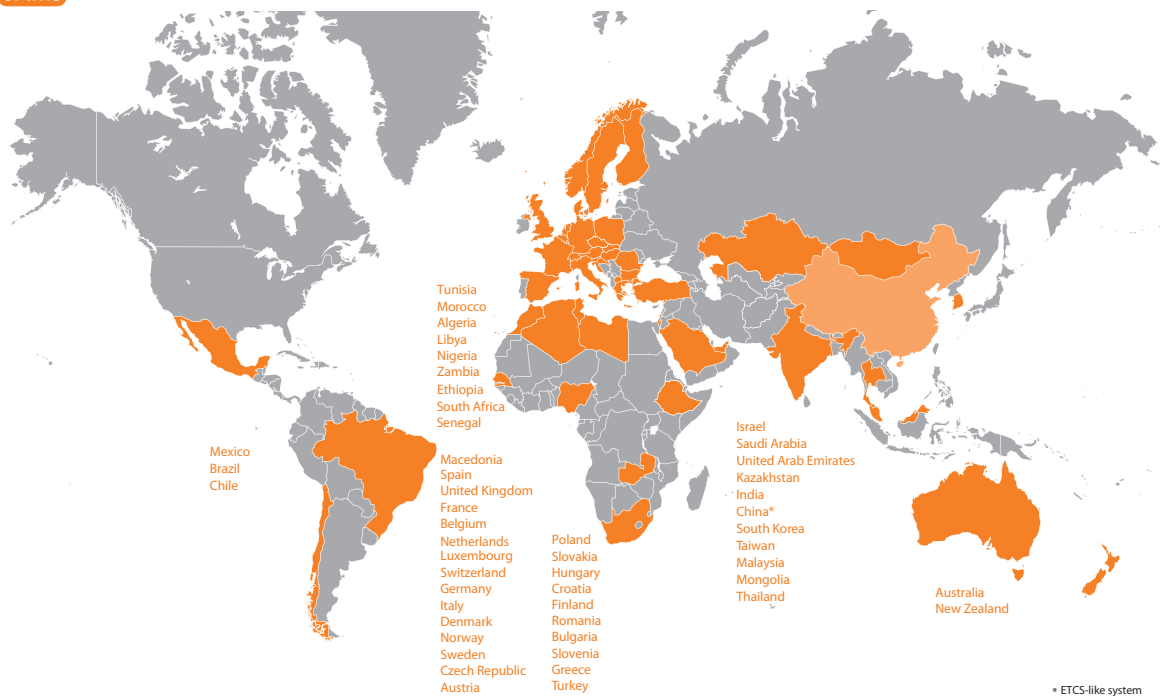
ERTMS Deployment Statistics

On the ERTMS website it is always possible to get the latest updates regarding the ERTMS deployment projects contracted by UNIFE members, through an interactive map.



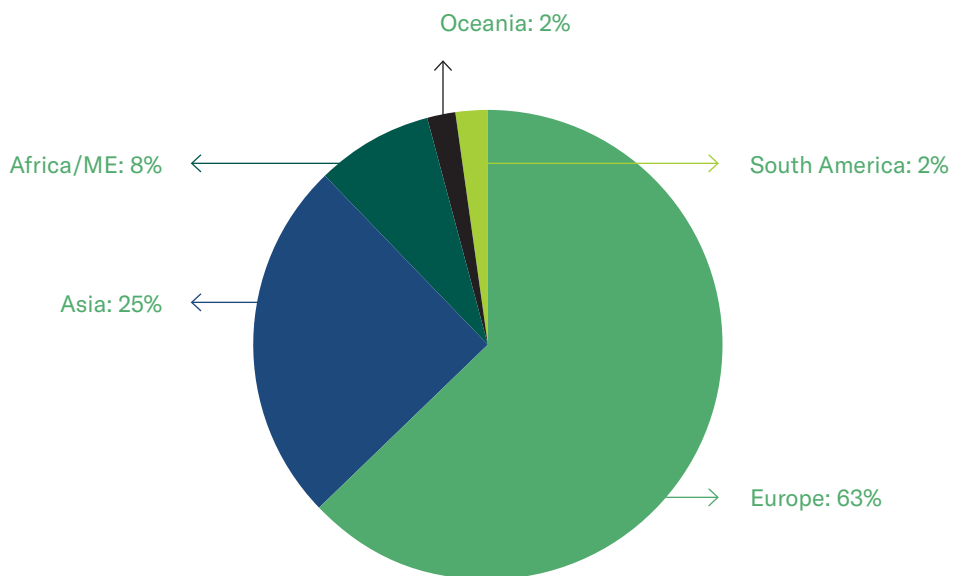
Global ERTMS Deployment by Country

Source: UNIFE December 2017

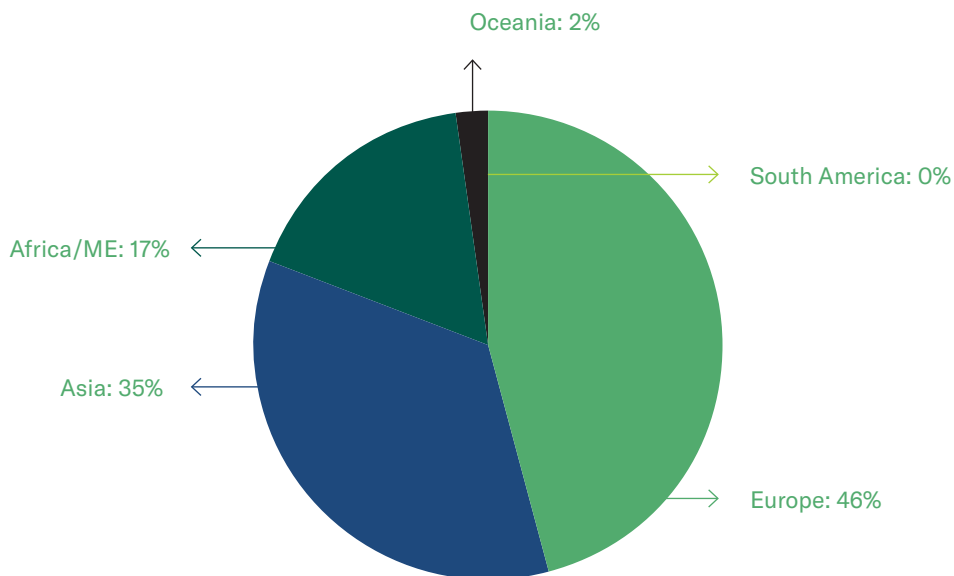


51 COUNTRIES
100,000 KM OF ERTMS TRACKS CONTRACTED
16,000 OBUS CONTRACTED

PERCENTAGE OF GLOBAL (ETCS L1 &/OR L2) CONTRACTED VEHICLES IN THE WORLD

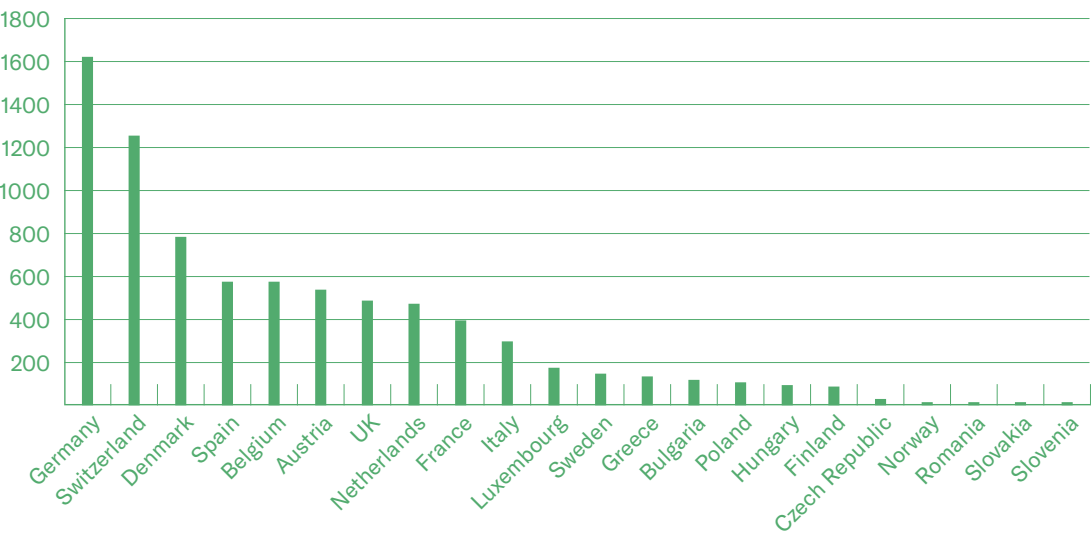


PERCENTAGE OF GLOBAL (ETCS L1 &/OR L2) CONTRACTED ROUTE (KM) IN THE WORLD

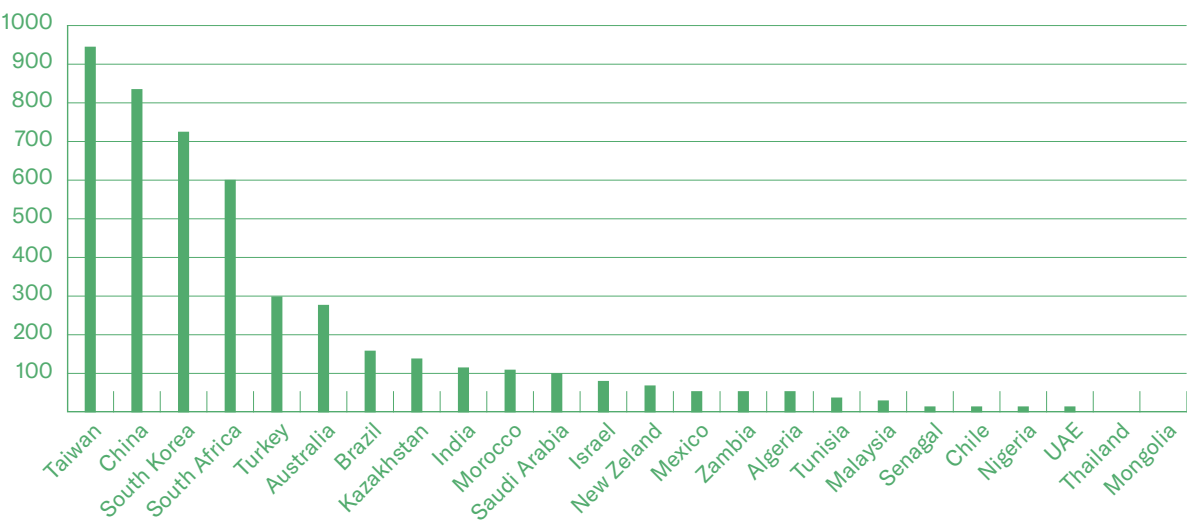


FOR MORE INFORMATION ON ERTMS, PLEASE VISIT
WWW.ERTMS.NET OR CONTACT JONATHAN.CUTULI@UNIFE.ORG

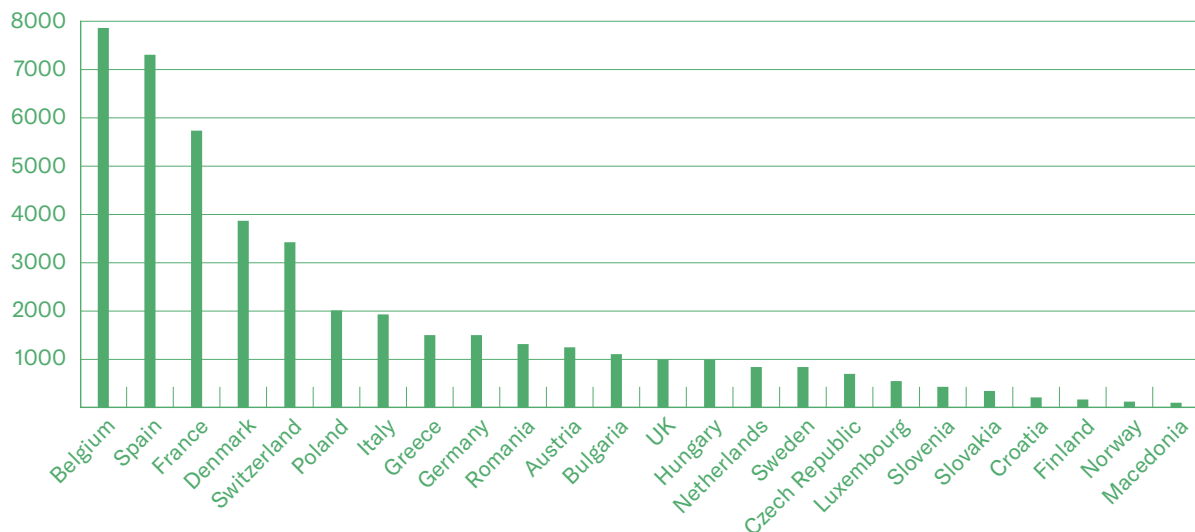
GLOBAL (ETCS L1 &/OR L2) CONTRACTED VEHICLES IN EUROPE -
BREAKDOWN



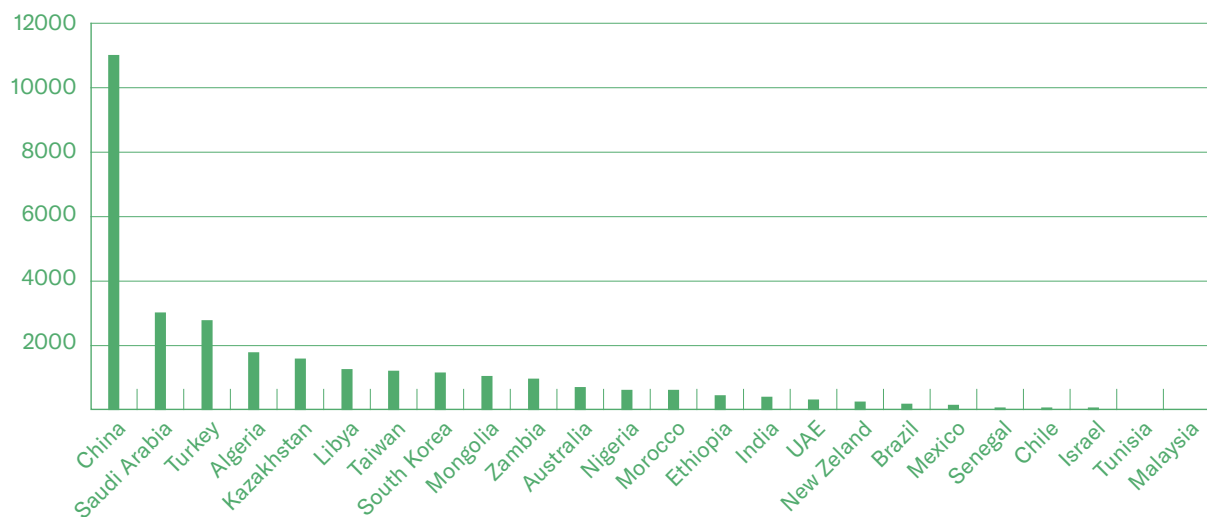
GLOBAL (ETCS L1 &/OR L2) CONTRACTED VEHICLES IN THE REST OF
THE WORLD - BREAKDOWN



GLOBAL (ETCS L1 &/OR L2) CONTRACTED TRACKS (KM) IN EUROPE- BREAKDOWN



GLOBAL (ETCS L1 &/OR L2) CONTRACTED ROUTE (KM) IN THE REST OF THE WORLD - BREAKDOWN





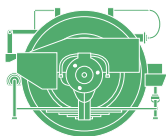
ERWA - RAILWAY WHEELS AND WHEELSETS COMMITTEE

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19th International Wheelset
Congress



ERWA - Railway Wheels and Wheelsets Committee

Overview

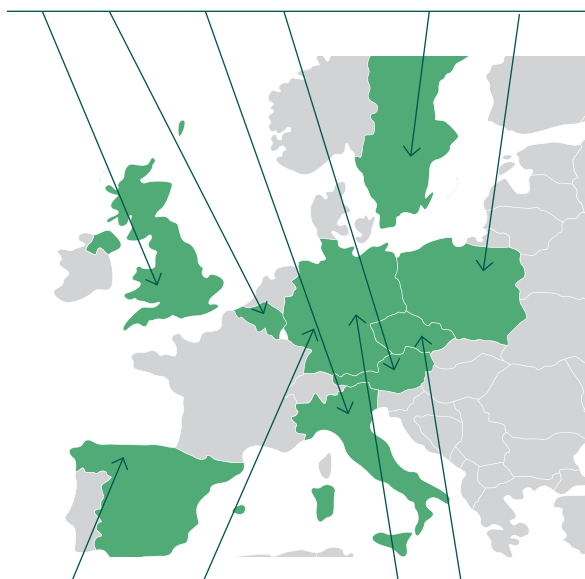


European Railway Wheels Association

ERWA, the UNIFE Railway Wheels Committee has as its main mission to contribute to the development of standards, to promote innovation in safety and environmental friendliness, as well as to lead in terms of quality and best practices in the European market.

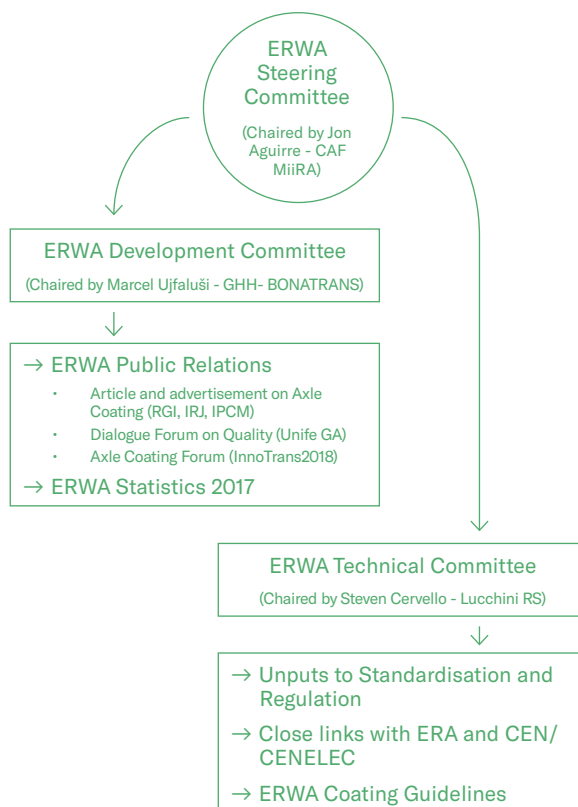
ERWA members

LUR **LBX** **LUCCHINI_{RS}** **LUCCHINI_{CE}** **LUCCHINI_{SE}** **LUCCHINI_{PL}**



Miira **CAF** **BVV** **SEIT 1842** **GH-RADSATZ** **BONATRANS**

The numerous activities that were carried out in 2018 by the ERWA members and coordinated by the ERWA Steering Committee are set out in the diagram below:



One of the main focuses of ERWA during 2018 has been the preparation of a guideline document, focusing on creating a list of approved axle coatings. The main goal behind this activity is to help ensure a durable corrosion protection of wheelsets, which is essential for a safer, more efficient and competitive railway operation.

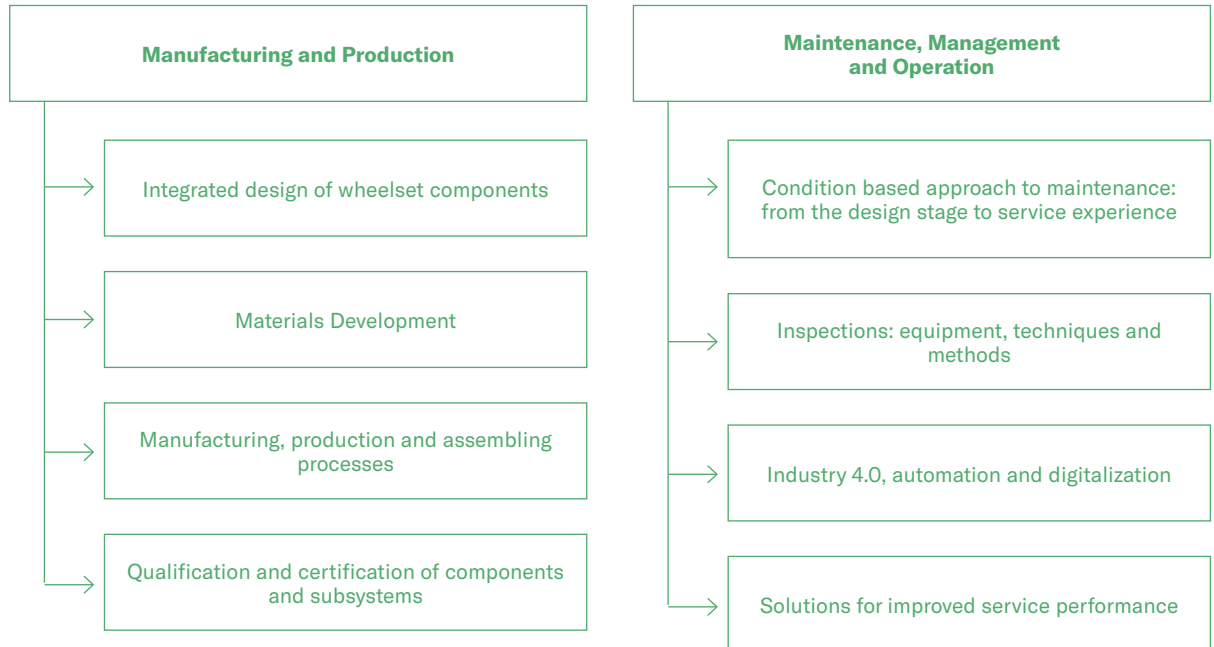
To this end, an Axle Coating Forum was organised on 18 September in Berlin during InnoTrans, which was also announced in various media channels (including the Railway Gazette International, the International Railway Journal and the International Paint & Coating Magazine).

The Guidelines are expected to be finalised around the Spring of 2019 and to be officially launched during the 19th IWC in June 2019. Should you wish to receive this guideline document please send a request to erwa@unife.org.

19th International Wheelset Congress



The preparations for the 19th IWC (16-20 June 2019, Venice) are well underway, with 114 abstracts submitted. The topics that will be covered during the congress are listed below:



The Congress is being organised by Lucchini RS, but with UNIFE and ERWA closely guiding the process. This event, which is focusing on the wheelset as a system and therefore also aimed at component manufacturers and end users (OEM & Railways), will be held in the prestigious venue of San Giorgio Maggiore.

[FOR MORE INFORMATION ON THE 19TH INTERNATIONAL WHEELSET CONGRESS, PLEASE VISIT WWW.IWC2019.COM](http://WWW.IWC2019.COM)

[FOR FURTHER INFORMATION ABOUT ERWA, PLEASE CONTACT: STEFANOS.GOGOS@UNIFE.ORG](mailto:STEFANOS.GOGOS@UNIFE.ORG)



19th IWC venue – San Giorgio Maggiore

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IRIS - INTERNATIONAL RAILWAY INDUSTRY STANDARD

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IRIS Certification™ at InnoTrans



IRIS - INTERNATIONAL RAILWAY INDUSTRY STANDARD



IRIS (International Railway Industry Standard) 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. IRIS boosts customer satisfaction and implements a culture of quality in the rail sector by promoting quality-focussed methods and behaviours.

IRIS Certification™: Control of Transition Phase

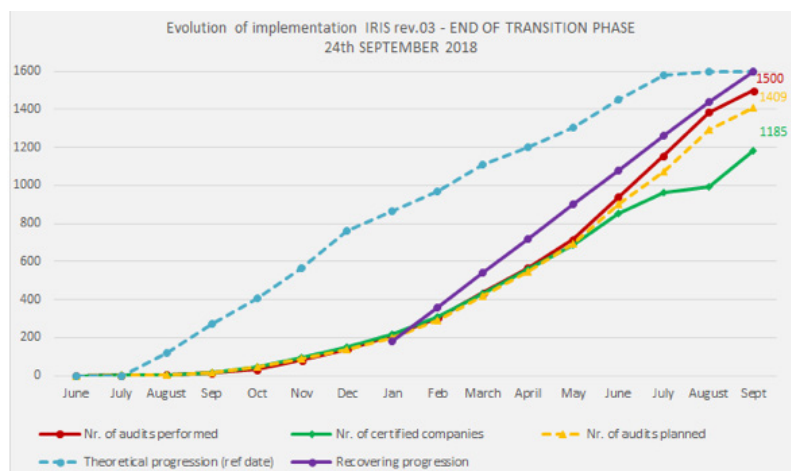
The launch of the IRIS Certification™ system rev. 03 on 1 June 2017 marked the start of the transition phase for companies already IRIS certified according to the previous edition (rev. 02). The IRIS rev. 03 system is based on the latest version of ISO 9001, which was published in September 2015. The deadline for the transition phase was set for 14 September 2018, in line with all other sector-specific management systems based on ISO 9001. All IRIS certificates issued under the previous system (rev. 02) expired on 14 September 2018, even if a later date was mentioned on the certificate document.

During the months leading up to the transition date, all of the parties involved in the IRIS system demonstrated their commitment to meeting this deadline. Significant efforts were required in certain cases, due to the fact that many companies in the rail sector still had to adapt their quality management systems in line with the latest version of ISO 9001.

IRIS certified companies faced particular challenges in terms of understanding the rail specific requirements set out in ISO/TS 22163:2017 and implementing them in their own organisations by ensuring the fulfilment of the IRIS Certification™ rules, especially the new elements: performance evaluation and reinforced customer satisfaction.

IRIS approved certification bodies and auditors faced challenges in relation to managing the planning, scheduling the transition audits and supporting their clients in this process, as well as the coordination of the IRIS-approved and re-trained auditors to ensure the audits for their clients worldwide.

The IRIS Certification™ Boards closely followed the monthly status of the transition phase, in order to ensure appropriate support was provided to the stakeholders. One of the essential steps in ensuring the proper deployment of the new IRIS Certification™ system was the re-qualification of all IRIS-approved auditors in 2017 and in 2018. Therefore, additional IRIS trainings have been organised in Europe and Asia for the initial qualification of new IRIS auditors in order to ensure the availability of qualified auditors for the transition phase.

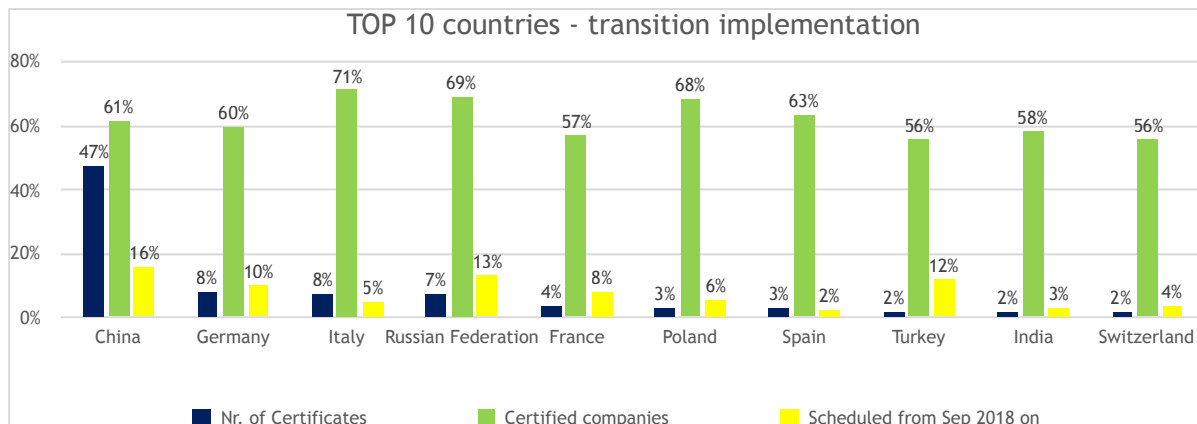


Monthly status reports from the certification bodies and feedback from individual companies provided a basis for

further actions, such as e-seminars, clarification documents, letters to companies, trainings and further qualification of auditors through scope extensions and/or lead auditor upgrades.

The involvement of all stakeholders, along with the above-described activities, supported the success of the transition phase. More than 90% of the IRIS certified

companies successfully passed the transition audit before the deadline and are now IRIS certified according to IRIS Certification™ rev. 03. Of the remaining companies, many were audited by the end of 2018, thereby allowing them to obtain certificates to demonstrate their compliance with the IRIS rev. 03 system. Other companies are expected to undergo audits in the first months of 2019.



IRIS Management Centre (IMC) will continue monitoring and controlling the system through witness and office audits, in order to ensure the correct application of the IRIS rev. 03 rules and thereby give all stakeholders the required trust and expected confidence.

Relations with ISO

In 2018, the formal adoption of the ISO/TS 22163 document (published by ISO in May 2017) at national level continued in several countries. During the lead-up to the deadline for certification, National Standardisation Bodies issued translations of this document for their respective countries. In certain countries, such as Germany, Spain, Italy and Hungary, this also provided an opportunity to improve understanding of the standard, to allow a smoother switch to IRIS Certification™ rev.03. Further translations of ISO/TS 22163 in additional languages will be published in 2019.

The IRIS Management Centre (IMC) has implemented a survey on the IRIS Certification™ rev. 03 system, mainly relating to the implementation of ISO/TS 22163 provisions within the certified companies, in order to assess the strengths and weaknesses of the current set of requirements. The results of this survey have been presented to the members of ISO/TC 269 Working Group 5 (Railway quality management system).

The members of ISO/TC 269 Working Group 5 (Railway quality management system) met in April 2018, in order to define priorities and the work programme to convert the ISO/TS 22163 document into a full ISO standard. The conclusions were submitted to the plenary meeting of ISO/TC 269 (Railway applications), which took the following decisions at the end of May 2018:

- The new international standard ISO 22163 should be finalised by 2022
- The new standard will be based on ISO/TS 22163 (published in 2017), and all National Standardisation Bodies (ISO members) should submit their proposals for improvement
- Bernard Kaufmann (IRIS General Manager) was appointed as the convener of ISO/TC 269 Working Group 5

The ballot to gather proposals was launched in the 4th quarter of 2018 and the analyses, discussions and decisions on the future evolutions of the requirements will start in 2019.

Creation of the International Rail Quality Board (IRQB)

Since 2008, UNIFE members have promoted the cooperation on IRIS Certification™ with rail operators within the IRIS Advisory Board. Progressively, it has become necessary to strengthen this cooperation and create a permanent structure for collaboration among all the interested stakeholders. Therefore, 18 companies decided to prepare a Consortium Agreement for the establishment of an International Rail Quality Board (IRQB).

The members of the IRQB consortium have committed themselves to:

- Further develop the rail quality management system (ISO/TS 22163) and its current assessment methodology (IRIS Certification™ rules) allowing transparency with regard to the quality performance of the certified organisations
- Implement the ISO/TS 22163 requirements and methods within their respective organisations
- Recognise compliance with ISO/TS 22163 exclusively by means of the IRIS Certification™ rules
- Increase the involvement of stakeholders from the rail supply chain in the implementation of the IRIS Certification™ scheme

The signature event took place at the UNIFE stand during InnoTrans 2018 in Berlin on 18 September. The members of the consortium (Alstom, Ansaldo STS, Bombardier, CAF, Siemens, GHH, Harting, Knorr-Bremse, Schaeffler, VOITH Turbo, Wabtec Faiveley, DB AG, Metro de Madrid, NS, RZD, SBB, SNCB and SNCF) were represented by their CEOs, COOs or members of their executive committees. By signing this important agreement, the consortium members have created the first ever stakeholder-driven global initiative for quality in the rail sector.



UNIFE Chair, Sabrina Soussan, signing the IRQB Consortium Agreement at the UNIFE stand during InnoTrans



Signatories of the IRQB Consortium Agreement during InnoTrans in Berlin on 18 September 2018

Bernard Kaufmann from the IRIS Management Centre was appointed as Coordinator of the International Rail Quality Board (IRQB). During its first meeting, the board created 5 Working Groups to deal with specific topics such as clarification of performance levels, monitoring of feedback and updating of guidelines. It is expected that the IRQB will be especially active in promoting visibility, credibility and trust in the IRIS Certification™ scheme.

IRIS Certification™ at InnoTrans

IRIS Certification™ presented its achievements and developments to numerous stakeholders during the InnoTrans fair in Berlin from 18 to 21 September 2018. Delegates representing numerous companies came to the UNIFE stand in order to meet the IRIS Management Centre team, to receive answers to their questions in direct dialogue, as well as to attend the three IRIS Certification™ sessions organised on the stand during the fair.

- The IRIS sessions at InnoTrans 2018 focused on:
- IRIS achievements and future strategy
- IRIS Certification™ system rev. 03 and the transition phase
- Technical evolutions and collaboration with ISO

Members of the IRIS Advisory Board highlighted recent achievements and outlined the future strategy towards global acceptance of the IRIS Certification™ scheme.

Various rail industry representatives gave their views on the transition to the IRIS rev. 03 system, while mentioning the challenging timeline, as well as issues related to implementing the new IRIS system in small and medium-sized enterprises. They highlighted the benefits as well as the constraints of implementing the new edition of the IRIS system.

Finally, the upcoming technical evolutions related to the development of ISO/TS 22163 into a full ISO standard, were presented by experts from ISO/TC 269/WG 05 (Rail quality management system). The view of the customer and its expectations were reinforced by highlighting the need of confidence in the IRIS rev. 03 system and by challenging the supply chain.

The 11th issue of the IRIS Newsletter (The Rail Quality Journal) was published in September 2018 and distributed on the UNIFE stand at InnoTrans 2018. This publication contained detailed information regarding the transition to the IRIS Certification™ rev.03 system.



FOR MORE INFORMATION ON IRIS CERTIFICATION™
PLEASE VISIT WWW.IRIS-RAIL.ORG

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European Railway Award



Since 2007, the European Railway Award has celebrated and recognised achievements in the business and technical fields of the European rail sector and kicked off each new year with addresses from high-level EU policymakers. The 2018 ceremony, which took place at the Square Conference Centre in Brussels, was followed by the joint CER-UNIFE Annual Reception and attracted more than 500 guests from all over Europe, including senior EU officials and transport stakeholders. The European Railway Award for 2018 was presented to the [Gotthard Base Tunnel Project](#), for delivering the world's longest railway tunnel, shifting freight to rail. Peter Jedelhauser, former Head of the Gotthard North-South Corridor Project at SBB, and Renzo Simoni, former CEO of AlpTransit Gotthard Ltd accepted the award on behalf of the European workforce who brought this project to life.

The evening started off with a round-table discussion involving top EU transport policymakers and stakeholders. During the discussion, European Commissioner for Mobility and Transport [Violeta Bulc](#) highlighted how *"the rail sector has a central role to play in the transition to integrated, smart and low emission mobility"*. She invited all actors *"to intensify their cooperation to improve the quality of service and to demonstrate the impact of public investments in rail transport infrastructure"*.

Representing the European Parliament, MEP [Karima Delli](#) (Greens/EFA, FR), Chair of the Committee on Transport and Tourism stated: *"There is a common will between the European Commission and the European Parliament to promote passengers' traffic and freight, in order to decarbonise transport and to better connect European citizens. But this transition will only be possible if we implement the fourth railway package for the benefit of passengers and workers of the rail industry, and if passengers feel better protected by the passenger rights directive that is being currently recast"*.

UNIFE Chair and CEO of Siemens Mobility, [Sabrina Sousa](#), emphasised: *"We're here to celebrate the achievements of our industry, and to look ahead at what's going to be a crucial year for Europe's rail sector. As the EU institutions decide on their budget priorities for the next years, we want to make sure that rail is firmly among them. Further investments in rail projects, and EU funding for crucial digital innovation in our sector through Shift2Rail 2.0, will secure Europe's leadership and contribute to more efficient, innovative and interoperable rail transport."*

Furthermore, Paweł Wojciechowski, European Coordinator for the Rhine-Alpine core network corridor, stressed the need to ensure the most efficient use of available European resources, while CER Chair and CEO of SJ and President of ASTOC Crister Fritzson congratulated the laureates and their success in lifting rail freight to the next level, and thereby helping to unleash the full potential for modal shift.

The Gotthard Base Tunnel project in numbers:

- 57 km length
- 2300 meters deep
- 28.2 million tonnes of excavated materials
- 2600 people employed, and 3900 people trained
- 17 years from start to completion
- Total cost of 11 billion Euros
- 249 km/h max travel speed
- Less than 20 minutes travel time through the tunnel
- 260 freight and 65 passenger trains per day

The next edition of the European Railway Award will be held at the Royal Museums of Fine Arts of Belgium on 20 February 2019.

[FOR MORE INFORMATION PLEASE VISIT
WWW.EUROPEANRAILWAYAWARD.EU](#)



UNIFE General Assembly 2018



UNIFE held its 27th General Assembly in Warsaw, from 20 to 22 June, gathering more than 220 participants. The programme of the 2018 edition included presentations and contributions from industry CEOs, high-level speakers from the European Commission, the European Parliament, the European Investment Bank (EIB), Shift2Rail Joint Undertaking, and the EU Agency for

Railways. The question of how the EU Institutions and Member States can best support the global competitiveness of the European rail supply industry dominated many of the discussions throughout the conference. The 2018 General Assembly also saw the election of Sabrina Soussan, CEO of Siemens Mobility, as the new UNIFE Chair. After thanking the membership for their confidence and support, she stated: “As Chair of UNIFE, I can assure you that we will continue to advocate for strong EU measures. Our strategy will target three strategic priorities: promoting innovation, through an extension of Shift2Rail beyond 2020; improving business conditions, through the new Authorisation regime; and stimulating investment, by using EU funding and financing opportunities.”.

The first day of the conference (Wednesday, 20 June) featured six dialogue forums addressing some of the main topics facing the European rail supply industry, namely: quality, digitalisation, standards & regulations, investment and public procurement, research & innovation and trade.

The second day (Thursday, 21 June) began with a keynote speech delivered by Sabrina Soussan (UNIFE Chair and CEO of Siemens Mobility) and a video address by Elżbieta Bieńkowska (European Commissioner for Internal Market, Industry, Entrepreneurship and SMEs), followed by panel discussion. Representing the Polish government, Deputy Minister of Infrastructure Marek Chodkiewicz summarised how the Polish railways will soon benefit from large-scale modernisation, with major investments in both ERTMS deployment and rolling stock renewal.

Finally, the General Assembly was also an opportunity to celebrate significant growth in membership as UNIFE members ratified the admission of 16 new members: Akka Technologies, Belam, Eltec Elektronik, Eolane, Evopro Group, Frequentis, Ilo Technology, Masats, Movares, Neat, Nokia Solutions and Networks, Prolan, Radiall, Smiths Interconnect, Thoni Alutec, and Unex.

The Next Unife General Assembly will take place In Dublin, Ireland on 12-14 June 2019

FOR MORE INFORMATION ON THE GENERAL ASSEMBLY PLEASE VISIT THE EVENT'S PAGE ON OUR WEBSITE WWW.UNIFE.ORG



InnoTrans 2018



With 3,062 exhibitors from 60 countries and more than 153,000 trade visitors, InnoTrans continues to be the quintessential event for the European rail industry to showcase its major innovations, make important commercial connections, and hear from decision makers and sector leaders about future plans. UNIFE once again had an exhibition stand and a full programme of activities and events at InnoTrans 2018 in Berlin.

The first day started with a roundtable discussion on the innovative and digital railway system with participants including Dominique Riquet MEP (Vice-Chair of the European Parliament's Committee on Transport and Tourism), Jean-François Aguinaga (Head of Unit, DG RTD, European Commission), Carlo Borghini (Executive Director, Shift2Rail JU), and Alberto Parrondo (Vice-President, Thales; Chairman, ERRAC). After this opening dialogue, Sabrina Sououssan, UNIFE Chair and CEO of Siemens Mobility announced the publication of the World Rail Market Study (WRMS), which was followed by a presentation of the major findings by Andreas Schwillig, Partner from Roland Berger Strategy Consultants. Later, Philippe Citroën (Director General, UNIFE) welcomed Josef Doppelbauer (Executive Director, EU Agency for Railways) and Christian Rausch (Head of Regulations & Standards Management, Bombardier Transportation) to the UNIFE stand to discuss the importance of the implementation of the Fourth Railway Package. The day concluded with a session on IRIS and the official Signature of the International Rail Quality Board (IRQB) Consortium Agreement by 18 major industry stakeholders (including UNIFE).

On the second day, the presentations at UNIFE's stand focused on various topics including competitiveness, satellite technology, international affairs and IRIS. To start, UNIFE hosted a Climate Workshop and Award Session organised by Railsponsible. Then came a round-table discussion on 'competitive European rail supply industry: the key support of EU and national policy-makers' and presentations of satellite technology projects (STARS and ERSAT GGC). These were followed by sessions focusing on international affairs, and more specifically UNIFE's cooperation with APTA, the GCC and UIRE. The day ended with two further sessions on IRIS Certification™.


Day three kicked off with a major presentation organised by UNIFE in Palais am Funkturm in Messe Berlin. This Dialogue Forum, entitled, 'ERTMS, the backbone of the dig-


ital railway' attracted a large crowd and featured Chris Jackson (Editor-in-Chief, Railway Gazette), Keir Fitch (DG MOVE, European Commission), Carlo Borghini (Executive Director, Shift2Rail JU), Pio Guido (Head of ERTMS Unit, EU Agency for Railways), and other stakeholders. The audience listened to presentations from each panelist on their past successes and future strategies for the deployment of ERTMS, followed by a robust panel discussion which included questions from the audience. The day concluded with an IRIS session on 'Technical Evolution & future with ISO', and presentations of two Shift2Rail projects (RUN2Rail and IN2DREAMS).


In conclusion, InnoTrans 2018 could be considered as a major success for UNIFE, and we would like to thank all of our speakers and guests who visited our stand and participated in all the various elements of our programme of activities and events during the week.




Facts & Figures

| | |
|---|---------------------|
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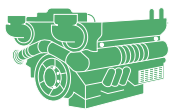
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| 100 | Mentions |

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Bombardier Transportation
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British Steel
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CAF
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CEG Elettronica Industriale
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CENTRALP
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Comesvil
comesvil.com



CONSOLIS
consolis.com



Constellium
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ContiTech
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DIGINEXT
diginext.fr



Eaton
eaton.eu/Europe/Rail



ECM
ecmre.com



EKE Electronics
eke.com



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ELPA
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ELTEC
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Evopro
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FOGTEC
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Logiplus
logiplus.com



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Masats
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oltis group

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Trimble

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VOITH

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VUKV

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Association of the Czech Railway Industry (ACRI), Czech Republic
acri.cz



AGORIA, Belgium
agoria.be



Romanian Railway Industry Association (AIF), Romania
asifrom.ro



Associazione Industrie Ferroviarie (ANIE/ASSIFER), Italy
anie.it



Austrian Association of the Railway Industry, Austria
bahnindustrie.at



Fédération des Industries Ferroviaires (FIF), France
fif.asso.fr



Spanish Railway Association (MAFEX), Spain
mafex.es



Association for Railway Automation, Signalling, Telecommunication and Industry (RASTIA), Bulgaria
rastia.org



Railway Industry Association

Railway Industry Association (RIA), United Kingdom
riagb.org.uk



Association for Rail Industry Companies (SWEDTRAIN), Sweden
swedtrain.org



Swissrail Industry Association, Switzerland
swissrail.com



Der Verband der Bahnindustrie in Deutschland (VDB), Germany
bahnindustrie.info



Zentralverband Elektrotechnik- und Elektronikindustrie (ZVEI), Germany
zvei.org

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UNIFE STAFF

100

UNIFE Staff in 2018

103

UNIFE wishes all the best to those
who left the team in 2018



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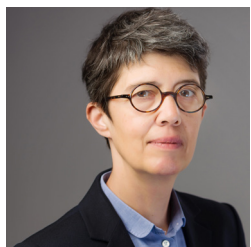


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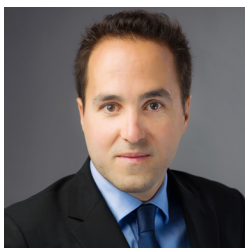


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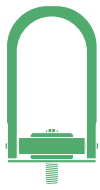
Andrea Demadonna



Tamás Bujdosó



Haido Sotiriou



ACRONYMS

[APTA](#) American Public Transportation Association

[ATO](#) Automatic Train Operations

[CBTC](#) Communications Based Train Control

[CEE](#) Central and Eastern Europe

[CEF](#) Connecting Europe Facility

[CEN](#) European Committee for Standardisation

[CENELEC](#) European Committee for Electro-technical Standardisation

[CETA](#) EU-Canada Comprehensive Economic and Trade Agreement

[CER](#) Community of European Railway and Infrastructure Companies

[CIS](#) Commonwealth of Independent States

[COP\(21\)](#) Conference of Parties

[CSM](#) Common Safety Methods

[DG](#) Directorate General

[DG GROW](#) Directorate General for Internal Market, Industry, Entrepreneurship and SMEs

[DG MOVE](#) Directorate General for Mobility and Transport

[DG RTI](#) Directorate General for Research and Innovation

[DG TRADE](#) Directorate General for Trade of the European Commission

[DMU](#) Diesel Multiple Unit

[EC](#) European Commission

[ECB](#) Eddy Current Brakes

[EFRTC](#) European Federation of Railway Track-works Contractors

[EFSD](#) European Fund for Strategic Investments

[EIB](#) European European Bank

[EIM](#) European Rail Infrastructure Managers

[EMC](#) Electro-Magnetic Compatibility

[EP](#) European Parliament

[ERA](#) European Union Agency for Railways

[ERFA](#) European Rail Freight Association

[ERDF](#) European Regional Development Fund

[ERRAC](#) European Rail Research Advisory Council

[ERTMS](#) European Rail Traffic Management System

[ERWA](#) European Railway Wheels Association

[ETCS](#) European Train Control System

[ETS](#) European Trading Scheme

[EU](#) European Union

[EURNEX](#) European Rail Research Network of Excellence

[FP7](#) Seventh Framework Programme

FTA Free Trade Agreement

FRS Functional Requirement Specification

GCC-SG Gulf Cooperation Council Secretariat General

GHG Greenhouse Gas

GNSS Global Navigation Satellite System

GRB Group of Representative Bodies

GPA Government Procurement Agreement

GPRS General Packet Radio Service

IEC International Electro-technical Commission

IMC IRIS Certification™ Management Centre

IP Innovation Programme

IRIS International Railway Industry Standard

ISAB Independent Safety Assessment Body

ISO International Organisation for Standardization

ITRE Committee on Industry, Research and Energy in the European Parliament

ITS Intelligent Transport Systems

JPCR Joint Programming Committee Rail

JU Joint Undertaking

LCC Life Cycle Costs

LOC & PAS Rolling Stock Locomotive and Passenger Carriages

LPAA Lima-Paris Action Agenda

MEP Member of European Parliament

MG Mirror Groups

MoU Memorandum of Understanding

NB-Rail Association of Notified Bodies

NIB National Investigation Bodies

NRB Network of Representative Bodies

NRMM Non Road Mobile Machinery

NSA National Safety Authority

NPUIRE Russian Union of Industries of Railway Equipment

OECD Organisation for Economic Co-operation and Development

ORS Operational Requirement Specification

OTM On Track Machines

NOx Nitrogen Oxide

PPMC Paris Process on Mobility and Climate

PPP Public Private Partnership

R&D Research and Development

R&I Research and Innovation

[RAMS](#) Reliability, Availability, Maintainability, Safety

[RDD](#) Register of Notified National Rules

[RFE](#) Rail Forum Europe

[RINF](#) Register of Infrastructure

[RISC](#) Railway Interoperability and Safety Committee

[RZD](#) Russian Railways

[S&R](#) Standards and Regulation

[S2R JU](#) Shift2Rail Joint Undertaking

[SERA](#) Single European Railway Area

[SMEs](#) Small and Medium-sized Enterprises

[SRG](#) Standards and Regulation Group

[SRRA](#) Strategic Rail Research Agenda 2020

[SRRIA](#) Strategic Rail Research and Innovation Agenda 2050

[SRT](#) Safety in Railway Tunnels

[STC](#) Sustainable Transport Committee

[TAP/TAF](#) Telematic Application for Passengers and Freight

[TCMS](#) Train Control Management System

[TecRec](#) Joint UNIFE and UIC Technical Recommendations

[TEN](#) Trans-European Networks

[TEN-T](#) Trans-European Network for Transport

[TG](#) Topical Groups

[TMP](#) Technical Management Platform

[TRAN](#) Committee on Transport and Tourism in the European Parliament

[TRA](#) Transport Research Arena

[TRB](#) Transportation Research Board

[TSI](#) Technical Specification for Interoperability

[TTIP](#) Transatlantic Trade and Investment Partnership

[UIC](#) International Union of Railways

[UIP](#) International Union of Private Wagon Owners

[UIRR](#) International Union of combined Road-Rail transport companies

[UITP](#) International Association of Public Transport

[UNFCCC](#) United Nations Framework - Convention on Climate Change

[UNISIG](#) Union Industry of Signalling

[WTO](#) World Trade Organization

[WRMS](#) World Rail Market Study

**PUBLISHED IN DECEMBER 2018 BY
UNIFE – THE EUROPEAN RAIL INDUSTRY
ASSOCIATION**

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