UIC
ACTIVITY
REPORT
2019

UIC

INTERNATIONAL UNION
OF RAILWAYS

UIC
ACTIVITY
REPORT
2019

INTERNATIONAL UNION
OF RAILWAYS

CONTENTS

UIC AREAS OF ACTIVITY

UIC'S REGIONAL ACTIVITIES

UIC SUPPORT ACTIVITIES

FOREWORD BY
GIANLUIGI CASTELLI
UIC CHAIRMAN

In the thick of the current global crisis, the new challenges we face point to radical changes in our business. Railway companies must define a clear pathway to Covid-19 response – so as not to be defined by it. For this reason, we have launched with the active role of UIC an intensive exchange among members on Covid-19.

Borderless issues, like resource scarcity, climate change and ultimately pandemics, require an unprecedented common endeavour by all members of the Railway community worldwide.

We are all called to co-create resilient organisational models, to redesign the mobility market, and there is no denying that digitalisation will be a catalyst to reach such goals and global recovery. UIC is ready to embrace a whole new innovative attitude, and to drive positive change.

Our priorities and focus areas are clear: from creating innovation through projects and further developing our technical/digital platform, to promoting sustainable, carbon-free transport and – most importantly – transparency towards our members and stakeholders at large.

The UIC Activity Report 2019 is a relevant output of the new course taken by our Association.

While emerging technologies and digital transformation have always been at the core of our research projects and Opt-In framework, it is already clear that the whole range of activities that UIC is bringing forward will be increasingly digital-led and innovation-driven.

Our processes shall leverage efficiency and maximise frugality, in a way that has never been pursued up until now.

The positive spillovers of our innovation and digitalisation research will thus be merged and channelled into our new sustainable, careful resource management strategy. ● ● ●

"UIC IS READY TO EMBRACE A WHOLE NEW INNOVATIVE ATTITUDE, AND TO DRIVE POSITIVE CHANGE."

"WE AS UIC BELIEVE THAT OUR COMMITMENT TO BUILD TRUST WILL PROVIDE US WITH VALUABLE INSTRUMENTS FOR OUR BUSINESS…"

● ● ●

Following this approach and for the first time, UIC is now issuing a 'refurbished' version of the Activity Report, which will include broader areas of our whole internal value chain.

From Passenger to Freight sector results, to other ongoing activity fields and far beyond the scope of UIC innovation projects, this new version aims at reporting in the most accurate manner our main achievements and highlights of the last year.

Once more, our promise to provide a more comprehensive communication flow, as well as to put in place an optimised ethical and transparent governance is being delivered, for the benefit of all our members.

We as UIC believe that our commitment to build trust will provide us with valuable instruments for our business and help us all to enhance our attractiveness and market positioning.

Such commitment, along with mutual cooperation and participation, will be decisive in tackling this crucial phase and make an evolutionary leap that will long outlast the immediate crisis.

FOREWORD BY
FRANÇOIS DAVENNE
UIC DIRECTOR-GENERAL

As highlighted by our Chairman, in 2019, UIC established the strategic objectives adopted at its 2019 General Assembly. For my part, I would like to acknowledge the commitment of all UIC personnel to shaping and furthering these objectives, which were defined following a leadership seminar in September, itself supported by internal consultation activities.

This joint effort meant that all contributors were able to share their ideas, strongly anchored in the various fora. This in turn allowed UIC to tap directly into its members technical, business and operational interests. This is exemplified by the rapid approval of UIC's objectives at its General Assembly first of all, and then by all of its members. The results of the UIC satisfaction survey for the period from June 2019 to May 2020 show that satisfaction with UIC's strategic focus areas has increased by nine percentage points to 77%.

This was achieved thanks to the commitment of all stakeholders to identifying synergies between the association's various areas of activity. Indeed, UIC's true value lies in its capacity to share information and exchange different points of view.

This is certainly true in geographical terms – as the only worldwide railway association, we can assess the real added value offered by our sector to society, looking beyond conventional wisdom. The range of opportunities is always far greater than what may seem possible in a single region of the world.

It is also true from a technical perspective. Even with a relatively small team, the association works on all of the key issues affecting the railways. As illustrated in this report, our team works actively not only on cutting-edge technologies with as 5G with FRMCS, but also in areas requiring a greater focus on behaviour, such as human factors in relation to safety.

What cannot be showcased in this thematic report is the intensive collaboration between UIC's various departments in order to provide solutions that are both innovative and tailored to specific needs. I pay tribute to this emulation and curiosity of spirit, which are amongst the key strengths of our Association.

UIC MEMBERS AROUND THE WORLD

GOVERNANCE

11

new UIC Members

10

statutory meetings and numerous preparatory meetings

15

forum and platform meetings held as scheduled

120

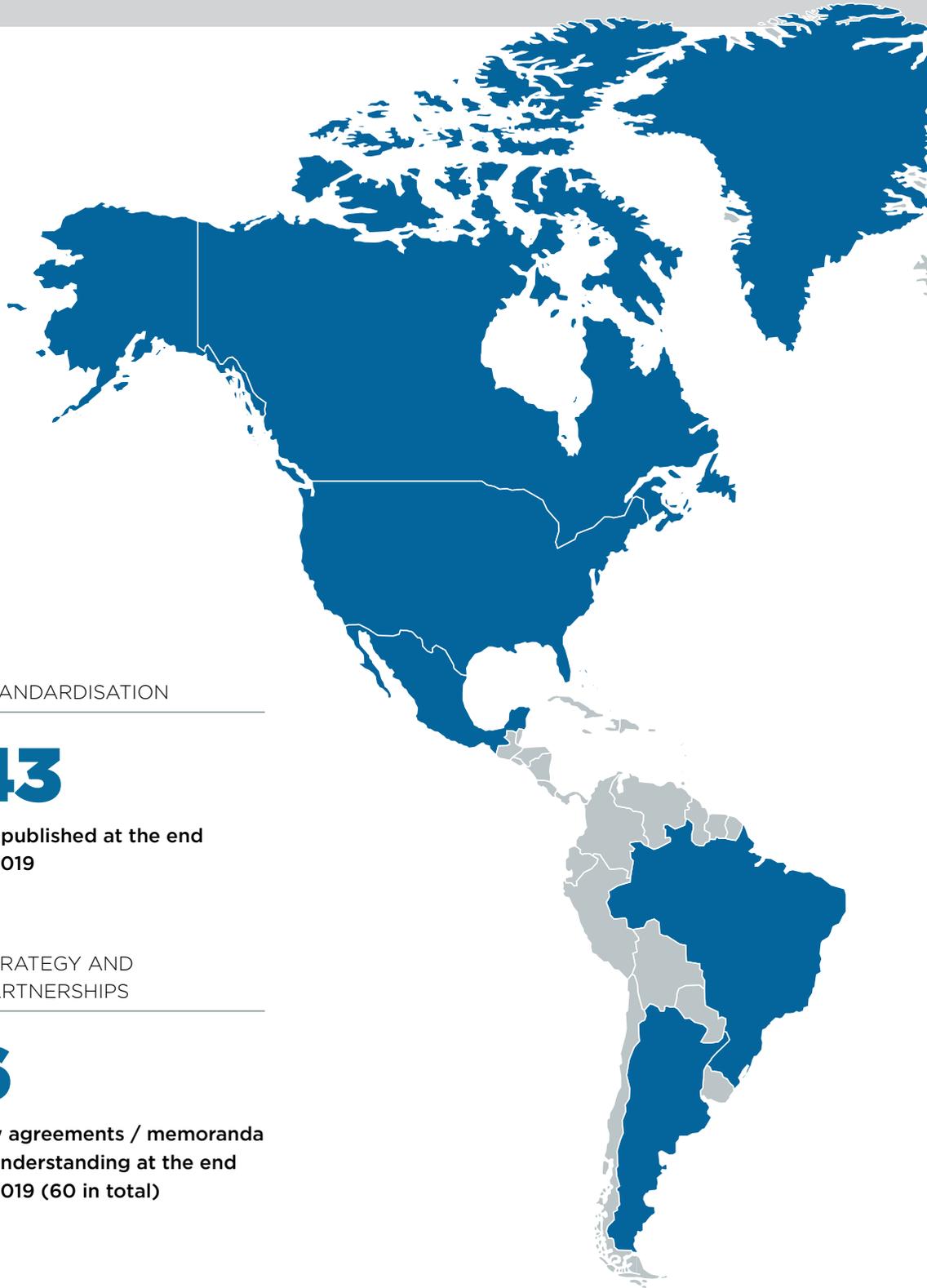technical groups, monitoring 9 special groups projects

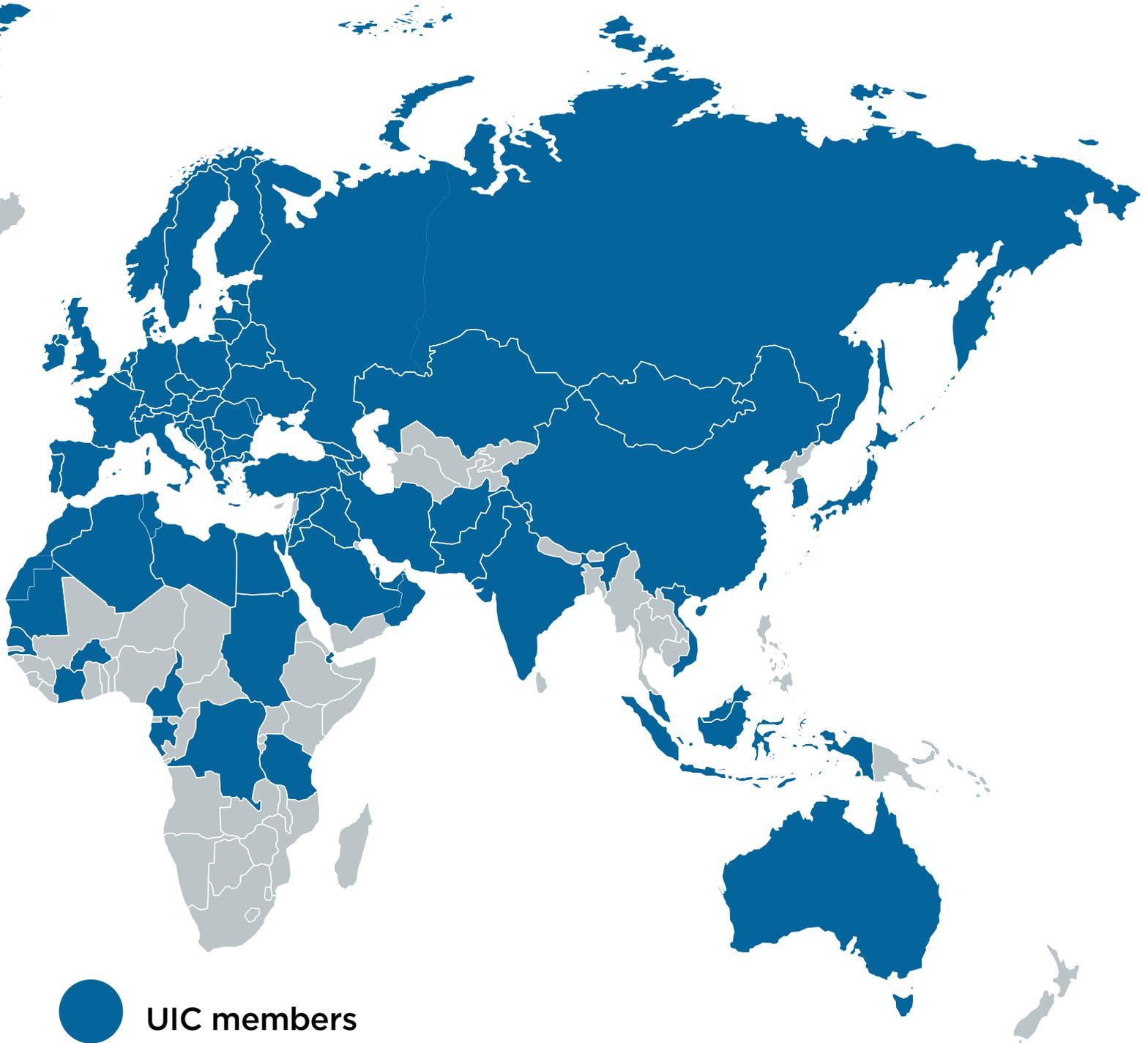## STANDARDISATION

43

IRS published at the end of 2019

STRATEGY AND PARTNERSHIPS

6

new agreements / memoranda of understanding at the end of 2019 (60 in total)

UIC members

UIC, THE WORLDWIDE RAILWAY ORGANISATION

UIC'S VISION AND MISSION

A vision for an innovative sector

UIC is the worldwide organisation tasked with promoting rail transport and developing the railway system to support the strategies of its members: rail operators, infrastructure managers, railway service providers and other industry stakeholders.

UIC has been an SSO (standards setting organisation) since its creation in 1922, and technical harmonisation of the railway system remains one of its core objectives. Its members — the operators of the world's railways — have, over the years, developed the "UIC code" comprising UIC leaflets, which define common rules to ensure safety and efficiency in the design, construction,

UIC Management team

UIC'S MISSION IS TO:

▶ promote rail transport globally with the objective of responding effectively to current and future challenges relating to mobility and sustainable development;

▶ develop and facilitate all forms of international cooperation among members and promote sharing of best practice;

▶ promote interoperability and develop and publish solutions to railway system-related issues (IRSs);

▶ support members in their efforts to develop new business and areas of activity;

▶ propose new ways to improve the technical and environmental performance of rail transport, increase competitiveness and reduce costs.

operation and maintenance of the railway system. Many of these rules are also applied outside the railway operating community. They are the outcome of work conducted independently by railway operators in order to harmonise the railways in a feasible and efficient manner. IRSs are progressively replacing UIC leaflets and are being adapted to incorporate regional variations. Nevertheless, the objective underlying the documentation remains unchanged: it helps railway companies in their aim of serving society and the economy. Representing a rich and diverse membership across the globe, UIC relies on its collective knowledge and technical expertise to develop and enhance the reputation of the railway sector so that it is associated with flexibility, simplicity, freedom and comfort. These concepts go hand in hand with our members' fundamental values, such as safety, security and solidarity. This Activity Report highlights the extent to which the joint efforts of the sector are bearing fruit and contributing to the development of rail transport. With the support of its many partners throughout the world, UIC also serves as a platform for its members to showcase rail transport as the transport mode of the future: a future that will be characterised by low-carbon transport and in which sensible use of multimodality will enable reduction of pollution and congestion and free up public space in our cities.

GOVERNANCE

CHAIRMAN   VICE CHAIRMAN   DIRECTOR-GENERAL

UIC GENERAL ASSEMBLY
200 MEMBERS

UIC EXECUTIVE BOARD
21 MEMBERS

AFRICA   ASIA-PACIFIC   EUROPE   MIDDLE-EAST   NORTH AMERICA   LATIN AMERICA

UIC MANAGEMENT COMMITTEE
UIC HEADQUARTERS
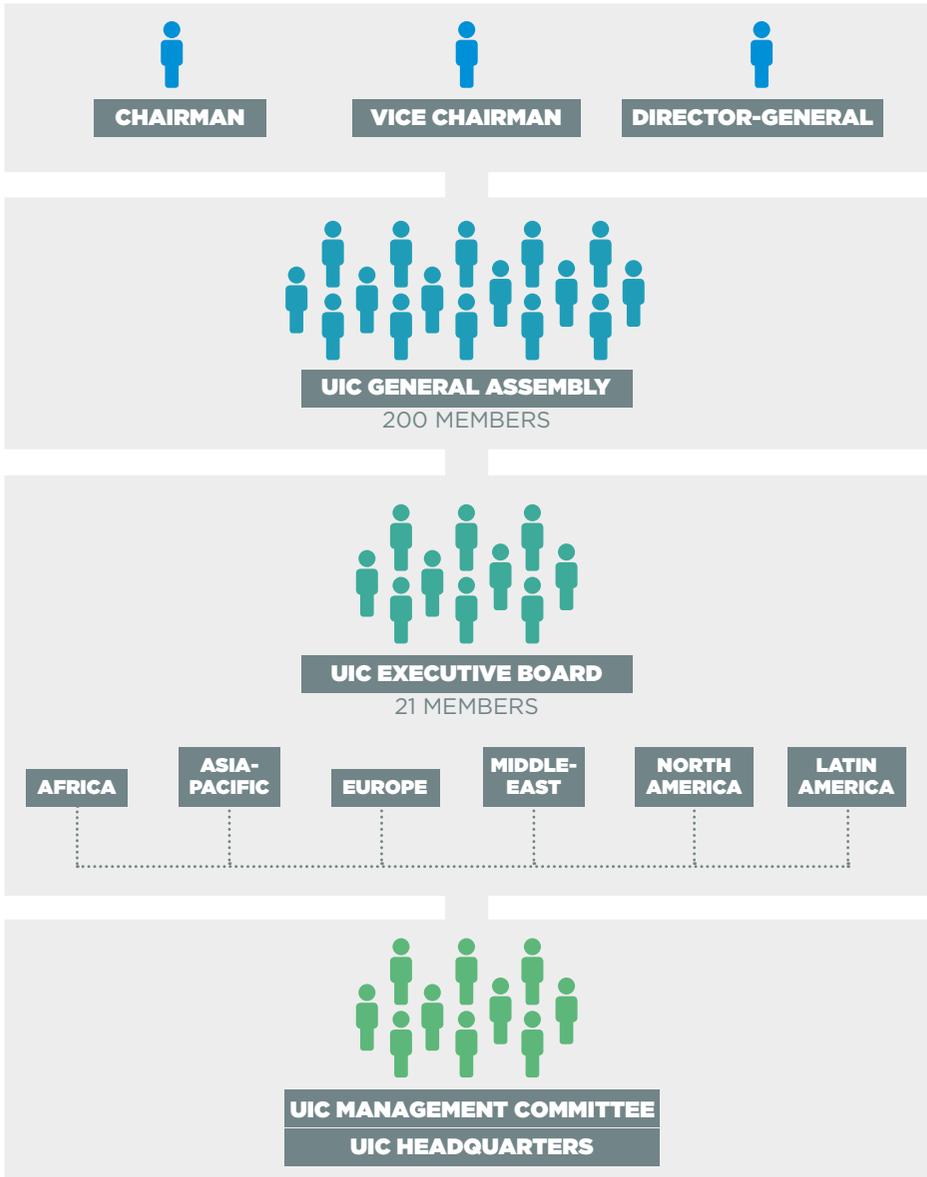
INTERNATIONAL COOPERATION AT UIC

Strategic cooperation

UIC coordinates the strategic objectives and action plans for its six railway regions. The General Assembly comprises the CEOs of all UIC members, and the Executive Board is composed of 21 members representing each of the UIC regions.

Technical cooperation

UIC's railway projects are coordinated by its forums and platforms, bringing together leaders in each area of expertise. UIC is first and foremost a repository of railway expertise and a forum for sharing experience and developing solutions in order to increase railway competitiveness. It is at UIC that current and future operating specifications and solutions are first developed. UIC's coordinated projects and collaborative approach boost railway efficiency and attractiveness the world over. UIC also facilitates the development of international rail links for the benefit of all railway users.

Support services

The UIC's projects are supported through its communications, finance, HR, legal and institutional functions for the benefit of all stakeholders. To complement this structure, UIC special groups are established by the General Assembly at the express request of members to deal with technical issues not specifically addressed by UIC's working bodies (fora and platforms). In many cases, the special groups involve the active participation of third parties — non-UIC members — whose cooperation is essential. From a legal standpoint, the special groups are UIC working groups; their results are audited and consolidated annually within the overall UIC budget.

Strategic axes

Two complementary themes are taken as a basis in this report to highlight UIC's ability to break through technical barriers: the IRS development process and digital technologies. Readers will note inserts throughout the report, serving as reminders of the importance of developments in these areas for the sector.

Values

UIC's philosophy consists of embodying the values of unity, solidarity and universality so as to serve as a platform for sharing information, best practice, experience, ideas and technical solutions. UIC seeks to encourage interoperability by fostering links between members and experts and recognising the needs of the customer. The Digital Platform was created in 2015 to pave the way for future developments, while the Fundamental Values department works on cross-functional issues affecting the sector as a whole and which serve as a basis for future rail transport growth.
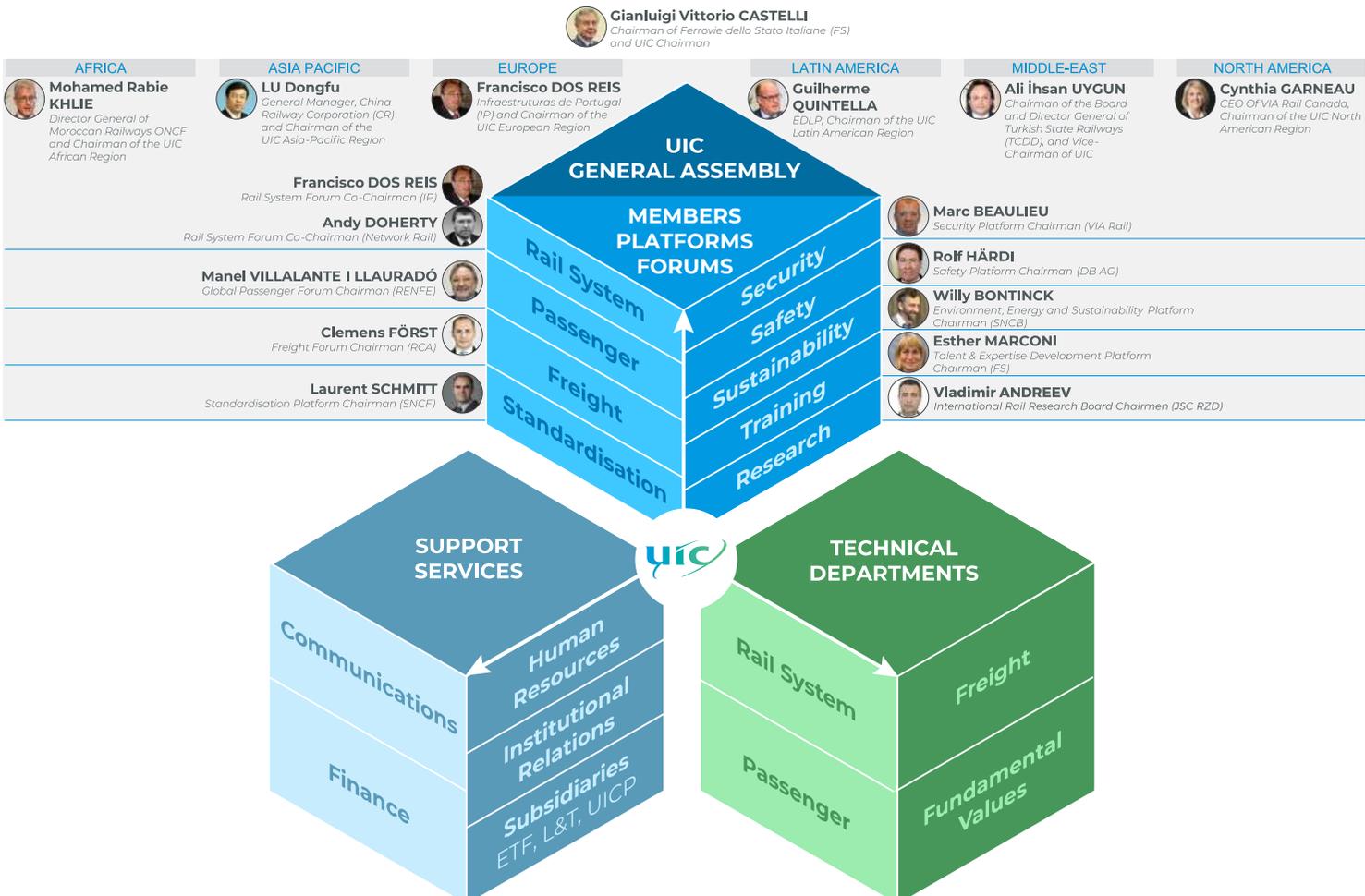
European projects

In 2019, UIC remained committed to supporting the European Commission in its efforts to further research for improved mobility in Europe. UIC contributed to numerous projects funded by the European Commission through the involvement of its expert teams. Now widely recognised for its competence in project management, UIC is invited by many partners to join consortia within the framework of bids and calls for tenders issued by the European Commission. Some 21 European projects are currently either underway (such as SAFER-LC, PROACTIVE, CARBODIN, etc.) or will be launched in the coming months. Eleven other project applications are currently being prepared or under evaluation process.

UIC has particularly been involved in strategical topics for Europe such as 5G with the future worldwide telecommunication system designed by UIC (Future Railway Mobile Communication System, FRMCS) or the definition of a common system architecture and model based on RTM (RailTopoModel) and Ontorail (Ontology for Rail) activities developed in UIC.

UIC will continue to commit strong efforts to supporting multimodal approaches and transversal synergies between industrial stakeholders, and operators are now picking up speed in their cooperation to reach robust mobility schemes on a European scale.

Elsewhere, UIC is continuing its investment in developing the professional skills of its teams dedicated to projects funded by the European Commission. Skills in project management and skills in the coordination of multidisciplinary and multicultural teams have been strengthened as part of success-generating teamwork, with the end goal of carrying out and/or successfully contributing to Rail projects at European level.

Gianluigi Vittorio CASTELLI
Chairman of Ferrovie dello Stato Italiane (FS) and UIC Chairman

AFRICA	ASIA PACIFIC	EUROPE	LATIN AMERICA	MIDDLE-EAST	NORTH AMERICA
Mohamed Rabie KHLIE *Director General of Moroccan Railways ONCF and Chairman of the UIC African Region*	**LU Dongfu** *General Manager, China Railway Corporation (CR) and Chairman of the UIC Asia-Pacific Region*	**Francisco DOS REIS** *Infraestruturas de Portugal (IP) and Chairman of the UIC European Region*	**Guilherme QUINTELLA** *EDLP, Chairman of the UIC Latin American Region*	**Ali İhsan UYGUN** *Chairman of the Board and Director General of Turkish State Railways (TCDD), and Vice-Chairman of UIC*	**Cynthia GARNEAU** *CEO Of VIA Rail Canada, Chairman of the UIC North American Region*

UIC GENERAL ASSEMBLY

Francisco DOS REIS
Rail System Forum Co-Chairman (IP)

Andy DOHERTY
Rail System Forum Co-Chairman (Network Rail)

Manel VILLALANTE I LLAURADÓ
Global Passenger Forum Chairman (RENFE)

Clemens FÖRST
Freight Forum Chairman (RCA)

Laurent SCHMITT
Standardisation Platform Chairman (SNCF)

MEMBERS PLATFORMS FORUMS

Rail System
Passenger
Freight
Standardisation

Security
Safety
Sustainability
Training
Research

Marc BEAULIEU
Security Platform Chairman (VIA Rail)

Rolf HÄRDI
Safety Platform Chairman (DB AG)

Willy BONTINCK
Environment, Energy and Sustainability Platform Chairman (SNCB)

Esther MARCONI
Talent & Expertise Development Platform Chairman (FS)

Vladimir ANDREEV
International Rail Research Board Chairmen (JSC RZD)

SUPPORT SERVICES

Communications
Human Resources
Institutional Relations
Finance
Subsidiaries ETF, L&T, UICP

TECHNICAL DEPARTMENTS

Rail System
Freight
Passenger
Fundamental Values

UIC EXECUTIVE BOARD AND GENERAL ASSEMBLY (PARIS, DECEMBER 2019)

STANDARDISATION

Standardisation has been central to the UIC's core activity for the past 100 years and is one of the main reasons why the UIC was established. The first Leaflet was published in 1928 and the assets have steadily evolved since then.

In order to ensure that these important assets remain current and representative of the business model of the modern railway, a significant programme of work was established in order to modernise them and to ensure that they are focusing on the topics relative to the design, construction, operation and maintenance of the services provided by railways to their customers.

Part of this programme is the creation of IRSs as the new UIC product and ensuring a coordinated migration of the Leaflets to IRSs.

STANDARDISATION PLATFORM & THE STANDARDISATION UNIT

The Standardisation Platform, chaired by Laurent Schmitt (SNCF) was established a number of years ago but really started to take on a new meaning when the Standardisation Unit (SU) was set up in January 2018.

The SU provides the central axis around which the Platform and indeed the entire standardisation activity at UIC is able to turn.

Key areas of engagement include the liaison between the UIC and the other standardisation bodies that are engaged in railway activity, notably CEN, CENELEC, ISO, IEC and ETSI (see also below).

Over the past two years, the SU has successfully developed quality management processes and created user-friendly tools for facilitating the development and delivery of UIC's standardisation assets. This includes the core aspect of coordinating the large-scale review of all the UIC leaflets and prioritising their migration to International Railway Solutions (IRS).

The SU cannot undertake this task single-handedly and relies on the expertise of the UIC team and the experts from member companies.

These people are committed to:

▶ anticipating the possible impact of new technologies, policies, business and market developments on the railways (research activities, digital agenda, AI, automation, next-generation equipment, etc.);

▶ working proactively towards a more agile and efficient programme of IRS production involving all of the relevant stakeholders;

▶ providing a support framework to act as a catalyst for improvement (guidelines, educational resources, open source solutions, etc.).

PROGRAMME OF WORK

The migration strategy, which maps out the schedule of work that will see all of the relevant Leaflets migrated to IRSs, is the key to this ambitious programme. Working bodies, technical departments and the SU are working together to ensure an efficient migration process and edition of new useful IRSs for the sector.

The short-term objective is to publish 45 IRSs in 2020.

A shared workspace is being developed for delivery in 2020 that will greatly facilitate that work and bring the working groups and the experts into a more cohesive and therefore efficient production structure.

PARTNERSHIPS WITH EXTERNAL BODIES

UIC has established formal relationships with a number of international and European standardisation bodies - ISO, IEC and CEN-CENELEC - and holds regular formal liaison meetings with each of these bodies with the objective of ensuring consistency across the network and to avoid unnecessary duplication of work and drafting joint technical documents.

UIC is a full member of the European Telecommunications Standards Institute (ETSI).

In addition, UIC has signed specific technical agreements with the European Union Agency for Railways (ERA) on the technical specifications for interoperability (TSI) for TAP (telematic applications for passenger services), GSM-R and FRMCS. UIC and ERA are developing a formal procedure for management of cross-references between UIC documents and the TSIs so as to prevent duplication or worse, systemic gaps.

Additionally, the SU is leading and indeed strengthening the collaborative relationships that UIC has with OSJD and OTIF.

At a specifically European level, there is UIC engagement (SU) with bodies such as RASCOP (EC) and JPCR-SFR (CEN-CENELEC). All these bodies bring with them their own set of challenges and the need to ensure that there is a whole-system approach and lots of joined-up thinking. The SU and the Standardisation Platform will be closely monitoring these developments in conjunction with the European Regional Assembly.

DIGITALISATION

The UIC Digital Platform created during UIC's General Assembly in June 2015 is an observatory for all innovations and developments that could have a significant impact on our sector.

Most of the UIC Members have also initiated these reflections and works. But it is up to us, within the three principles of the UIC philosophy "Open, Share and Connect", to implement synergies between all initiatives and trends so that the whole sector can benefit.

The UIC Digital Platform organises various events throughout the year aimed at sharing.

Workshops, seminars and conferences are dedicated to major digital trends such as AI (workshop in China in 2018, cyber security (May 2016 in US and September 2017 in Italy, etc.).

The UIC Digital Platform has promoted an "open" approach since its creation, through various orientations:

▶ Support for "open source" projects through the design and development of Proof of Concept (POC) in open source mode.

▶ UIC has created a dedicated label to protect "open source" developments: OPEN RAIL. This label has been registered in major countries and offers a protection to all UIC open source developments from any misuse.

It provides an opportunity to share initiatives, projects and best practices among the members and with other partners.

ROADMAP

CES
January 2019

DIGIM II
May 2019

Launching DIGIM III
October 2019

UIC Digital Awards
December 2019

CES
January 2020

DIGIM III

UIC Asia-Pacific Conference on Digital
May 2020

End of DIGIM II
December 2020

2019 ———————————————— 2020 ————————————————▶

1st African Digital Summit
25-27 February 2019

UIC Digital Days
3-4 October 2019

UIC Digital Conference
10 December 2019

Progress Paper

UIC Conference Brussels
13 February 2020

2nd African Digital Summit
April 2020

High Speed Conference
July 2020

UIC Digital Conference and UIC Digital Awards
December 2020

This led to UIC initiating in 2017 a first UIC Digital Transformation Tour in Silicon Valley, to discover the forefront of a creative digital ecosystem and to meet GAFA, Startups, etc.

Considering the interest expressed by the participants, the intensity of the exchanges and the links with the major actors it met with, UIC wished to renew this initiative in a new mission in 2018.

Significant changes and progress from one mission to another clearly demonstrate the rhythm and scope of evolution of the different trends such as IoT, QR codes, blockchain, cloud computing, facial recognition and, tomorrow, quantum computing.

These two experiences have clearly demonstrated the added value of this offer for our Members.

It is now a regular service that can be provided by UIC Digital Platform.

The third part of the triptych is "Connect".

UIC Digital Platform has been set up to ensure connection among the Members as already detailed above, but also to connect the Rail sector with the global digital ecosystem made up of universities and startups.

Thousands of startups around the world represent a tremendous potential for innovation and Rail should take advantage of this.

To enable and develop these proximities and synergies, several initiatives have been or are about to be launched.

Among them, one of the major ones is the UIC Digital Awards. The 4th edition took place in 2019.

Since 2016, there have been over 150 dossiers submitted and 13 projects awarded including special Highspeed digital awards.

UIC Digital Platform is working on the design of a UIC Digital Lab to provide a formal framework to host, develop and strengthen the synergies and interactions between Rail and the worldwide digital ecosystem.

Among key projects led by the UIC Digital Platform, the DIGIM programme is an initiative launched at the request of the UIC Chair to identify Digital Impacts on Business Processes at the worldwide level, with a transversal approach. It aims at improving safety and security, optimising and improving operations, and the better use of existing data.

THE DIGIM PROGRAMME

DIGIM I is composed of two projects.

The first one, Clear Station, aims at developing digital solutions to assist blind travellers in railway stations. A Proof of Concept (POC) has been designed and implemented in close collaboration with VIA Rail Canada. The solution is mainly based on Bluetooth technology and was successfully tested in Ottawa station in December 2019.

The other project is Connected Level Crossings (phase 1). The initial phase was to enhance safety at level crossings considering real time running information. This project was successfully designed and tested also in cooperation with VIA Rail Canada.

DIGIM II concerns Connected Level Crossings (Phase 2). The project started in May 2019, with seven UIC members. The objective is to design and evaluate a Proof of Concept to safely stop the connected cars before the level crossing. The system is designed in four phases in partnership with Dassault Systems on 3DXperience platform.

UIC FACTS AND FIGURES

PASSENGER TRAFFIC 2018

2,800 billion of passenger.kilometers
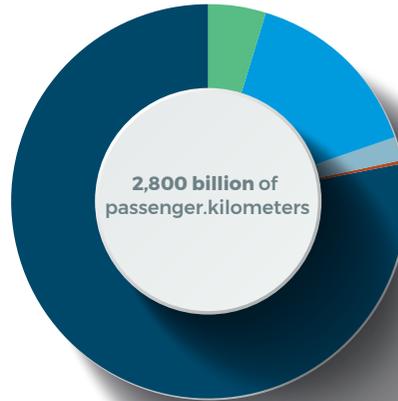
- **78.6%** Asian and Oceanian Companies
- **0.4%** American Companies
- **1.7%** African Companies
- **14.7%** European Companies*
- **4.5%** RZD - Russian Federation

FREIGHT TRAFFIC 2018

9,500 billion of tonne.kilometers
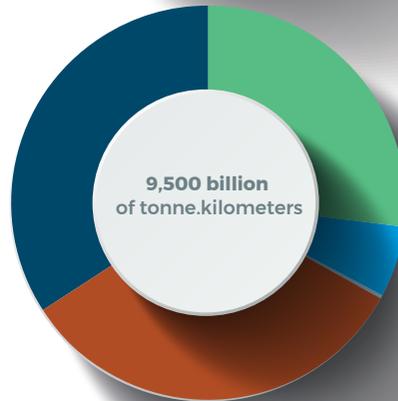
- **33.8%** Asian and Oceanian Companies
- **33.2%** American Companies
- **0.2%** African Companies
- **5.7%** European Companies*
- **27.1%** RZD - Russian Federation

LENGTH OF LINES 2018

809,000 km
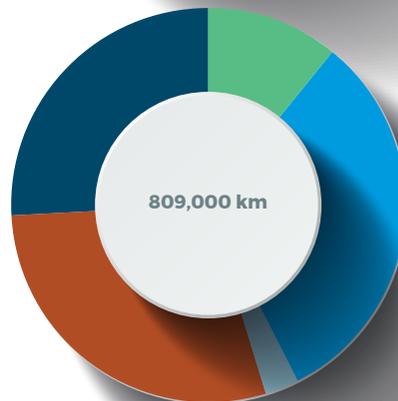
- **25.6%** Asian and Oceanian Companies
- **28.5%** American Companies
- **3.3%** African Companies
- **32%** European Companies*
- **10.6%** RZD - Russian Federation

* including Turkey

STAFF
(FULL TIME EQUIVALENT)
2018

6 million of employees
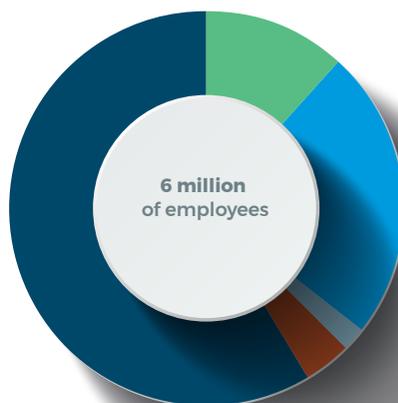
* including Turkey

58.6% Asian and Oceanian Companies

3.7% American Companies

2% African Companies

23.7% European Companies*

12% RZD - Russian Federation

HIGH SPEED TRAFFIC
2018

949 billion of passenger.kilometers
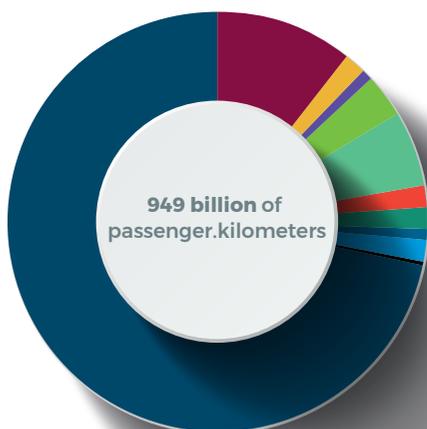
71.7% CR

10.9% JR

1.6% KORAIL

1.2% THSRC

3.3% DB AG

6% SNCF

1.7% RENFE

1.6% Trenitalia (FS) + NTV

0.6% RZD

1.4% Other Europe*

0.006% ONCF

* TCDD, NS, CD, CP, SJ, SZ, VR, PKP, THALYS, EUROSTAR.

UIC AREAS OF ACTIVITY

FREIGHT

FREIGHT

Realising modal shift is one of the Freight department's main objectives. This will only happen if the sector is able to provide agile, cost-effective and flexible solutions to contemporary supply chain challenges.

UIC's Freight department is playing a central role in this modal shift by facilitating, mediating and consolidating the sector's interests. As a facilitator UIC plays an active role in managing different programs endorsed as priorities by its members; for the European region the key group being the Freight CEO Task force/Rail Freight Forward (RFF).

Within these programmes, some specific projects serve as an incubator before wider Sector uptake, facilitated thanks to EU funds from programmes such as Shift2Rail, H2020 or CEF.

Through its neutrality UIC is able to mediate between the different stakeholders and ensures that the common interests of the logistics stakeholders are promoted efficiently.

With its world out-reach, UIC Freight consolidates and shares best practices. This global coverage is important. Although rail freight is mainly organised on a per continent level, industry is globalising.

Ambitions are strong and the clock is ticking. Without drastic measures, the vision of reaching 30% market share in Europe by 2030 will be hard to realise. In 2018 a sector-wide vision was developed around 3 pillars. It was expressed in the 30 by 2030 White Paper.

The rail freight sector is a structural element of world trade. Russia currently holds 60% of total modal share, with China and the USA accounting for 50% and 55%, respectively.

The European context is more difficult, with market share stagnating at approximately 18%.
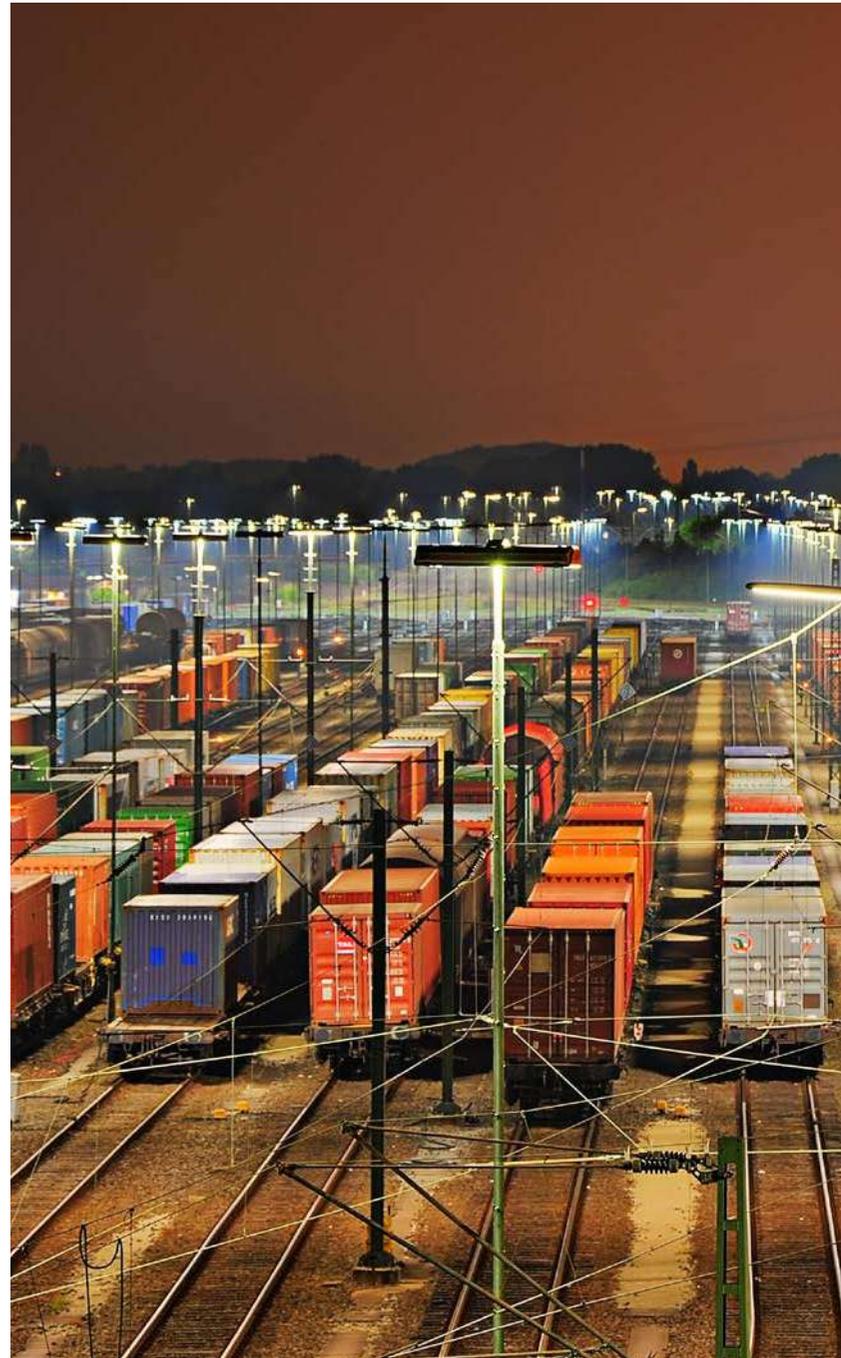
A dedicated programme has therefore been organised around **three key pillars**.

In the **first pillar**, the RUs themselves strive for performance to accommodate the needs of contemporary supply chains. The goal is to offer quality products that respond to market needs.

The industry in Europe is changing. The share of goods traditionally going by rail is reducing, whilst growth comes from goods and products which need smaller shipments and faster and more agile delivery, and are therefore more likely to go by road. The consequence for rail is that it should look for a product-offering that can also handle smaller load sizes, up to less than wagon load and that it should become much more flexible, agile and quality-driven.

In the **second pillar** of the 30 by 2030 vision, the RUs are supported by the IMs. The Infrastructure Managers should fully support a drive-through philosophy. Even more than passenger services, rail freight relies on borderless transport. Too many hurdles still exist. The development of the TEN-T network and the corridor approach are valuable initiatives.

In the years to come this approach should be further embedded into true collaboration between IMs and RUs and in technological developments on the different networks. A coordinated approach will be crucial.

It should be ensured that cost and benefits of technological investments go hand in hand. It should be ensured that new technological standards are unified and coherent across Europe.

Lastly, in the **third pillar**, a lot can still be done by policymakers to close the gap in the level playing field across transport modes. A significant shift in modal share between rail and other modes of freight transport will not happen if the basic condition, financial competitiveness, is not met. It remains difficult for the rail sector to compete on a purely economic cost basis, especially on shorter distances.

On a societal cost level, rail is by far the most performing mode of transport. The external costs generated by rail are at least six times lower than other modes. Even with compensation for contribution through taxation, the rail sector is much more performing. Still, these external costs are only translated to a very small extent to the price the customer is paying for its transport.

On the same level, the administrative burden is up to 15 times higher for the rail sector than for other modes. Only decisive policy actions can accommodate this.

The sector is more than ever convinced and united behind one vision. But it needs more.

In 2020, UIC Freight with RFF (Rail Freight Forward) will work on fine-tuning the vision into a sector supported deployment plan. In 2019 the first steps towards this holistic plan were taken with the following actions.

ACHIEVEMENTS TO BE HIGHLIGHTED IN 2019

Cross-border projects

Any driver, any language, any border. No longer the cumbersome language barriers in international train operations. That's the aim of the UIC XBorder and Shift2Rail funded project Translate4Rail. It is being implemented in collaboration with RailNetEurope (RNE) to ensure that the initiatives led by RUs and IMs are compatible and coherent with each another. A real breakthrough for interoperability and smooth and seamless crossing-border operations.

The project has already delivered a benchmarking analysis on the state of the art of speech to speech technology and a list of standardised predefined messages necessary for safe and efficient cross-border operations.

By capitalising on earlier work, a tool where train drivers and signallers can use their own native language and still communicate in an effective and safe manner will soon be tested in pilots.

Pilot testing will take place first in a secure environment (laboratory tests) before being undertaken in real operational conditions (field tests). A "quick win solution" for harmonisation of driver language and operational issues in cross-border traffic.

See: translate4rail.eu

Thanks to intense collaboration between several stakeholders in the cross-border debate, the working group came to a consensus on a handbook for the ideal cross-border section. This handbook will in the ideal case be used by all relevant stakeholders, RUs, IMs, NSAs... in their future development of new or the refurbishment of existing cross-border sections.

The handbook will become a UIC IRS. In 2020 the handbook will be tested against a number of existing cross-border situations.

Efficient Cross Corridor Organisation (ECCO)

The need to harmonise rail freight corridor (RFC) access has become urgent for railway undertakings under pressure to implement productivity enhancements. At the request of its RU members, UIC coordinates the harmonisation process through the ECCO (Efficient Cross Corridor Organisation) project.

The group unites the Speakers of the Railway Advisory Groups of the RFCs and the European Rail Freight Association ERFA. Current Speakers come from CFL Cargo, DB Cargo AG, Fret SNCF, Lineas, Mercitalia, RCG, SBB Cargo and SŽ-Tovorni promet. Through this organisation all RUs, including ERFA members operating on RFCs, are involved according to their available capacities. ECCO provides technical input on some of the priority issues contained in the sector statement (SS), which represents the commitment made by the sector to boost international rail freight in the context of 11 priorities. In 2019, the main priorities were:

- ▶ SS Priority 5: Improving harmonisation of border processes;
- ▶ SS Priority 9: Monitoring the quality of freight services by implementing shared KPIs;
- ▶ SS Priority 11: Contingency management.

In 2019, activities were focused mainly on:

- ▶ Developing an RU handbook for International Contingency Management. Apart from defining standard coordination rules that relate to the actions taken by Infrastructure Managers, the contributing companies developed a concept for the pooling of resources in case of international emergency. To support the viability of resource pooling, a high-level impact assessment and cost-benefit analysis where done. The handbook was approved by seven large European operators and ERFA and published on the UIC, ERFA and RNE websites.

  All freight RUs are invited to sign up to this cooperation. The handbook will be published as IRS in 2020.

EU regulation 913/2010 aiming at significantly increasing the modal share of international rail freight transport. ECCO analysed what the regulation has done for RU's specifically. The regulation was tested in relation to the RU's ability to offer competitive products. In addition, ECCO made a bottleneck assessment based on the level of parameter implementation at RFC level. Lastly, it coordinated a joint RU input to the public consultation from DG Move;

▶ Implementing the European corridor KPIs. ECCO actively pushed the implementation of the corridor KPIs. ECCO keeps setting the agenda on operationalizing the figures that are published, for use in Train Performance Management groups. UIC is also in active dialogue with shippers' organisations European Shipper Council and Cefic to develop a common customer supported KPI on punctuality;

▶ Enhancing cost saving and efficiency improvement in RFC management. Estimated savings are over €110,000 per year for the sector (RUs+IMs), excluding staff costs. These savings are obtained by better management of the meeting cycle between different RFCs. The proposal has found wide support from RUs and is under discussion in the RFC Network.

The Operations Study Group

The Operations Study Group is a think tank for identifying operational issues hampering international freight traffic and proposing harmonised operating procedures for both Railway Undertakings (RUs) and Infrastructure Managers (IMs), thus enhancing efficiency, quality and reliability of rail transport.

UIC, as a technical platform and standards-setting organisation, prepares and updates IRSs - International Rail Solutions - for this purpose and ensures compatibility with the European legal framework (e.g. TSIs - Technical Specifications for Interoperability), although the IRSs' geographical scope extends beyond Europe.

This group of experts deals mainly with the following topics:

1. Braking issues,
2. Train composition,
3. Train and infrastructure parameters,
4. Exceptional consignments,
5. Interoperability,
6. Operational rules.

These themes are closely related to DG Move "Issues Logbook" initiative, as well as to other freight projects focusing on European Rail Freight Corridors and looking for quick wins, such as ECCO and XBorder.

One of the key activities in 2019 tackled the development of a single European braking scheme, being one of the priority issues of the EU Issue Logbook initiative and therefore of the CEO TF. This was done in partnership with XRail and the UIC Rail System Department in the context of the Unified Braking Scheme (UBS) project.

The results of this project will serve as a basis for pilot testing in a CEF funded project submitted by the parties on behalf of the CEO TF/RFF.

UIC launched a CIO taskforce where the vision and mission of rail IT systems has been set in the "Digital Roadmap".

The working group will propose a future architecture that will reframe the current IT ecosystem. This will result in increased data quality, cost savings and enhanced operational control. In order to meet the challenges set out in the 30 by 2030 strategy, international digital projects are being undertaken. The projects developed within this scope are always looking at providing added value to the rail sector by achieving a balance between new technologies and leveraging the existing tools and solutions that have been developed.

The roadmap includes short-term IT projects to be developed in order to achieve the strategic initiatives set in the roadmap. This allows rail freight companies not to lose ground in this fast and everchanging interconnected world. Some of these short-term projects are:

1. **The Intelligent Wagon project (eWag2),**
2. **The Rolling Stock Data Exchange project (RSDX).**

The CIO taskforce is aligned with CEOs task force.

E-WAG 2 - INTELLIGENT WAGON

Under the CIO Taskforce mandate, the electronic Wagon project is a short-term strategic initiative that seeks wagon sensors to deliver the relevant information to each stakeholder independently of the sensor manufacturer.
The e-Wag2 project has defined the functionality required to ensure that the sensors, wagons and trains of different origin can communicate with each other. The technical specifications for the project are developed in cooperation with the Industry Platform for Telematics and Sensor Technology (ITSS).
The E-Wag2 project has delivered the Requirements and Use Case Specifications for Interoperable Vehicle Sensors and Telematic Devices which will be published as an International Railway Solution (IRS) in 2020.
In a second step, the implemented project will result in a benchmark for ensuring system compatibility.

RSDX - ROLLING STOCK DATA EXCHANGE

The RSDX project is a short-term strategic initiative that seeks to simplify data exchange between RUs and Wagon Keepers and at the same time guarantee regulatory compliance. Currently, the lack of harmonised data on the physical, technical and administrative characteristics of wagons in interchange forces RUs to manually input this data into their own systems. This leads to increases in operational costs and decreases data reliability - significantly impacting safety, operations and planning.

Furthermore, current exchange systems are mostly on a bi-lateral basis which further increases RU cost in order to support myriad interfaces with their partners.
This Deployment Plan will provide operators, fleet managers and wagon keepers with a path towards adoption of a new, data-driven strategy by encouraging the operating community to implement a common interface and data broker, using the GCU platform.
The result of this deployment plan will encourage operators to connect to a single platform and interface.
By implementing the plan, it is envisioned that the UIC Member companies can achieve:

➤ Digitalisation of the railway business (towards 4.0), providing a single interface for over 600 stakeholders;

➤ Significant cost savings due to manual entry and maintenance of individual interfaces;

➤ Regulatory compliance (TAF-TSI, COTIF, Noise);

➤ Better and faster communication between RU and keeper;

➤ Digital mileage and wagon damage reports;

➤ No manual process to upload data in IT systems.

Only when critical mass is achieved can the rail freight industry (operators and fleet managers alike) realise the significant benefits and cost savings associated with implementation.
The ultimate objective is to enhance operational and safety strategies that will ultimately result in higher service reliability and customer satisfaction.

Transcontinental corridors

The freight working body dealing with the issue of transcontinental corridors is the Stakeholder Group and its aim is to capitalise on synergies with existing organisations and working bodies such as CCTT, the BIRC group from the Security Platform and the Regions (APRA-RAME etc).

The group provides the opportunity for all parties to:

▶ Monitor business development,

▶ Monitor technological development,

▶ Exchange best practices,

▶ Establish and maintain quality contacts across the regions.

In 2019, focus was put on the following topics:

1. The preparation of a multimodal Blockchain project for pilot testing on the basis of the proof of concept developed in 2018.

2. A sector-wide seminar on Electronic Seals in collaboration with CCTT and BIRC (Security Platform) to review existing technologies, geographical scope, interoperability challenges, operational and security constraints at borders.

3. Market Watch: A market study was undertaken in collaboration with IEC (Infrastructure Economic Centre) consultancy based in Moscow and Paris in order to review:
   - major changes occurring over recent years on the Northern routes;
   - volume forecast for the period up to 2030 based on existing macroeconomic background;
   - the elasticity of demand for rail freight transport in relation to the level of Chinese subsidies, the digitalisation of processes, border crossing improvements, speed of transit.

KEY EVENTS IN 2019

▶ As Board Member of the International Heavy Haul Association, UIC has access to a unique network of professionals around the world who share experiences and developments in heavy haul operation.

▶ In 2019, UIC freight department prepared the strategic seminar held as part of the IHHA Conference 2019. The Conference took place in June 2019 in Narvik, Norway and addressed all aspects of "Heavy Haul 4.0".

PUBLICATIONS IN 2019

▶ Report on Eurasian Corridor Development

▶ Report on Rolling Stock Data Exchange

▶ Status reporting of UIC-led project contributing the RFF priority topics

KEY WORDS

PARTNERSHIPS, CORRIDORS, RAIL BACKBONE OF MOBILITY, MENTAL SHIFT, MODAL SHIFT, 30 BY 2030, RAIL FREIGHT FORWARD, NOAH'S TRAIN, XXBORDER, DIGITALISATION, INTEROPERABILITY, GLOBAL CORRIDORS, CONTINGENCY MANAGEMENT

TO LEARN MORE uic.org/freight
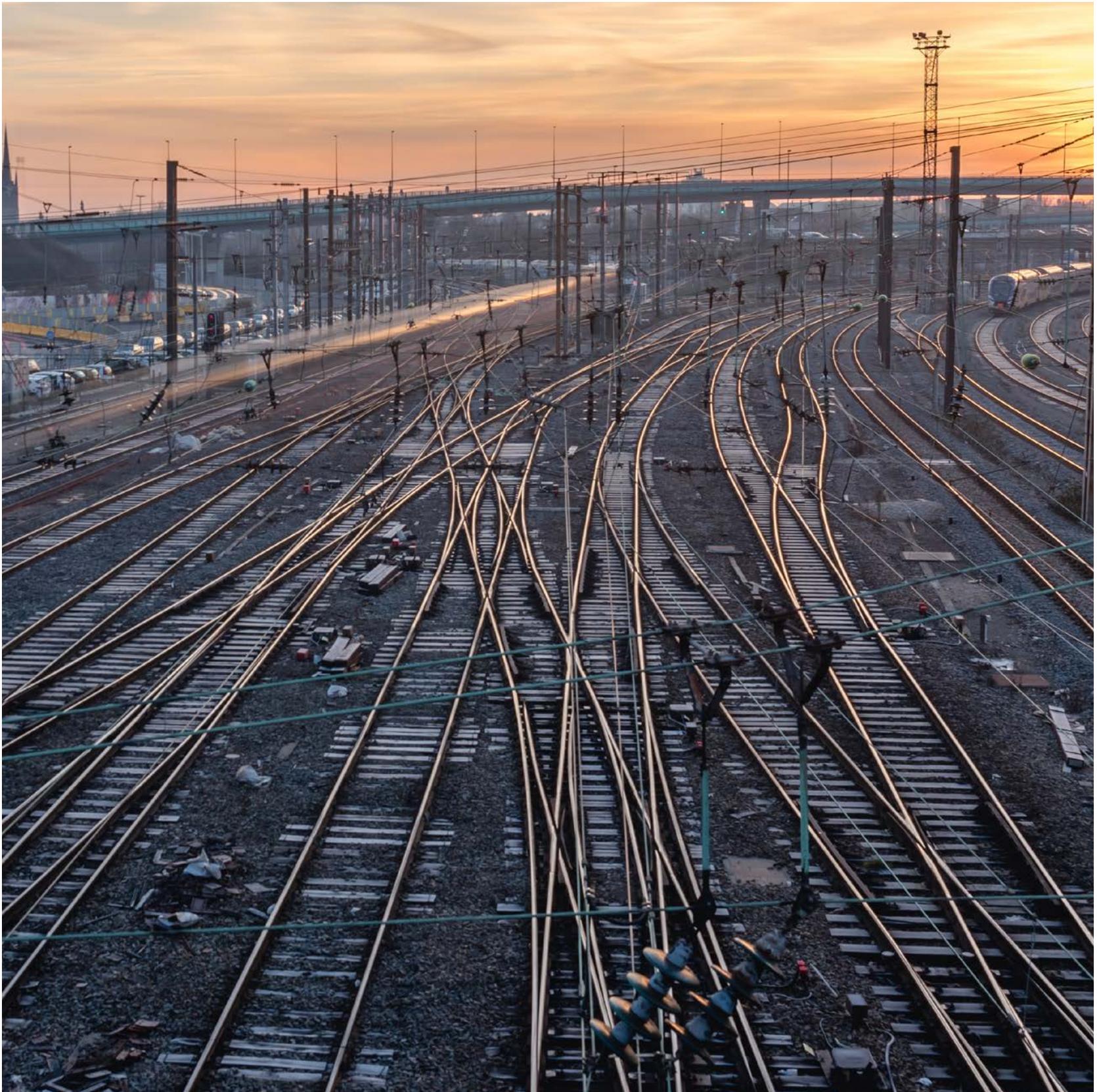
RAIL SYSTEM

RAIL SYSTEM

Today's customers want a mobility system that is available, affordable, reliable and safe. It is important for the sector to have the tools it needs at its disposal in order to deliver this system. With this in mind, the UIC Rail System Forum, co-chaired by Francisco Cardoso Dos Reis (Infraestruturas de Portugal) and Andy Doherty (Network Rail), provides the required technical expertise and works to respond to the challenges facing the railways at global level, positioning rail as the backbone of the mobility chain and Mobility as a Service (MaaS) as an area of future growth.

The Rail System Forum works on a wide range of topics, including:

▶ digital evolution;

▶ existing and new telecommunications and signalling systems;

▶ upgrading of infrastructure (track and structures);

▶ efficient and sustainable energy solutions;

▶ customer-focused and cost-effective rolling stock;

▶ asset management and interaction between shared subsystems;

▶ safe and smart operations.

The main challenges for the UIC Rail System Forum are as follows:

▶ achieving synergies between asset management and operational activities and the various railway system sectors: rolling stock, telecoms and signalling, train-track interaction, track and structures, energy management;

▶ defining operational and technical requirements in collaboration with railway undertakings (business success, reliability, availability, safety and maintainability);

▶ disseminating results from experience and promoting good practice;

▶ integrating UIC and EU research project results in technical and operational standards;

▶ cooperating with standardisation bodies and railway manufacturers in the various domains of railway standardisation;

▶ collaborating with European railway associations by supporting cross-functional input into the European Union Agency for Railways (ERA) work programme and its impact on safety and interoperability;

▶ issuing certifications of conformity with UIC leaflets and International Railway Solutions (IRSs) for specific components, such as wheels, brake components and diesel engines.

The results of research and OPT-IN projects are directly transposed into technical documents (IRSs, guidelines, white papers, etc.) and are implemented in specific test programmes and approval processes, offering efficient operational solutions for UIC members. The Rail System Forum contributes to a number of European legal frameworks within the context of the EIRENE project in collaboration with standardisation bodies such as CEN-CENELEC, ISO and IEC.

The Rail System Forum also contributes actively to a number of major European and Shift2Rail-funded projects.

KEY ACTIVITIES

The Rail System Forum relies on its members to improve the railway system. The forum is divided into six sectors dedicated to improving railway competitiveness and multimodality. The sectors are as follows:

▶ Telecoms, Signalling and Cybersecurity,

▶ Energy Management,

▶ Rolling Stock,

▶ Train, Track and Interaction,

▶ Track & Structures,

▶ Asset Management & Operation.

With more than 150 experts involved in its activities, and covering 72 ongoing projects, the Rail System Forum has defined seven areas of strategic focus as expressed by its members, as well as the CTOs and CEOs consulted.

1. Safety and security must be addressed together. Cybersecurity solutions must be taken into account from project inception through to system integration and safety demonstration.

2. The railway system must move towards the digital era by creating an advanced modelling language and promoting future railway telecoms systems. UIC is developing specific, small-scale feasibility studies, Proof of Concepts (PoCs) and prototypes in this regard.

3. Asset and operations management should evolve towards prescriptive maintenance via the Strategic Asset Management Plan (SAMP), Computerised Maintenance Management System/Software (CMMS), and Enterprise Asset Management (EAM). This process will rely on life cycle benchmarking for IMs on a large scale and over a period of more than 20 years.

4. Capacity should be increased through automation of operational processes and train control to optimise traffic management and reduce energy consumption.

5. Smart infrastructure: commitment to sustainability, resilience and maintainability of infrastructure in order to reduce the need for track possession.

6. Evolution of rolling stock to improve sustainability, robustness, resilience, interoperability and maintainability.

7. Improvement of environmental performance in order to reduce carbon impact and energy consumption.
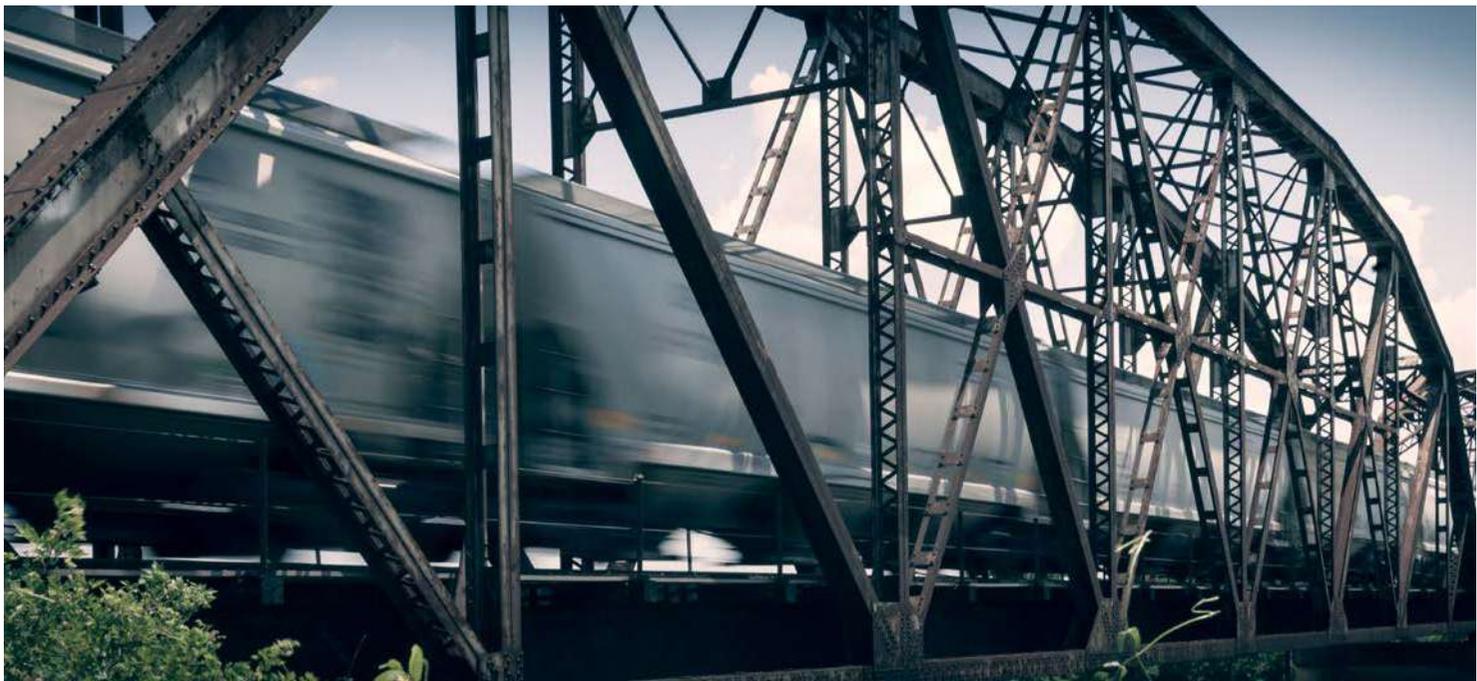
FRMCS - FUTURE RAILWAY MOBILE COMMUNICATION SYSTEM

In 1997, UIC began defining, specifying and standardising GSM-R, the telecommunications component of ERTMS. Today, GSM-R is a major success and goes far beyond the development of ERTMS (ETCS), with more than 130,000 km of tracks covered in Europe and 210,000 km around the world.

As the railway telecoms industry officially announced that GSM-R equipment was expected to become obsolete by 2030, UIC began a series of initial studies with the objective of defining a system to replace GSM-R. These studies concluded that a new, dedicated telecoms system was necessary for the railway industry. It became increasingly obvious that this new system, known as the Future Radio Mobile Communication System (FRMCS), would not only have to replace GSM-R, but would also serve as the telecoms layer for many future services and applications relating to train digitalisation and modernisation, such as automated and autonomous trains (ATO), use of connected objects (IoT) in vehicles, smart maintenance, train control monitoring systems, introduction of Artificial Intelligence, etc.

A tailored programme was therefore put in place by UIC in order to define and develop specifications for FRMCS and standardise it in 3GPP, the worldwide standardisation entity for mobile communications.

FRMCS User Requirements Specifications have already been published, together with a precise list of more than 75 fully-defined use cases that are currently being used as input to the 3GPP standardisation work for railways. In addition, a considerable amount of work is being done to obtain relevant frequencies for the railways to use FRMCS during the co-existence with GSM-R and after this migration period.

This FRMCS Programme was recently completed with the creation of a new global project, "FRMCS Migration Scenarios" (FMS), focusing on operational conditions for smooth migration from GSM-R to FRMCS, particularly in Europe. The first key part of this global project is the Telecoms On-Board Architecture (TOBA) initiative. UIC will work with the railway companies to define and develop specifications for new, common telecoms elements to be implemented in the driver's cab within the framework of this initiative.

The key objective of the FRMCS programme is to deliver functional requirements specifications (FRS) and system requirements specifications (SRS) by the end of 2021 for inclusion in the next CCS TSI (Technical Specifications for Interoperability). Deployment of FRMCS in Europe may begin as early as 2025, following the successful conclusion of several pilot phases.

FIRST UIC GLOBAL FRMCS CONFERENCE (PARIS, MAY 2019)

© UIC / Juliette Jem

ACHIEVEMENTS TO BE HIGHLIGHTED IN 2019

Telecom & Signalling

GSM-R

EIRENE specifications have been maintained, in preparation for 2022 revision process of TSIs. The process is done through Implementation reports (asking for a change) and further change requests (which propose changes in UIC EIRENE and MORANE specifications, which are part of the CCS (Command Control and Signalling) TSI.

UIC also continues to ensure the operational maintenance of European GSM-R roaming through two interconnection hubs, one in Frankfurt and one in Zurich, to which all European GSM-R networks are connected in a layered way, thus bringing a European GSM-R roaming consistency which is vital to ensure interoperability, as well as many other efficiencies for the Railways operating GSM-R.

FRMCS

The FRMCS programme (FRMCS and FMS projects) and activities have strengthened, with tangible and important results:

▶ Use Cases derived from the User Requirements Specification, written specifically for 3GPP, have been finalised and submitted for 5G 2nd and 3rd editions, the last one being the target technology and release for the so-called FRMCS V1 that should be commercially procured for implementation by Railways;

▶ Frequency activities have clarified the objective for FRMCS frequency ranges (900 and 1900 MHz) and determined relevant radio co-existence conditions;

▶ The FRMCS Functional Requirements Specification concept has been internally reviewed to be forwarded for sector external review;

▶ The high-level principles for the FRMCS System Requirement Specification have been defined;

▶ The Telecom On-Board Architecture (TOBA) scenarios for ETCS interworking with both GSM-R and FRMCS have been released, allowing the European Railway Agency to decide on the best scenario in Europe

▶ The FRMCS V1 delivery three-steps plan has been agreed with ERIG (European Radio Implementors Group) and furthermore presented in the FRMCS Global Conference, with the main objective to deliver FRMCS V1 in Q1 2025.

Cybersecurity

Railway telecom networks migration to IP technologies and introduction of 5G via FRMCS brings the railway system face-to-face with one of its major new challenges, cybersecurity.

UIC has worked in 2018-19 on two initiatives that will materialise in 2020:

▶ The first initiative is about facilitating a European Railways Observatory, which the railway CISOs (Chief Information and Security Officers) and other invitees can join to exchange on best practices regarding cybersecurity issues and to coordinate actions to be taken at European level: ER-ISAC (European Railway Information Sharing and Analysis Centre);

▶ A second initiative is to set up a technical platform to work on pragmatic solutions to prevent cybersecurity breaches in order to constantly improve the answers to attacks. This will be materialised by the UIC Cybersecurity Solutions Platform Project.

Signalling

The main noteworthy achievements in 2019 are as follows:

▶ The publication of the "Signalling relays" Technical Report, an essential reference document for signalling networks;

▶ Installation of the UIC Track Circuit Shunting Booster in Finland, for an improved detection of trains;

▶ Finalisation of the SFERA C-DAS (Connected Driver Assistance System) General Standard, and presentation to the European Railway Agency for consideration in general European CCS evolution.

Energy Management

The digital substation control project has delivered its conclusions. The main objective of DCSS (digital controlled substations) was to unify the behaviour of the different stakeholders (providers, consumers). The final purpose is to upgrade the Electrical Railway System towards the Railway Smart Grid

The work on electromagnetic interference between different types of traction systems (AC and DC) is coming to an end. The latest version of the simulation tool will be proposed this summer. This method will be easy to use by members when designing an OCL.

We continue working with IEC. Our next project should be on the use of hydrogen in traction.

The work on techniques for energy storage in substations continues. The aim is to reduce energy consumption.

We propose a method to provide data support for infrastructure managers to understand the quality status of OCL, establish maintenance strategy, and optimise maintenance resources. This work is done with CARS.

Rolling Stock

In combined transport a lot of work was achieved. Revision of the documents dealing with the codification of wagons, containers and swap bodies to take into account the constraints liked with the gauges of the tracks all over Europe is on-going, taking into account the new technologies, the new dimensions and constraints due to road vehicles. The conclusions of the JNS project on the accident in Denmark have been taken into account. We have had discussions with the Russian specialists of OSJD about gauges.

PUBLICATIONS IN 2019

Telecom & Signalling

▶ Publication of FRMCS User Requirements Specification V4.0

▶ Publication of Functional FRMCS Use Cases V1.0

▶ Publication of FRMCS Functional Requirements Specification First Draft

▶ Publication of FRMCS Migration to ETCS Scenarios TOBA 7515 V1.0

▶ Publication of Use of Signalling Relays Technical Report

Energy Management

IRS publication:

▶ IRS 70799 Characteristics of AC overhead contact systems for high speed lines worked at speeds of over 200 km/h

▶ IRS 70799-1 - Characteristics of DC overhead contact systems for lines operated at speeds of over 160 km/h and up to 250 km/h

▶ IRS 60608 - Conditions to be complied with for the pantographs of tractive units used in international services

▶ IRS 70782 - Digital control substation user interface (Deliverable DCS Project)

IRS Under Development:

▶ IRS 70020: Overhead Contact RAIL (Deliverable OCR Project)

▶ IRS 70010: Energy System Architecture Framework

▶ IRS 80870: Technical guidelines for use of grooved contact wires

▶ IRS 70782: Digital control substation user interface (Deliverable DCS)

Rolling stock

Our IRS programme consists of:

▶ IRS 40410: Composition and calculation of the weight and braking of passenger trains

▶ IRS 40440: Public-address systems in coaches

▶ IRS 40453: Procedures for air brake tests effected with a traction unit

▶ IRS 50592: Intermodal Transport Units (other than semi-trailers) for vertical transhipment and suitable for carriage on wagons - Minimum requirements

▶ 60608: Conditions to be complied with for the pantographs of tractive units used in international services

Rolling stock (2)

- **60623-1: Certification procedures for diesel engines of motive power units**
- **60623-2: Certification tests for diesel engines of motive power units**
- **60624: Exhaust emission tests for diesel traction engines, taking into account the level V of the NRMM requirements.**

Train, Track & Interaction

- **First TTI IRS, numbered 70729 on PMD (Prevention and Mitigation of Derailment) published in October 2019**

Track & Structures

- **Publication of Technical Report – LTR (Lateral track resistance)**
- **Publication of Technical Report - Category of Lines (Leaflet 700)**

Asset Management & Operation

- **Guideline "Outsourcing Infrastructure Work: Issues from an Asset Management perspective"**

The CACTUS project is a comparative study of all documents and standards dealing with combined transport. It is being done with UIRR. Conclusions will be proposed to ERA.

Work on braking performance and train compositions has been undertaken with a group of technical and operational experts with Xrail within DGMOVE programmes on how to produce longer and heavier trains across Europe. The discussions between technical and operation experts on braking and consist are on-going, taking into account the needs of the companies.

Two online test programmes have been organised in 2018 and 2019 with NSIs, RUs and UIC braking specialists to find operational measures to reduce the level of risk as a consequence of the inadequate performance of wagons fitted with composite brake blocks in harsh winter conditions in Scandinavia. The results are presented to the ERA.

A new electropneumatic braking system has been specified with the European experts and those of cars to replace the main brake pipe by an electric command.

The ESFA project designed a low-cost 25t axle, with a higher security level axle for freight wagons. The same work will be done on wheels in the future.

The UIC rolling stock team is involved in two Shift2Rail open projects:

- LOCATE (with FGC, Universities, Companies specialised in vibration analysis).

  The aim is to propose a predictive maintenance system for the bogies of old locomotives using vibration mechanics (having a digital twin of the system) taking into account the operating constraints (management of the fleet, organisation of the work in the workshops). LOCATE continues in 2020. There are discussions with stakeholders of the FR8RAIL S2R project to avoid any duplication of work.

- CARBODIN (with providers and universities). This project has two goals:
  - Identify and improve methods for manufacturing and maintaining lighter bodies and door leaves for lighter, more energy-efficient rolling stock;
  - Improve the ergonomics of the driver's cab using new technologies and increasing the security level.

The work of the UIC technical experts on the new train network continues, taking into account for every train function (doors, traction, HVAC, etc.) the needs of:

- Train drivers, train crew, station crew;
- Maintenance (e.g. data for predictive maintenance);
- Exchangeability of devices on the train (by defining logical and physical interfaces).

This work will be used by the project on AI for predictive maintenance to be launched.

B126 RP 52 "Inadequate braking performance in trains with combined transport (CT) wagons"

Train Track Interaction

The Three-Year Programme sector is still working in this area for interfaces of different technical subsystems, following the key technical areas that have been identified in this regard:

▶ Railway (track/vehicle dynamics) and derived operational and safety issues, including track quality assessment, ride quality and prevention of derailment, now present in the HARMO-TRACK and Y/Q projects;

▶ Aerodynamics, including cross-wind assessment and crossing trains in mixed traffic, and their derived operational aspects, which started in the UIC project SAFIRST;

▶ Pantograph/catenary mechanical interaction, and its derived operational aspects, with a White Paper still in development;

▶ Remote measuring/monitoring on interactions in interfaces, with the PMD (Prevention and Mitigation of Derailment against vertical forces).

Activities in these and other interface contexts, such as acoustic (noise and vibration), were the subject of the published and approved work of the sector during the year:

▶ Conclusion of the White Paper on Acoustics, that was finally published in April 2020;

▶ Approval of new edition of IRS 60661 (former 70001) on Dynamic integration tests and trial operation before revenue operation in collaboration with the Intercity and High-Speed Committee.

Track & Structures

Activities are progressing with the sector according to the Three-Year Programme devised to update and renew maintenance and operation principles of the Infrastructure subsystem and recommendations of use for the subsystem-related assets. For some of these, their development has been within specific UIC opt-in projects.

New track technology and components and their interfaces have been covered by the DEMOSLEEPER and STABLETRACK projects, while the reflections on degradation phenomena to prepare use cases were in the MILA project. Track form decision-making was the main point of the DESMAN initiative.

Advanced inspection and monitoring procedures were further developed in the EoLE (Exceptional and Over-Loads on Existing Infrastructures), BRD (Broken Rail Detection) and Drone4Rail projects.

However, this year, the progress of published and approved documents was focused on activities directly overviewed by the Track Experts Group (TEG) and the Panel of Structural Experts (PoSE), which comprised:

▶ Approval of three IRS, that will be published in 2020:
  - 70719, updating the design and construction principles for earthworks and track bed layers in railway lines;
  - 70723, providing guidelines and recommendations for technical aspects of vegetation control and tree risk management, in collaboration with the HERBIE and TRISTRAM projects managed by the Sustainable Development unit;
  - 70779-10, which updates the knowledge on tunnel asset management and maintenance principles.

▶ Asset Management and Operation:
  - On-going project about Lasting Infrastructure Benchmark Database
  - On-going project UPM - Unified Procurement Methods
  - On-going project about Smart Asset Management Plan guidelines which will be published in 2020

KEY EVENTS IN 2019

▶ 1st UIC FRMCS Global Conference

UIC organised the UIC Global FRMCS Conference in May 2019, with a complex agenda dealing with GSM-R State of the Art & Evolution, FRMCS – enabling Digitalisation, FRMCS Railways Initiatives, FRMCS Standardisation State of the Art and Plans, Industry Engagement, and FRMCS Migration. A specific moment to be mentioned was the celebration of 20 years of UIC ERIG activity.

The event welcomed more than 200 participants and 10 supplier stands, and featured key speakers.

▶ UIC Global Asset Management Conference

▶ 3rd UIC Workshop on Masonry Arch Bridges

TTI SECTOR NEW AERODYNAMICS-FOCUSED PROJECTS
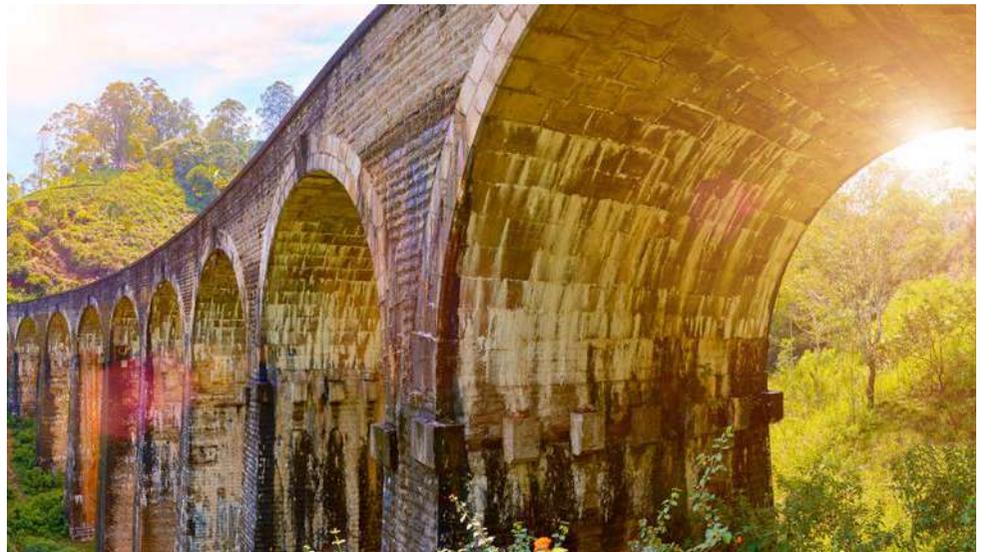
After two successful editions of the "UIC Masonry Arch Bridges" Workshop in 2018 (Madrid and Bristol), UIC held the third and final edition on 17 and 18 October hosted by the University of Pécs (Hungary).

There are still over 200,000 masonry arch bridges and culverts in the European railways network, representing almost 50% of the total bridge stock in Europe with an incalculable asset value. Most of these bridges are over 100 years old and would be considered to have reached the end of their theoretical service lives if compared to current design codes.

Masonry arch bridges have, however, stood the test of time and proved to be highly sustainable long-lasting structures, not only with high aesthetic value, but with considerable resilience and capacity reserve. Appropriate management of masonry arches is key to maintaining them in a safe and serviceable condition, where IMs and bridge engineers have to find ways to preserve these beautiful bridges in a manner that will allow them to continue to serve their function, without altering their appearance or architectural integrity.

After the UIC project on 'Masonry Arch Bridges' and the publication of the IRS 70778-3 "Recommendations for the inspection, assessment and maintenance of masonry arch bridges", and the publication of a complete set of videos from the Masonry Arch Bridges workshop in Bristol, renowned bridge experts and scientific researchers presented the main outcomes of the project.

The event was considered of great interest to railway and road infrastructure owners, asset managers, bridge engineers and contractors responsible for the inspection, assessment and maintenance of masonry arch bridges in the transport network.

The final fruits of these projects and events have been the publication of the Catalogue of Damages in Masonry Arch Bridges in January, and the activities will now conclude with two Guides for execution and control of repairs, the first volume comprising a "Cleaning Manual" and the second containing recommendations for "Maintenance and replacement of existing masonry"

Two more projects were approved in 2019 as part of the TTI Sector and have already started in 2020, both based on the previously published White Paper on Aerodynamics. The first one is the "Crossing Effects Between Trains" (CROSS-T) initiative that will cover the assessment of gaps for aerodynamic-related phenomena, and the related mitigation measures and operational rules in mixed traffic lines, between high-speed trainsets and freight train compositions, which is still required with regard to TSIs and EN standards.

The second one is the "Aerodynamic noise" (AERO NOISE) activity which concerns the need for a better control of the aerodynamic noise sources in a high-speed trainset during operation, that may originate from a variety of zones in the train including: pantograph, pantograph recess, inter-coach gaps, front of train, connection cables, low-level turbulences, etc., which mark the pass-by noise generated, and on the upper parts of the train those which have a major influence on the effectiveness of mitigation measures such as noise barriers (and especially lower ones). Dedicated technology could be designed for this purpose.

KEY WORDS

FRMCS, GSM-R, RTM, PROOF OF CONCEPT, BRAKING, ARTIFICIAL INTELLIGENCE, RAIL SYSTEM, OPERATIONS, SAFETY, SECURITY, ASSET MANAGEMENT, TRACK, INFRASTRUCTURE, INTERACTION, DISRUPTIVE TECHNOLOGIES, ROLLING STOCK

TO LEARN MORE uic.org/rail-system

PASSENGERS

PASSENGERS

Passenger rail accounts worldwide for 50% of rail activity, 8% of global passenger transport and less than 2% of greenhouse gas emissions from passenger transport and is believed to be the backbone of future mobility.

Parallel to promoting competition in the rail sector, new technologies and new patterns of mobility and customer behaviour are beginning to emerge. By investing in innovation and research with the aim of offering personalised, barrier-free travel, railway undertakings are shifting the service paradigm towards a customer-centric approach.

In this context, the UIC Passenger department acts as a catalyst for transformation of the railway business. It supports railway undertakings in all aspects of passenger transport by providing technical solutions (IRSs) and facilitating knowledge exchange and networking platforms responding to the Global Passenger Forum's strategic vision by focusing on the following areas:

- ▶ Multimodality,
- ▶ Mobility as a service,
- ▶ Sustainability,
- ▶ Multiregional projects,
- ▶ Digitalisation,
- ▶ Cooperation with universities.

UIC's passenger activity is inspired by the involvement of its members in the Global Passenger Forum, led by Manel Villalante i Llauradó (Renfe). The forum is subdivided into five dedicated Sectors and a special group:

- ▶ Passenger Services Group,
- ▶ Intercity & High-Speed Committee,
- ▶ Commuter & Regional Train Services,
- ▶ Station Managers Global Group,
- ▶ Tourism Opportunities for Railways,
- ▶ RIC/A Agreements Special Group on the exchange and use of passenger cars and self-propelled units in international rail traffic.

The UIC Global Passenger forum also participates in cross-sectoral work and joint activities with many other UIC forums and regions.

International rail ticket distribution

One of the traditional activities of European railways is international ticket distribution that allows customers to benefit from a "one-stop shop" service when purchasing tickets for international journeys. UIC provides standardised technical and commercial solutions for all processes involved in international ticket distribution (timetables, fares, agreements on IT standards, etc.) in a smooth and cost-effective way, while addressing railway companies' regulatory and business requirements.

Marketed to third parties since March 2019, MERITS (Multiple East-West Railways Integrated Timetable Storage) is a centralised database owned by UIC, containing the integrated and periodically updated timetable data (timetables, services and facilities, coaches and seats, stations, tariffs, etc.) of the majority of European and some non-European countries (Russia, Turkey, Belarus). It is designed to facilitate international railway distribution by giving businesses rapid access to the data necessary for more efficient operation, journey planning and booking.

In January 2019, the PSG launched the nTM (new Tariff Model) project which aims to provide a B2B solution that enables through-ticketing (the distribution of one or more tickets in a single transportation contract) based on timetables and on the new UIC "harmonised tariffs terms and conditions" standard. nTM is to be integrated with the FSM (Full-Service Model) and new messaging protocols to form a single specification taking into account all distribution stakeholders (carriers, ticket allocators, 3rd party travel providers, etc.), further promoting rail interoperability.

In addition, the PSG is committed to providing services for persons with reduced mobility (PRM). This is becoming increasingly important in ageing societies and is a focus of particular attention both in European legislation and by railway undertakings. In a modern context, barrier-free travel is a key factor in seamless mobility. Where technical conditions do not yet allow barrier-free access to all trains, appropriate assistance must be provided to bridge the gap.

In the context of multimodality, the PSG is working with IATA addressing the distribution of combined Air+Rail journeys via the airline sales channels. Similarly, it is working with UITP on an integrated ticketing framework between railways and public transport.

High-Speed Rail

High-speed rail is not merely a technical subject; rather, it encompasses a complex reality involving various technical aspects such as infrastructure, rolling stock, energy and operations and cross-sectoral issues such as financial, commercial, socio-economic, managerial and training aspects. The high-speed rail system combines these various elements using highly sophisticated technology.

The Intercity & High-Speed Committee coordinates UIC members' high-speed rail activities. It contributes to the development of high-speed rail systems around the world through benchmark, standardisation, recommendations, training, operational studies and reports, and promotes the business through its flagship World Congress on High-Speed Rail event.

ICHSC is primarily a forum in which each member can share their experience and benefit from the experience of others in working groups and workshops.

Commuter and regional rail

Commuter and regional rail, comprising more than 80% of total railway passengers, serves as a backbone for local public transport. The Commuter and Regional Train Services (CRTS) working group is a platform for knowledge and expertise exchange between UIC members. CRTS works to develop and disseminate practical solutions and examines the interface between legal requirements and practical management issues. It shows members' existing forms of financing between public authorities, private investors, client bodies and railway undertakings.

Stations

Stations represent a key element in passenger transport: for customers (passengers, commuters, passing-by) it is the unique gateway to the rail system, for railway operators it plays a big role in the overall passenger experience. But apart from their strategic value for railways, stations are an essential element in city development, especially in the context of new urban transformations and the emergence of personal mobility and MaaS.

The UIC's objective is to provide expertise to members, offering solutions tailored to specific locations and taking into account intermodality, commercial and social considerations, all within the context of sustainable development.

The Station Managers Global Group (SMGG) aims to advise on best practice for train stations, focusing on a broad range of issues such as governance, funding, digitalisation, intermodality, urban planning and regional development, etc. The group mostly aims to rethink stations of the future through the Long-Term Development for Railway Stations (LTDRS) framework.

Tourism for rail

Tourist trains are attractive products with much to offer for the implementation of key concepts such as sustainable development, diversification and management of tourist flows. Tourist train projects are typically implemented in isolation, so there are opportunities to be developed in terms of networking and identifying synergies. UIC's TopRail (Tourism opportunities for Railways) project raises awareness of the potential offered by this market and contributes to the development of new and existing rail tourism products and services.

RIC/A Agreements Special Group

The RIC/A Special Group and the Secretariat at the UIC manage the RIC and RIA agreements. These agreements deal with the use of vehicles and self-propelled units in international traffic, they describe the functioning of the system and the responsibilities of the actors (RU and keepers) involved in the exchange of vehicles. They are updated regularly to be in line with the rail and legislative environment by coming into effect annually in January.
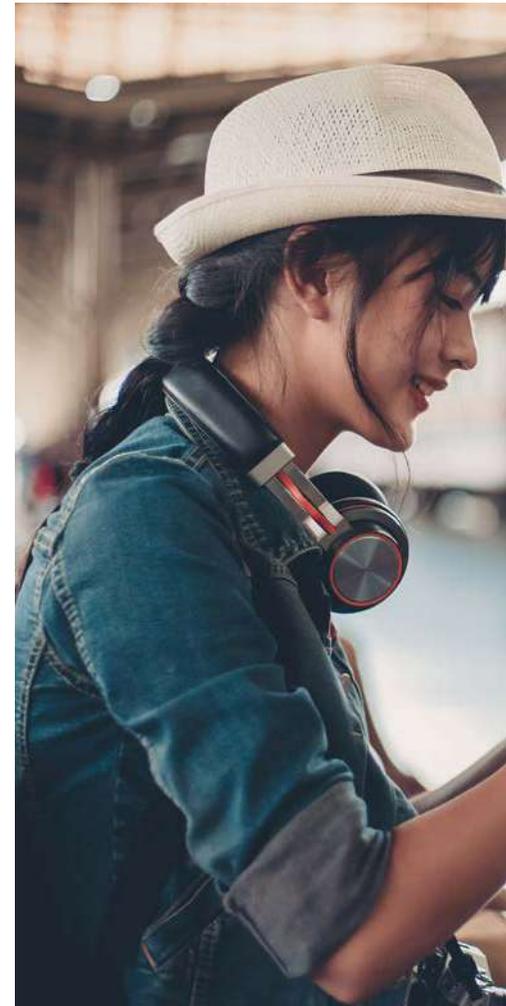
KEY EVENTS IN 2019

▶ "Operating high-speed lines: in search of efficient solutions" interactive workshop in Paris, Jan. 2019

▶ Three Innovation workshops on Digitalisation, Blockchain and Artificial Intelligence in Paris in Feb., Apr. and Nov. 2019, respectively

▶ Training Sessions on High-Speed Rail Systems level I in Paris, Apr. 2019 and Level II in Madrid, Nov. 2019

▶ 2nd TopRail Forum in Naples, May 2019

▶ 4th training on Commuter and Regional Train Services in Barcelona, Jun. 2019

▶ 1st Global Passenger Forum plenary in Toledo, July 2019

▶ UIC-KORAIL Training Session 2019 on Railway Public Service Obligation in Seoul, Sept. 2019

▶ 5th UIC CIT claims conference in Vienna, Sept. 2019

▶ Technical, operational and economic aspects of Hyperloop technology development conference in Krakow, Sept. 2019

▶ 7th UIC nextstation conference in Tehran, Nov. 2019

PUBLICATIONS IN 2019

▶ IRS 90918-1 revision: Electronic reservation of seats/berths and electronic production of travel documents - Exchange of messages

▶ IRS 90918-8: Layout for electronically issued rail passenger tickets

▶ IRS 90918-9: Digital Security Elements for Rail Passenger Ticketing

▶ IRS 60673: Implementation of a High-Speed Railway, Design Phase

▶ IRS 60675: Implementation of a High-Speed Railway, Operation Phase

▶ IRS 60662: Railway Application - High Speed - Maintenance of High-Speed Lines

▶ IRS 10180: Classification of Rail Passenger Stations

▶ "Railway Stations - Boosting the City" UIC nextstation handbook (2019 Edition)

▶ Guidelines on Increasing Rail Attractiveness for Tourism

▶ High-Speed Rail atlas

▶ Passenger activities at the UIC 2019

KEY WORDS

HIGH-SPEED, INNOVATION, NEW TECHNOLOGIES, DISTRIBUTION, TICKETING, STATIONS, MULTIMODALITY, MOBILITY AS A SERVICE, CUSTOMER EXPERIENCE, RAIL TOURISM, ACCESSIBILITY, COMMUTING

TO LEARN MORE uic.org/passenger

51

AN OVERVIEW ON TICKETING

The UIC passenger sector has a large and active community of experts who have experience and knowledge of international system architectures currently operated by the railways: Technical expertise in data exchange and competence in system change-management taking into account necessary market evolutions.

UIC Passenger Services Group oversees the whole international ticketing scheme in a harmonised and operational implemented mode. UIC's International Railway Solutions are the outcomes of its technical and commercial working groups composed of the experts of European Railways, and accurately reflect the Railway and customer expectations with regard to:

➤ Planned Timetable with the MERITS database which retrieves and integrates all European timetable and location data twice a week

➤ Timetable-based tariffs including reservation or not within the new Tariff Model, nTM 90918-10

➤ Data exchange for Railway community Reservation Systems with the IRS 90918-1

➤ Ticket Layout for all possible supports from secured paper, A4 and mobile screen, IRS 90918-8

➤ Ticket security with barcode encryption specifications using Public Key platform exchange, IRS 90918-9

➤ The online Control data base that allows interoperability between Ticket Control Organisations with the aim of optimising after-sales operations and limiting fraud, IRS 90918-4

UIC and FSM (Full Service Model), the European initiative including Railways and Distributors, dedicated to improving the B2B distribution of Rail Mobility services, recently signed a Technical Agreement to develop a unique and integrated specification (IRS 90918-10) within a dedicated UIC working group to ensure coherence between FSM and nTM specifications (named OSDM: Open Sales and Distribution Model).

UIC is beginning to develop and manage a new service for the railway undertakings for control of Non-Reservation Tickets: Electronic Ticket Control Database (ETCD). The ETCD service provides a central implementation of the ticket control specification, allowing UIC members to exchange information with a central system, involving less complexity and lower implementation costs on their side.

The ETCD will become an important foundation for passenger travel based on the increasing adoption of e-tickets.

UIC developed and manages a unique database which includes the Public Keys for the barcodes of the tickets in European Scale (Public Key Management Website: PKMW). Rail companies can store their Public Keys that are used by ATMs, Controllers, Smartphone applications in order that all companies can read and validate the e-tickets issued by other companies. Thus, the entire sector is aligned and works in a coordinated manner to improve and develop standards. As demonstrated in the figure below, all these systems are aligned using the same data exchange definitions allowing smooth system evolution and limiting disruptions linked to innovations for the benefits of rails customers.
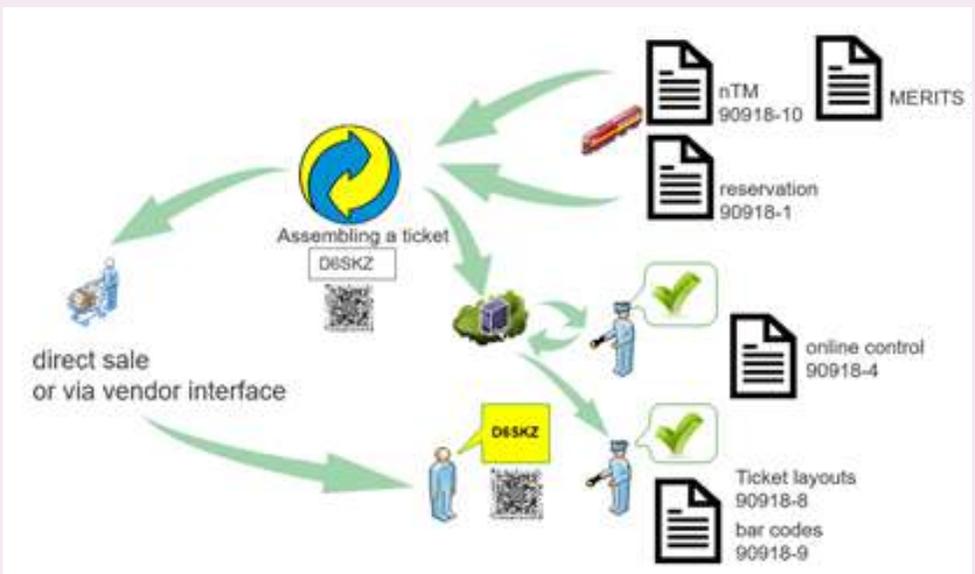
7ᵀᴴ UIC NEXTSTATION CONFERENCE (TEHRAN, NOVEMBER 2019)

© RAI
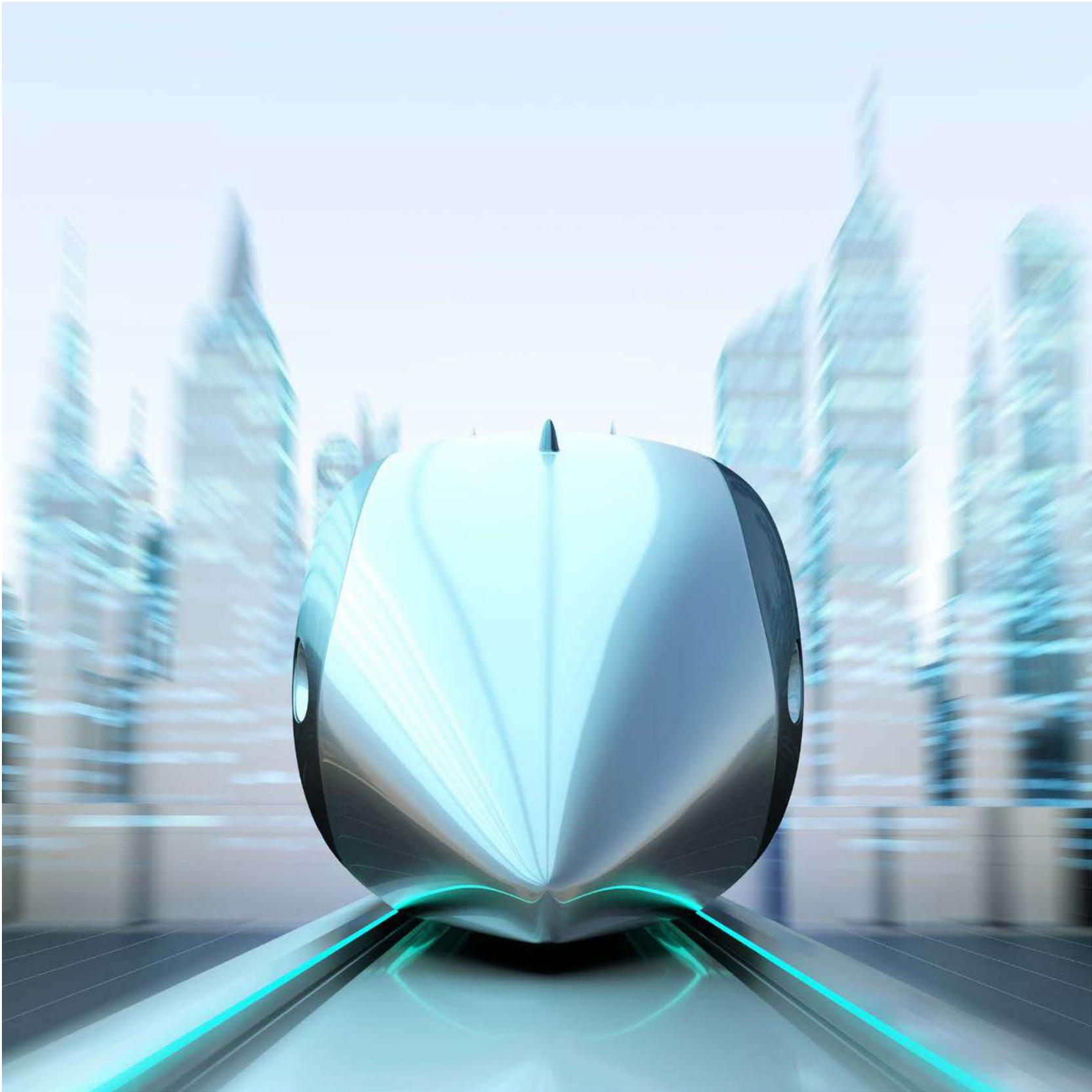
RESEARCH

RESEARCH

Research and innovation form a core business of UIC, supporting the efforts of our members to address today's operational questions as well as their future needs, developing better railway solutions in pursuit of enhanced mobility, increased sustainability, technical performance and new business opportunities.

Research at UIC ranges from gathering information and documenting best practice to developing new knowledge, technical solutions and applications and demonstrating their feasibility. It is conducted via internal UIC projects or engagement in external projects such as those funded by the European Commission's Framework Programmes for Research (also open to non-EU based UIC members).

Within the current FP - Horizon 2020 - most EU-funded rail research is managed by the Shift2Rail Joint Undertaking, with UIC participating as a direct project partner or by supporting UIC members in that role.

At global level, UIC is very active as a founding member in contributing to the organisation of the WCRR (World Congress on Rail Research) every two/three years, gathering the global rail research and innovation community around a theme to debate and exchange on the latest developments in the sector and beyond.

In 2019, UIC participated in the WCRR held in Tokyo, with UIC Chairman Gianluigi Castelli speaking at the opening ceremony, UIC Director General François Davenne making the keynote speech at the Plenary on R&D for future railways, and UIC Head of Research Martin Brennan giving a paper on the 12 capabilities.

The next event, with "Transforming our railways – Research with an impact" as (provisionally) its guiding theme, will take place from June 6-10, 2022 in Birmingham, UK.

Working with the hosts, the University of Birmingham, RSSB and Network Rail, UIC is helping the initial shaping and development of this 2019 event, to build on the success of the one in Tokyo.

In addition, UIC'S International Rail Research Board (IRRB) provides a global platform for collaboration on rail research and innovation for all its members.

2019 saw the completion and dissemination of the flagship output, the revised version of the 'Global Vision for Railway Development (GVRD II) originally published in 2015 to bring this document up to date with new technical developments and set the key challenges for the research activity over the following years.

The IRRB also met in plenary form twice, in Budapest and in Tokyo, to share insights and news of new technical developments around the world and to share progress with UIC workstreams such as standardisation.

At European level, UIC holds vice-chairmanship of the European Rail Research Advisory Council (ERRAC), which is the recognised interlocutor on the research needs of the railway sector with the European Commission and leads its Secretariat.

The focus in 2019 was on the immediate actions towards the development and implementation of ERRAC's new Rail 2050 Vision.

The railway operating community, led by UIC, made a strong input to defining the research and innovation priorities for the next decade (to 2030) in pursuit of this vision.

The RICG (Research and Innovation Coordination Group) is UIC's second working body focusing on research, supporting predominantly European UIC members. It is tasked with coordinating research efforts and preparing common positions on European research and innovation strategy and priorities for EU funding.

It advocates the vision of the railway operating community in ERRAC to the European Commission. The RICG also helps to facilitate member participation in EU-funded research projects, either through UIC services or directly.

During 2019 it concentrated on coordinating the views of the railway operating community in the development of the sector position on the future Shift2 Rail replacement, inputting via ERRAC and responding to European Commission requests for professional views.

RICG organised a dedicated sector workshop on this key topic for a wide range of stakeholders, the outputs of which became the basis for the development of the formal sector position.

At the end of 2019, with the expiry of his mandate, Bo Olsson of Trafikverket handed over chairmanship of RICG to Riccardo Santoro of FSI.

ACHIEVEMENTS TO BE HIGHLIGHTED IN 2019

▶ The process to update the Global Vision for Railway Development was completed, and the document published.

▶ UIC was a major contributor to ERRAC's work in its formal groups, steering committees and plenary meetings, including providing the secretariat, and in the three main subgroups on strategy development, coordination, and communications. UIC provided significant input on behalf of the ROC for the development of ERRAC's Rail 2050 Vision, reflecting the 12 Capabilities and the RTSE.

▶ UIC participated in 15 EU funded projects, including 10 under Shift2Rail.

PUBLICATIONS IN 2019

▶ Global Vision for Railway Development II

▶ Rail 2030 Priorities (ERRAC)

KEY WORDS

RESEARCH, HORIZON EUROPE, SHIFT2RAIL, WCRR, WORLD CONGRESS ON RAIL RESEARCH, ERRAC, EUROPEAN RAIL RESEARCH ADVISORY COUNCIL, RICG, RESEARCH AND INNOVATION COORDINATION GROUP, INNOVATION AWARDS, GVRD, GLOBAL VISION FOR RAILWAY DEVELOPMENT, IRRB, INTERNATIONAL RAILWAY RESEARCH BOARD

TO LEARN MORE uic.org/research; errac.org

SAFETY

SAFETY

When considering the concept of safety, it is important to distinguish between two key aspects. The first of these concerns technical safety and relates closely to the concept of technical reliability. The second concerns safety management. This two-pronged approach is at the core of UIC's safety activities.

Applying this approach, safety is brought about as a result of organisational activities. These socio-technical activities can be categorised as follows:

- technical: rolling stock, infrastructure, etc.
- organisational: toolkits, regulations, procedures, schedules, etc.
- operations staff, subcontractors, management, etc.

Railway system safety is dependent not only on these internal elements, but also on all interfaces with society.

System safety is maintained by the reliability, effectiveness and resilience of the system.

However, safety management alone is not enough to keep a network safe. There are other aspects that can have a negative impact on safety and must be given due consideration. These include changing environmental conditions (flooding, silting, land subsidence, population displacement, etc.) and evolving security threats (attacks, sabotage, etc.). With this in mind, the Safety unit works closely with UIC's Security and Sustainability units.

Safety is becoming increasingly complex and requires a systematic approach. It is an important part of a railway undertaking's corporate social responsibility activities.

RUs must transport people and property while, at the same time, ensuring that their transport services do not have a negative overall impact on stakeholders and on the natural environment.

Safety activities at UIC are structured as follows:

The UIC Safety Platform, currently chaired by Rolf Härdi (Deutsche Bahn AG), is an advisory body open to all UIC members with the core objective of putting in place recommendations and actions to help manage safety risk by eliminating or controlling the causes of accidents and incidents, reducing their frequency and controlling the severity of safety events by implementing protective measures.

The UIC Safety Platform Steering Group is a restricted group composed of Safety Directors (or equivalent) from member companies of UIC and the Safety Platform.

UIC's Safety Unit and Safety Platform are active in exchanging knowledge and expertise and seeking out innovative management solutions in order to respond as effectively as possible to stakeholders' needs and to the expectations of transport companies' direct and indirect customers.

The platform's activities include work on regulatory issues, performance indicators, social and human aspects, risk management in the workplace, management tools and monitoring of interfaces with road transport.

ACHIEVEMENTS TO BE HIGHLIGHTED IN 2019

The UIC guidelines on "Towards a positive railway safety culture" were completed and published in September 2019 after several years of work and collaboration with several UIC members. The purpose of the work was to identify practical factors and good practice in implementing the safety management system which contributes to a healthy safety culture. The report proposes:

- A detailed description of a model of strong safety culture comprising 9 points, ranging from staff commitment and involvement in issues of safety to change management;

- For each stage of management, recommendations aiming to make all those involved in safety management a standard-bearer for reinforcing a culture of safety;

- Indicators to measure the progress achieved and the weaknesses to be remedied.

Safety Platform working groups:

▶ System Safety Management Group (SSMG);

▶ Human Factors Working Group (HFWG);

▶ Occupational Health and Safety Group (OHSG);

▶ Safety Performance/Safety Database Group (SPG);

▶ International Rail Safety Network (IRSN);

▶ European Level Crossing Forum (ELCF).

The UIC Safety unit is also involved in activities within all of the UIC regions, organised in close coordination with the UIC Safety Platform:

▶ Global level crossing activities;

▶ Safety database;

▶ Human factors and safety.

Safety Finally, the Safety unit works closely with the International Union of Railways Medical Services special group (UIMC).

KEY EVENTS IN 2019

▶ **UIC Workshop on Rail Suicide and Trespass Prevention & the European Level Crossing Forum (ELCF) meeting: 25 and 26 March 2019 in collaboration with the Security Division of UIC;**

▶ **11ᵗʰ edition of the International Level Crossing Awareness Day (ILCAD) worldwide campaign on 6 June, 2019: 40 countries participated. ILCAD Launch Conference hosted by ProRail in Amersfoort, Netherlands on the same day: 180 guests from 25 countries, 43 speeches from 17 countries. Visit ILCAD YouTube channel: youtu.be/cVZVaulrYNk;**

▶ **7ᵗʰ edition of the training on Railway Safety from 10 – 21 June 2019 at the Training Centre of the National Office of Railways of Morocco (ONCF) in Rabat organised by UIC and ONCF**

– **under the patronage of the UIC Africa Region Presidency;**

▶ **The annual UIMC World Congress held from 16-18 October 2019 in Rome;**

▶ **Participation in an emergency simulation exercise, Libreville, Gabon, December 2018 and January 2019;**

▶ **Annual Session "Training on Safety and Track Maintenance" in Rabat, at the ONCF Centre of Railway Training, from 19 – 29 November 2019 organised by UIC and ONCF – under the patronage of the UIC Africa Region Presidency.**

PUBLICATIONS IN 2019

▶ **UIC guidelines on "Towards a positive railway safety culture"**

▶ **UIC public Safety Report 2019**

KEY WORDS

SAFETY MANAGEMENT, TECHNIQUES, HUMAN FACTORS, ORGANISATIONAL AND HUMAN FACTORS, SAFETY CULTURE, LEVEL CROSSING SAFETY, INNOVATION

TO LEARN MORE uic.org/safety; www.ilcad.org

SECURITY

SECURITY

Ever-conscious of the potential impact of security measures on the attractiveness of rail transport, UIC works with its members to develop responses to key security issues as part of its services to support passengers, freight and rail system activities.

Alongside national, European and international public authorities, the railway sector has a specific and complementary role to play in the security field. The challenge is to ensure greater cohesiveness in an environment involving an increasing number of stakeholders in the context of market liberalisation and evolving business practices.

The UIC Security Platform serves its members in this context by:

▶ raising awareness in the railway sector of the increasingly important issue of security;

▶ developing networks of experts;

▶ sharing experience among UIC members to identify suitable solutions and adapt them to each specific situation;

▶ ensuring consistency between different security policies to further the development of international traffic;

▶ developing recommendations in relation to technologies, human factors and organisation;

▶ developing solutions from across the rail sector vis-à-vis and in partnership with European and other international institutions;

▶ running research projects in areas of interest to UIC security experts or representing the rail sector in research projects.

The UIC Security Platform is currently chaired by Marc Beaulieu, VIA Rail Canada, and vice-chaired by Piotr Kurcz, PKP S.A. The platform's activities and priorities are defined at its annual congress, and its steering committee meets every quarter and involves the UIC regions, various UIC departments, and professional and political partners, such as UITP, RAILPOL, CER, EIM, etc. The platform has three permanent working groups (Technology, Human Factors, Strategy) and has created two ad hoc working groups at UIC's request in order to focus specifically on Sabotage, Intrusion and Attacks (SIA) and on Border Crossings in International Railway corridors (BIRC), respectively.

KEY WORDS

TERRORISM, CBRNE, CYBERSECURITY, DAILY CRIME, CRITICAL INFRASTRUCTURE, BORDER SECURITY, CRISIS MANAGEMENT, SECURITY POLICY, SECURITY TECHNOLOGY, SECURITY TRAINING, SECURITY AWARENESS, FEELING OF SECURITY, COOPERATION WITH AUTHORITIES

TO LEARN MORE uic.org/security

ACHIEVEMENTS TO BE HIGHLIGHTED IN 2019

▶ The "Rail Security Hub", a new communications tool for members, was designed and developed in 2018 and has been launched in 2019 at RailSecurityHub.org. It allows rail security experts to find, access and share solutions and information on railway security issues via a secure, user-friendly, comprehensive and interactive online platform.

▶ The "network of quick responders" has addressed 22 questions in total including nine questions in 2019. The topics of the nine questions were the following:

 - CBRN (Chemical, Biological, Radiological and Nuclear) incidents

 - GDPR (General Data Protection Regulation)

 - Active shooter / armed aggressor procedure

 - Feeling of security

 - Obstacles on tracks

 - Unauthorised access to train driver cabs

 - Incidents where people were deliberately pushed in front of trains

 - Unauthorised entry onto tracks, on bridges or into tunnel areas

 - Use or misuse of scotch blocks

15ᵀᴴ UIC WORLD SECURITY CONGRESS (PRAGUE, NOVEMBER 2019)

© Máša agency s.r.o / Michal Kral

KEY EVENTS IN 2019

▶ 15th UIC World Security Congress on the topic "Security and Safety of Stations" was held from 20–22 November 2019 in Prague, Czech Republic

▶ 5th UIC Security Week held from 18–20 June 2019 at UIC and focused on the management of attacks and roles of the various partners (state authorities, emergency services) in the context of a terrorist attack on railway premises

▶ Crisis Management Seminar held from 14–16 May 2019 in Libreville, Gabon

▶ UIC Workshop on rail suicides and trespass prevention held on 25 March 2019 at the UIC HQ in Paris

PUBLICATIONS IN 2019

Recommendations issued by UIC Human Factors Working Group:

▶ Guidelines for managing suspicious items in railway premises for Passengers and visitors

▶ Guidelines for managing suspicious items in railway premises for Railway Staff

Recommendations issued by UIC Border Crossings in International Railway Corridors Working Group:

▶ Security of railway border crossings within the East-West railway corridor

▶ Security Brochure: Railway security activities at UIC

ONGOING EU RESEARCH PROJECTS FUNDED BY THE EUROPEAN COMMISSION:

▶ PROACTIVE project on increasing practitioner effectiveness in managing large and diverse groups of people in a CBRNe environment (led by UIC Security division), May 2019 to April 2022 proactive-h2020.eu

▶ SHERPA project on a shared and coherent European railway protection approach (led by UIC Security division), November 2018 to October 2020 sherpa-rail-project.eu

▶ SAFER-LC project on safety and security at level crossings (led by UIC Security division), May 2017 to April 2020 www.safer-lc.eu

SUSTAINABLE DEVELOPMENT

SUSTAINABLE DEVELOPMENT

Sustainable development is considered one of the main global challenges facing the world today and is an important aspect of transport development. UIC and its members work continuously to demonstrate how rail can be part of the solution to the challenge of sustainable development.

Railway has a central role to play in decarbonising transport

While representing 8% of global passenger and freight transport activity (in passenger km/tonne km), railway represents 2% of the transport sector emissions and is therefore a particularly efficient and sustainable mode of transport.

The rail networks benefit from a decisive advantage linked to frugality, which is a cardinal virtue for tackling climate change issues:

▶ Frugality in energy consumption: whether in terms of energy per capita or globally, railways and public transport are extremely efficient: passenger rail transport requires less than 1/10th of the energy needed to move an individual by car or by aeroplane;

▶ Frugality in public space: whether in urban or rural areas, the occupation of public space is minimal, and the promotion of rail transport will once again give citizens the possibility of enjoying more public space with better air and soil quality with a greater level of safety;

▶ Frugality in terms of life cycle: the lifetime of railways can be up to 50 years, minimising the need to reinvest regularly in non-renewable resources.

Climate change is not the only issue faced by the railway sector. The railway sector indeed plays an important societal role in relation with the ecosystem and biodiversity, both in urban and rural areas.

By 2050, railway infrastructure should be an integral part of the natural landscape and therefore should become a "green network" connecting biotopes, enabling species migration and providing diverse habitats for many different species. Consequently, UIC is working on other key issues, such as the promotion of the sustainable use of resources (ballast, concrete, steel, water etc.), the reduction of external costs by means of careful monitoring and controlling methods of noise and vibration, sustainable land use, and of airborne particulate matter, in order to help the railways to contribute to the achievement of the United Nations Sustainable Development Goals.

The UIC Sustainability unit has developed cooperative links with various stakeholders dealing with the issues described above.

These collective efforts must be reinforced and must become more widespread, for example by improving data sharing to better assess rail performance and communicate the benefits it can offer as a sustainable transport mode.

The unit's activities are governed by the UIC Energy, Environment and Sustainability Platform, a meeting gathering together members twice a year and currently chaired by Willy Bontinck (SNCB). The unit also works with a Core Group to provide strategic direction as well as a number of working groups, and is involved in several key projects.

Energy efficiency and CO_2 emissions Experts Network

The UIC Energy and CO_2 Experts Network provides strategy, guidance and leadership for the activities of UIC and the rail sector in general with regard to projects and issues relating to energy efficiency and renewable energy in the railway sector. It consults and advises on energy efficiency-related UIC projects led by other platforms and working groups and provides expert positions on current issues at the request of UIC (e.g. pending legislation, media inquiries, etc.). The UIC Energy and CO_2 Experts Network deals with all aspects of energy efficiency and CO_2 emissions.

The Network met three times in 2019, sharing experiences and solutions, agreeing on topics to be addressed in projects and in Energy Efficiency and best practice workshops. The Network also defined new targets in the framework of the UIC-CER Environment Strategy Reporting System (ESRS) aimed at monitoring European railways' progress in reducing their emissions. Working closely with CER, Network members discussed the European context including the European Green Deal and transition to LED lamps under the new lighting regulation. Decarbonisation of railways from the point of view of both infrastructure managers and railway undertakings is always the background to the discussion.

UIC's Energy and CO_2 related activities in 2019 included:

▶ publication of "The future of rail" in partnership with the International Energy Agency (IEA);

▶ the global rail and energy workshop, organised with the IEA highlighting the publication of the report;

▶ the Environmental Strategy Reporting System (ESRS) collection campaign for 2017 and 2018 data from railway operators;

▶ SFERA (IRS 90940) project on standardisation of driving advisory systems, IRS 90940 development;

▶ revision of Leaflet 930 for traction energy settlement and data exchange, development of the IRS 90930;

▶ organisation of two workshops on best practices in energy efficiency and decarbonisation of railways;

▶ contribution to the "Sustainable Mobility 4 All" (SuM4All) World Bank report;

▶ contribution to the project "Optimisation of energy usage aspects of rail innovation" (OPEUS, funded under the European Research and Innovation framework programme Horizon 2020);

▶ maintenance and improvement of the "EcoPassenger" online eco-tool;

▶ participation in the EcoTransIT World Initiative.

Noise and Vibration Expert Network

The UIC Noise Network promotes effective management of railway noise and vibration in the context of sustainable development. The group constitutes a centre of excellence; it supports transfer of knowledge, coordinates events and activities, leads research projects and facilitates communication with key stakeholders. It works in close cooperation with other railway organisations, the EU Commission and national authorities. The network organises successful noise and vibration workshops every other year.

The UIC Noise Network is concerned with all aspects of railway noise, e.g. rolling noise, stationary noise, and noise from shunting yards. It provides a technical lead on transport noise and vibration policy in particular.

Activities in 2019 included:

▶ providing a technical consultation to support the noise and vibration management efforts of project participants;

▶ organising a workshop on Railway Noise & Vibrations held in March 2019;

▶ providing a platform via publishing of a video to explain the objectives and outcomes of the Noise and Vibration Network, launched at a workshop held in March 2019: youtu.be/sCjCaMrDapc;

▶ completing comprehensive questionnaires for noise barrier and ground-borne vibrations to enhance the knowledge exchange between members;

▶ preparation of a flyer to summarise the state-of-the-art of railway noise in Europe published in 2016 and to announce the preparation of a new state-of-the-art for railway noise in Europe which will be published in Autumn 2020 and will be disseminated at the noise workshop in March 2021.

Sustainable Land Use Expert Network

Transport is an important factor in the degradation of natural ecosystems and biodiversity; therefore, the environmental performance of railways is equally important as its contribution to climate protection. The Sustainable Land Use (SLU) Network provides strategy, guidance and leadership for UIC members with respect to the following issues:

▶ Vegetation management,

▶ Biodiversity,

▶ Soil quality.

The SLU Network is aimed at providing a mechanism facilitating the exchange of knowledge within the railway community as well as with external parties in the domain of sustainable land use and promoting the importance of these issues in the railway sector.

Activities in 2019 conducted in relation to vegetation management:

▶ publication of the UIC Guidelines for Integrated Vegetation Management and the State of the Art and Integrated Assessment of Weed Control and Management of Railways as a final deliverable of the "HERBIE" project;

▶ launch of the "Transition strategy on vegetation management" (TRISTRAM) project to progress from a single method-based concept to an integrated, flexible, multi-method-based approach for vegetation management;

▶ preparation of a project web page for the TRISTRAM project and publishing of online questionnaires to identify alternative methods for vegetation management.

Activities in 2019 regarding biodiversity:

▶ preparation of an opt-in project aimed at identifying the ecological effects of the railways on wildlife and habitats amongst SLU members;

▶ preparation of an abstract for the 2020 conference of IENE (Infrastructure and Ecology Network Europe) to announce the rEvERsE (Ecological Effects of Railways on Wildlife) project at an international level to key contributors to Green Infrastructure development.

Emissions Expert Network

The UIC Emissions Expert Network is responsible for sharing best practice, reporting and identifying upcoming issues and future requirements. It works on a variety of topics, including:

▶ airborne particulate matter,

▶ air quality requirements.

The network began to work on its "Clean Air Trains" project in 2018. As there is currently no legislation regulating public exposure to the indoor concentrations of air pollutants, this project is aimed at developing a methodology for railway environments to compare measured concentrations with limit values in outdoor air, such as values of particulate matter and nitrogen oxide.

Sustainable Mobility Expert Network

The UIC Sustainable Mobility Expert Network provides strategy, guidance and leadership for UIC members on sustainable development in the railway sector. This expert network is particularly focused on door-to-door solutions and works closely with other UIC departments, such as the Passenger department, to provide the best possible insights for members.

In 2019, the sustainable door-to-door solutions project team launched a preliminary study on the topic in close collaboration with the consultant team from the Sustainable Development Foundation based in Rome and this report was shared with Members and presented during the Station Manager Group in Moscow in March 2019. UIC is now collecting best practices from its Members and following up with this fruitful project until 2021.

ACHIEVEMENTS TO BE HIGHLIGHTED IN 2019

Advocacy

▶ Mr. François Davenne, Director General of UIC, participated in the High-Level Political Forum in New York, at the United Nations Headquarters in September 2019.

▶ The UIC Sustainable Development team and Mr. François Davenne, Director General of UIC, participated actively in the COP 25 United Nations Climate Change Conference organised in Madrid, Spain, under the Chilean Presidency, and in the Marrakesh Partnership Global Climate Agenda.

▶ COP 25 – Madrid, December 2019: UIC contributed to COP 25 events along with other key stakeholders from the transport sector, including UITP, ITF and SLOCAT.

▶ Kick-off of the UIC Sustainable Directors meeting in October 2019: gathering Members' sustainability directors to work on promoting advocacy for railways at the highest level, including United Nations.

In addition to the work of the expert networks, UIC's Sustainable Development Unit was involved in several other initiatives in 2019.

These included:

▶ the **Ecoscoring** project which kicked off in early 2019 as a consequence of the need for greater promotion of the positive impact of the rail sector in order to attract "green" funding.

As a deliverable for 2019, the tool specifications describing the possible features of the Ecoscoring tool were presented at the UIC GA of 11 December 2019;

▶ the "**REUSE**" opt-in project which kicked off in January 2019, is aimed at building a body of knowledge for members on the sustainable use of resources and aspects of circular economy.

Based on the assumption that "our best deposits of raw materials are in our waste", members of the project consortium have met online and in person on several occasions during 2019 to discuss the subject. The report describing the survey's results will be made available at the end of 2020.

KEY WORDS

SUSTAINABLE DEVELOPMENT, ENVIRONMENT, CO_2 EMISSIONS, ECOSCORING, INTERMODALITY, SUSTAINABLE MOBILITY, NOISE, VIBRATION SUSTAINABLE LAND USE, VEGETATION MANAGEMENT, BIODIVERSITY, SOIL QUALITY, AIR QUALITY

TO LEARN MORE uic.org/sustainable-development

25ᵀᴴ CONFERENCE OF THE PARTIES - COP 25 (MADRID, DECEMBER 2019)

EXPERTISE
DEVELOPMENT
& TRAINING

EXPERTISE DEVELOPMENT - TALENT

Railway companies are facing challenges relating to personnel competencies and skills, prompting them to rethink their learning and development strategies. A flexible, well trained, motivated workforce is key for a competitive and innovative sector.

The core missions of the UIC Talent & Expertise Development Platform, currently chaired by Esther Marconi (Ferrovie dello Stato), are to:

▶ promote excellence in training through an exchange and best practice model;

▶ identify new challenges and solutions for learning and development and training technologies;

▶ participate in talent attraction and retention initiatives;

▶ share knowledge and resources.

An open meeting for members takes place twice a year to determine the activities of the platform; it is held at a different training facility on each occasion. The platform consists of a core group to provide strategic direction, as well as various working groups dealing with topical issues.

The platform organises dedicated events, workshops and training sessions. A World Congress on Rail Training is organised every two years. Some online modules have already been designed and are now available on the Talent website:

▶ RAM (Railway Asset Management), designed in cooperation with Sapienza University and Oxand;

▶ ERTMS basic course, developed in collaboration with members of the EU Network of Rail Training Centres.

Talent

The Talent project is concerned with the need of the rail sector to more effectively attract and retain the best talent in the labour market.

With regard to the numerous HR challenges facing the railway industry (demographic challenge and skills shortage, corporate knowledge, attractiveness, gender diversity, etc.), UIC believes that it has an important role to play at international level by initiating active dialogue and gathering support across the rail sector to attract talented personnel seeking to develop a career in the railways.

At the core of the project is the development of a powerful international network of high-profile railway talents aimed at preparing a new generation of talents working on domestic and international challenges, leveraging a deep understanding of business approaches, language and intercultural skills.

The Talent digital platform has been revamped and is constantly being updated in order to create a solid and sustainable foundation for international cooperation and sharing among railway talents. The purpose of the platform is to:

▶ guide and connect within and beyond the railway industry;

▶ help railway personnel and companies to learn, impart knowledge and develop;

▶ promote innovation and careers in the railway sector.

Visit the Talent platform:
www.railtalent.org

TrainRail

In 2019 Rail UniNet evolved into TrainRail (international board for rail universities & training centres) with a view to implementing a more powerful cooperative tool for stakeholders worldwide with an interest in rail education and training. The new entity — a cooperative network of training organisations and industry partners — is open to both UIC members and non-members. The kick-off meeting resulted in the following priority actions:

▶ Setting up an expert group to start development of quality criteria for training courses – potentially evolving into UIC IRS;

▶ Supporting the UIC Talent project with attractiveness measures, which would target schools as well as universities & young professionals;

- Enhancement of the regional activities, namely through the appointment, in addition to the Chair from Russia (RUT), of two vice chairs in Morocco (IFF) and China (SWJTU);
- Continuing efforts in mapping education & training centres and offers worldwide.

VERA project

The key objective of the Virtual European Rail Academy (VERA) study, initiated in 2018, was to identify potential areas of cooperation in order to respond to major future challenges facing the railway sector in the field of human resources.

At operational level, the study supports UIC and CER in their ongoing efforts to intensify pooling of knowledge and resources. The study aims to identify specific areas of cooperation and initiatives that may serve as a basis for a Virtual European Rail Academy. It is anticipated that the final recommendations, which will be released in the first quarter of 2020, will be implemented from the second semester of 2020 onwards.

Permanent Observatory on Future work and training

The idea of setting up a permanent Observatory results from the 2019 project dedicated to "the future of work & training". The main scope of the research was to describe future Railway Work scenarios, make forecasts of impact on jobs and match the best Learning & Development Technologies. The methodology was mainly by interviews with Line and HR Managers and by collecting comparable data. The Project group agreed to focus the analysis on four selected sectors of Railway Activities (Traffic Control, Infrastructure Maintenance, Driving, Train Management), looking at the future technological trends in these activities and their impact on Jobs/Tasks and Training now, in 5 years and in 10 years.

The Group will therefore investigate in 2020 the different possibilities for setting up a permanent Observatory.

The main aim of the Observatory is to describe future scenarios with a view to:

- Emerging technologies in the Railway Industry,
- Impact on jobs,
- Impact on Training and Learning Technologies.

ACHIEVEMENTS TO BE HIGHLIGHTED IN 2019

- Hundreds of railway employees, students at rail universities and other stakeholders completed UIC training sessions either at UIC HQ, at regional level or online (RAM and ERTMS training modules)
- The 5th UIC World Congress on Rail Training (WCRT) held for the first time outside of Europe, in Africa, was a successful event with an attendance of some 250 participants from 30 different countries

KEY EVENTS IN 2019

- 5th UIC World Congress on Rail Training (WCRT) in Rabat, Morocco, 9-11 October 2019

PUBLICATIONS IN 2019

- Update of Talent & Expertise Development brochure

KEY WORDS

WORKFORCE DEVELOPMENT, COMPETENCIES, ACADEMIA, TRANSMISSION, TALENT

TO LEARN MORE uic.org/expertise-development-training

UIC'S REGIONAL ACTIVITIES

AFRICA

UIC's activities in Africa are characterised by the need to expand training as part of a transformative approach to the development and strengthening of the African Railway Transport System. New digital tools offer the potential for leapfrogging and present new opportunities for Africa. In addition, UIC's partnership with NEPAD – the development agency of the African Union - provides new prospects for the African railways of the future.

The UIC Africa region is chaired by Mohamed Khlie (ONCF), and the UIC representative office is located in Rabat.

KEY ACTIVITIES

The UIC Africa region aims to:

▶ develop professionalism in the railway sector in Africa by promoting joint training, particularly on safety, security and track maintenance;

▶ define and design standards and technical specifications for African railway networks to ensure real connectivity and interoperability;

▶ develop the sectorial policy and integrated continental master plan for infrastructure in Africa and update the 2063 vision to take account of digital issues;

▶ support implementation of an African digital backbone by deploying fibre optic cable on the rail network;

▶ design and operate an African digital platform to provide facilities for all African rail stakeholders to share and exchange on digital rail initiatives;

▶ support ongoing digital transformation with a view to scalable implementation.
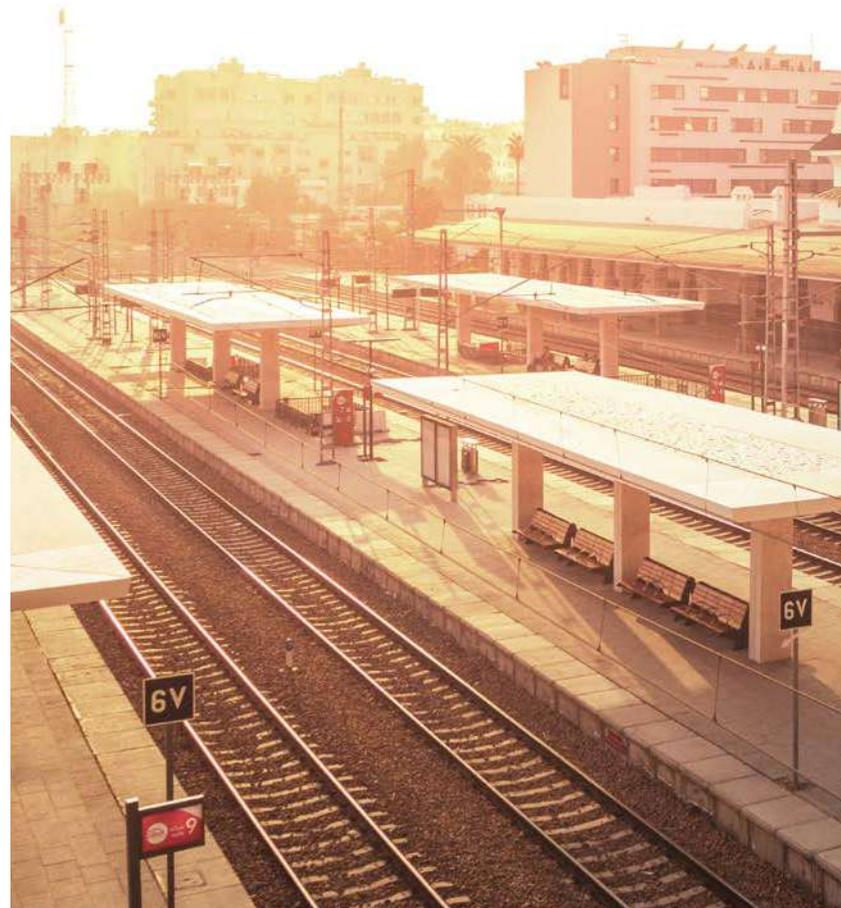
KEY EVENTS IN 2019

▶ 1st Digital Rail Africa Summit, 25-27 February 2019, Cape Town, South Africa

▶ Participation in the second ordinary session of the African Union specialised technical committee on transport, transcontinental & interregional infrastructure, energy and tourism STC-TTIET, 14-18 April 2019, Cairo, Egypt

▶ Railway Crisis Management Seminar, 14-16 May 2019, Libreville, Gabon

▶ 7th edition of the Railway Safety Training, 10 - 21 June 2019, Rabat

▶ 5th UIC World Congress on Rail Training 2019 – Rabat, 9-11 October 2019

▶ Round Table / One-Year Anniversary High Speed Line Al Boraq 27-28 November 2019, Rabat

▶ Rail Track Maintenance Training Session 19-29 November 2019, Rabat

▶ African Regional Assembly 9 December 2019, UIC Paris

▶ Conference of the Group of Transport Ministers for the Western Mediterranean (GTMO) 5+5, 18 December 2019, Barcelona

OTHER RAIL ACTIVITIES IN 2019

▶ Revitalisation of the African Union of Railways

▶ Trans-Maghreb Study in collaboration with CETMO

PUBLICATIONS IN 2019

▶ Post-evaluation of the rail training cycles at UIC Africa regarding Safety and Track Maintenance

KEY WORDS

UIC, AFRICA, RAIL, DIGITALISATION, VISION 2040, TRAINING, SCALABILITY, SAFETY, SECURITY

TO LEARN MORE uic.org/africa

ASIA-PACIFIC

The UIC Asia-Pacific region operates at both regional and sub-regional levels, taking account of the diverse range of challenges in the region as a whole and representing UIC's position in international organisations and intergovernmental agencies, national authorities and governments.

Vision 2050 was officially validated by UIC Asia-Pacific members in 2016 and was launched as a framework for all common and strategic projects and activities in the region. The aim of Vision 2050 is to align UIC's priorities with those of its members in one of the biggest and most diverse regions in the world.

Based on UIC's core competencies of neutrality, representation and technical competence, the strategic areas of activity in the Asia-Pacific region are cooperation and partnership, data quality improvement, incubation for railway investment, best practice sharing and technology transfer, technical advice and peer review and skills improvement. These areas of cooperation are harnessed to achieve the high-priority objectives for the region: cost reduction and efficiency improvement, harmonisation and standardisation, regional integration, research and innovation, quality and customers, environmental sustainability, urban development, safety, security, expertise development and training.

The UIC Asia-Pacific Region is chaired by Lu Dongfu from CR (China) and vice-chaired by Sauat Mynbayev of KTZ (Kazakhstan).

The Asia-Pacific Management Committee comprises seven members who are part of the UIC Executive Board and provide guidelines and direction on the work priorities defined and implemented by the Asia-Pacific Regional Assembly (43 members, 30% of UIC total representation). Its daily work is coordinated by the UIC Asia-Pacific Coordination Group and its three regional representatives, supported by an officer representing the Chairman who was unfortunately missing in 2019. The annual programme of studies, conferences and training sessions is validated by the members through the opt-in process and aligns with the long-term strategic vision for 2050, the Chairman's strategy guidelines and the medium-term (three-year) action plan. This programme is funded by the special fund for common strategic actions on the one hand, and by individual contributions for multilateral collaboration on the other.

Activities in the region are spearheaded by project leaders chosen from among members of the Assembly, including research institutes, universities or expertise development centres. International organisations (intergovernmental and financial institutions) have been involved in the definition and monitoring of the work programme since 2017, with the aim of having a complete overview and full synchronisation of the priorities in the region.
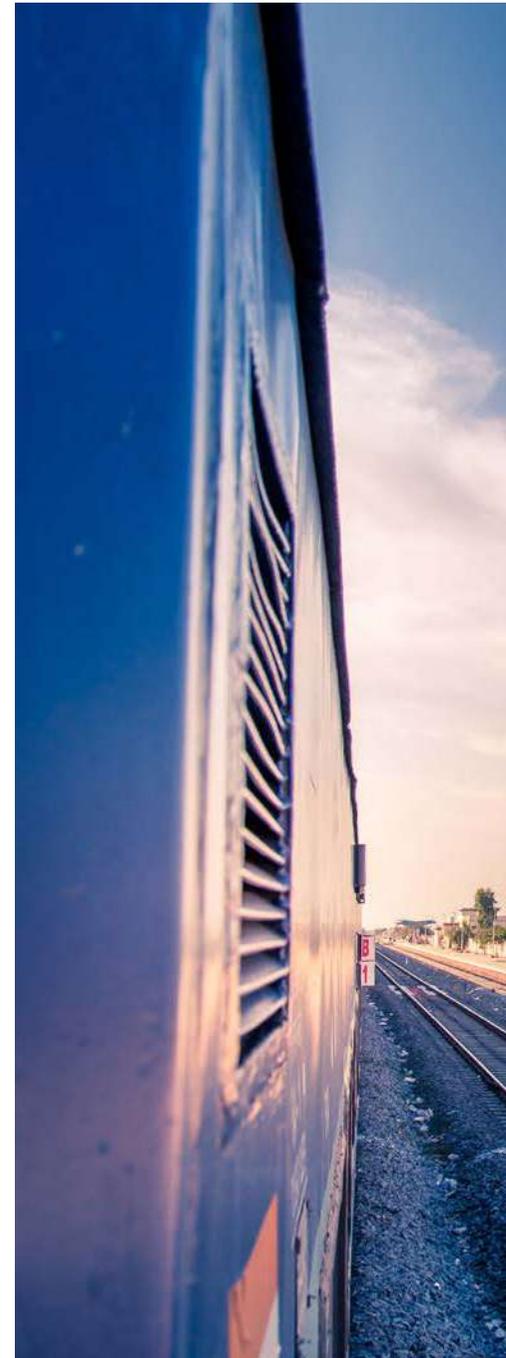
KEY EVENTS IN 2019

▶ UIC Asia-Pacific Railway Innovations Forum, 21-24 May 2019, Manila, Philippines

▶ 27th Asia-Pacific Regional Assembly, 23 May 2019, Manila, Philippines

▶ UIC Asia-Pacific Workshop on the INTERTRAN 2019 project "Measures for the effective development of multimodal transport in the Asia-Pacific Region aimed at increasing competitiveness", 14-15 October 2019, Vladivostok, Russia

▶ 28th Asia-Pacific Regional Assembly, 28 October 2019, Tokyo, Japan

▶ 1st annual meeting with UIC institutional partners in Asia-Pacific in March 2019

Training

▶ UIC Asia-Pacific Training Session 2019 on Railway Public Service Obligation, 23-27 September 2019, Seoul, Korea

PUBLICATIONS IN 2019

▶ Contemporary Technical Maintenance of Rails, May 2019

▶ Methods of Assessment of Signalling Systems for Cyber Security, May 2019

▶ Welding in Extreme Conditions, May 2019

▶ Diagnostics of Infrastructure Facilities with Equipment installed on the Locomotive, September 2019

▶ Exploratory Study of New Rail-Type Transportation Systems and Their Impact on Sustainable Development, Railway Technology and Standards (NewTransys), September 2019

▶ Integration of Reservation Systems in APRA Region, September 2019

▶ Reference Guide of Core Rail Job Profiles and Professional Competences, September 2019

KEY WORDS

ASIA-PACIFIC, APRA, IRATCA, APNRTC, MTRM, DSRIBL, MASS-CS, INTERES, NEWTRANSYS, INTERTRAN

TO LEARN MORE uic.org/asia-pacific

EUROPE

The European economy relies on ever more seamless, comfortable, affordable and integrated mobility options offering smooth interfaces with public transport. It is in the hands of the ROC (Railway Operating Community) to take the initiative and to establish the sustainable framework that the citizens of the 21st century expect and which will ensure the railways form the backbone of the transport mix.

The ROC in Europe draws together the talents of the train operators, infrastructure managers and service providers and pools resources and knowledge in order to develop solutions for future mobility needs and current operational issues. The European region of the UIC gathers together all 117 European member companies who meet twice a year within the context of the Regional Assembly Europe to set the general objectives for regional development and to establish guidelines for the technical work programme (see below for more detail).

The Assembly is chaired by Francisco Cardoso dos Reis (IP, Portugal), supported by three vice-chairs, Maris Kleinbergs of LDZ (Latvia), Mr. Matthä of ÖBB (Austria) and, until recently, Luc Lallemand (Belgium), who has moved on to take up new professional challenges.

The work of the region is supported by UIC personnel based not only at UIC headquarters in Paris but also in Brussels. It is in this way that UIC is more able to provide an effective liaison with CER and EIM in Brussels.

A new edition of the RTSE, "Railway Technical Strategy Europe 2019" was drafted in 2018 and published in January 2019. The document delivers a comprehensive set of objectives.

The European Rail Research Advisory Council (ERRAC) published its 'Rail 2030 Research and Innovation Priorities' which specified the key delivery areas for rail sector research over the next decade, contributing towards the longer-term vision in ERRAC's "Rail Vision 2050" published in 2018.

Both documents were based on contributions from right across the railway sector, including the RTSE, taking full account of end users' expectations and outlining how new technologies may be used to achieve the business goals. The priorities are:

▶ Automation of the railway system including automated train operation;

▶ Integration of the railways in a door-to-door mobility ecosystem;

▶ Intelligent asset lifecycle management - whole life asset approach;

▶ Environmental sustainability and carbon-free mobility;

▶ Transversal enablers (new materials and manufacturing techniques, security and cyber security, telecommunications, Big Data, Artificial Intelligence, etc.).

The effects of the vision were already being felt during 2019 in the work of Shift2Rail (S2R), the EU supported railway research programme, and both documents have become essential references in the sector specification for the proposed successor to S2R.

The ERRAC strategy and the S2R programme both take account of the 12 Capabilities developed by UIC, which set out clearly what the technically-enabled railway of the future should be able to do. They are:

1. Automated Train Operations,
2. Mobility as a service,
3. Logistics on demand,
4. More value from data,
5. Optimum energy use,
6. Service timed to the second,
7. Lower-cost railways,
8. Guaranteed asset health and availability,
9. Intelligent trains,
10. Stations and 'smart' city mobility,
11. Environmental and social sustainability,
12. Rapid and reliable R&D delivery.

Amongst the visionary railways engaged in S2R, the EUROC consortium of ten RUs and IMs (supported with a dedicated resource by the UIC) has been very active in Shift2Rail and the members have been able to make quite a lot from not very much.

FOCUS ON STANDARDISATION TO FACILITATE DEPLOYMENT OF RESEARCH AND INNOVATION OUTPUT

The UIC has been supporting the development of railways through its comprehensive catalogue of Leaflets, almost since the UIC was created. Now, with the transition to the IRS (International Railway Solutions) documents, it is more than ever the opportunity for the railways to maximise their business opportunities and make an important contribution to the success of the Single European Railway Area (SERA).

Such an approach has the core objective of providing a solid foundation for the interoperability, integrity and efficiency of the railway system as a whole, both in terms of technical infrastructure and as a market-driven, self-sustained business environment.

Two external bodies are active in standardisation, one being JPCR (the Sector Forum Rail of the European standardisation bodies CEN & CENELEC) and the other RaSCoP, a working platform created by the European Commission. UIC's Europe team is actively engaged in these.

ACHIEVEMENTS TO BE HIGHLIGHTED IN 2019

▶ The up-to-date strategy for Europe – RTSE 2019 – kicked off the year in January

▶ Shift2Rail continues to have a huge impact on everyday life in the region. The ROC has also kept pace with the JU's thirst for new ideas by identifying a number of 'Transforming Projects' that will be an underpinning contribution to the new JU from 2021

▶ Continued commitment to harmonising the European railway system

KEY EVENTS IN 2019

▶ In line with the UIC ethos of 'open, share & connect', it is necessary to offer as many of the 117 member companies as possible the opportunity to meet together, exchange and share. The Regional Assembly has met twice in 2019 (June and December). These meetings offer the opportunity for all the European members to come together and learn from each other.

KEY WORDS

EUROPE, COOPERATION, COLLABORATION, UNITY, VISIONARY, BUSINESS FOCUSSED, EFFICIENCY, DEVELOPMENT, HARMONISATION, OPERATION, MAINTENANCE, COMPETITIVENESS, ATTRACTIVENESS, SUSTAINABLE

TO LEARN MORE uic.org/europe

LATIN AMERICA

In Latin America, 60% of the countries have railways, railway infrastructure or the potential to be included in future railway corridors. The total route length of all 18 railway networks in the Latin American region is estimated at 88,000 km. Approximately 70% the network is in Argentina (31,902 km) and Brazil (29,012 km), and Chile has the third largest network (6,742 km). In many countries, only part of the network is in operation or operable.

On the other hand, Latin American population growth presents an opportunity for the development of rail projects as a sustainable and affordable means of urban and intercity transport.

UIC Latin America Regional Assembly (LARA) activity is chaired by Guilherme Quintella of Estação da Luz Participações (Brazil). The UIC Latin America region has two members:

▶ EDLP: Estação da Luz Participações ltda (Brazil);

▶ ADIFSE: Administración de Infraestructuras Ferroviarias Sociedad del Estado (Argentina).

There are three MoUS signed with key stakeholders in the Region:

▶ ALAMYS (Latin American Association of Metros and Subways) signed in 2012;

▶ ALAF (Latin American Railway Association) signed in 2019,

▶ ANPTrilhos (Associação Nacional de Transportadores de Passageiros sobre Trilhos) signed in 2019.

Railways in Latin America should serve as an enabler for the development of sustainable transport across the continent. In this context, standardisation needs to be implemented in advance to avoid a situation whereby the numerous projects that are currently in development are ultimately not interoperable. UIC is committed to supporting railways and stakeholders in providing a framework that guarantees interoperability.

Interoperability is one of the main priorities of the region, which promotes standardised gauges and signalling systems and aims to develop mixed-use rail corridors across the continent. For example, the Atlantic-Pacific corridor would stretch over 3,800 km from Brazil to Peru through Bolivia. These aims have been made possible by a surge in infrastructure and rolling stock renovation activity. However, financing is still a major obstacle to regeneration of rail sector activity in Latin America.

Passenger rail activity is limited in the region. LARA members are boosting urban, regional and intercity rail by investing in more network connections, enhancing the passenger rail experience and revising the tender processes to prioritise passenger transport.

UIC is raising awareness of the benefits of rail in Latin American countries and the region as a whole and establishing cooperation between railway companies in the region. It provides expertise on business models and interoperability frameworks in many areas, including signalling, rolling stock and infrastructure maintenance, safety, security and environment.

KEY EVENTS IN 2019

Two prospecting business trips were organised to the region with two main objectives: to better understand the needs of the Latin American Railway Undertakings and to present the UIC activity to the main stakeholders of the region.

▶ The first trip took place in March 2019 to Brazil with three main activities:

- Presence at the NT Expo (21 Business on Rails)

- Signature of a MoU with ALAF (Latin American Railway Association)

- Internal meeting with EDLP about the Vision and Strategy for the Region

▶ The second business trip took place in September 2019 to Chile, Uruguay, Paraguay and Argentina.

In 2019 two memorandums of understanding were signed with:

▶ ALAF (Latin American Railway Association) signed in 2019: ALAF was created with the purpose of promoting safe, efficient and economic rail transport, promoting and strengthening the Latin American integration axes, counting among its associates almost all railways in Latin America and industries of the area

▶ ANPTrilhos (Associação Nacional de Transportadores de Passageiros sobre Trilhos) signed in 2019 : ANPTrilhos, headquartered in the Federal Republic of Brazil, was created with the aim of promoting the development and improvement of passenger rail transport, acting as a reference in the defence of the rail transport sector in Brazil and abroad, with ethics, responsibility, transparency, commitment and sustainability.

Presence at the NT Expo (21 Business on Rails)

NT EXPO - Business on Rails is the main meeting point for the metro rail sector in Latin America and brings together about 100 national and international brands and more than 5,000 professionals in one place during a three-day event.

KEY WORDS

BUSINESS MODELS, PASSENGER TRANSPORT, FREIGHT CORRIDORS, OPERATION AND MAINTENANCE, STAFF TRAINING, INTEROPERABILITY, MIXED TRAFFIC

TO LEARN MORE uic.org/latin-america

MIDDLE-EAST

The UIC Regional Assembly for the Middle-East (RAME) was UIC's first Regional Assembly, established in 2008.

The Regional Assembly comprises representatives of all UIC members in the Middle-East region. It is chaired by Turkish State Railways (TCDD) and is vice-chaired by the railways of the Islamic Republic of Iran (RAI), and Jordan (ARC). It meets twice a year. The UIC Middle-East regional office is located in Tehran, at the headquarters of Iranian Railways.

KEY ACTIVITIES

RAME activities are defined and ratified in annual action plans and can range from technical and operational issues to commercial and business-oriented activities. Activities relating to safety, security, infrastructure maintenance, high-speed rail, etc. are developed at technical seminars and workshops, with technical support provided by UIC.

The Middle-East regional office is tasked with consolidating the UIC RAME community, promoting cooperation among its members, and identifying new areas of international cooperation. It also encourages and supports its members in order to promote involvement in UIC's technical forums and platforms.

The Middle-East "Vision 2025" document, drafted in collaboration with RAME members, is the first UIC publication on future strategies for the railways in the Middle-East, and constitutes a framework for further work in the region. The overarching objective is to promote a competitive and seamless rail transport system in the Middle-East to benefit the welfare of the population and to promote economic growth and sustainable development.

KEY EVENTS IN 2019

▶ 23rd RAME in Jordan, July 2019

▶ 7th UIC Next Station 2019, 11 – 12 November 2019, Tehran

▶ 24th RAME in France, December 2019

PUBLICATIONS IN 2019

▶ Innovative Ideas on Rail Training, December 2019

▶ Road Map of the Middle-East Railways, December 2019

▶ A study on Border Crossing Practices in Railway Transport in the Middle-East, July 2019

▶ Communications Directory UIC RAME 2019

▶ DVDs of held RAME meetings, included all presentations

▶ UIC RAME strategic document 2018-2020 (update)

KEY WORDS

MIDDLE-EAST, FREIGHT CORRIDORS, HIGH-SPEED RAIL, TRAINING, INFORMATION

TO LEARN MORE

uic.org/middle-east;
www.rameuic.com
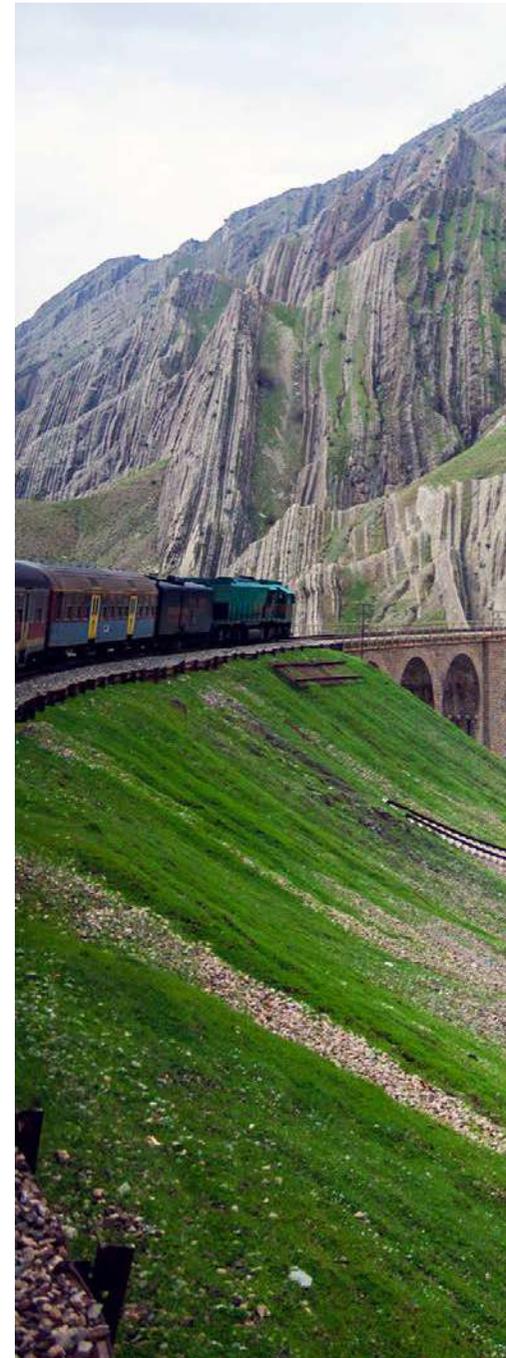
NORTH AMERICA

The UIC North America Regional Assembly (NARA) started its work in 2016. It has six Members, namely the Association of American Railroads (AAR), the national rail operator for intercity passenger service Amtrak, the Mexican Agency for the Regulation of Rail Transport (ARTF), the California High-Speed Rail Authority (CHSRA), the Federal Railroad Administration (FRA) and the Canadian national passenger rail service VIA Rail Canada.

The Regional Assembly is chaired by Canadian Railways (VIA Rail Canada). The 4th North America Regional Assembly took place in Colorado Springs in March 2019. The need to harmonise standards in which UIC can bring constructive elements in different fields was particularly highlighted. The need to work on having a more global approach, based on a more unified vision, was also underlined. The objective is indeed to avoid duplications, and to work on the same network. After clearly identifying this need, some US representatives participated in the UIC Standardisation conference in Paris, in September 2019.

End of March 2019, Yves-Desjardins Siciliano, CEO of VIA Rail left the company. In May 2019, Cynthia Garneau became the new CEO of VIA Rail and thus continued the mandate given to VIA Rail as Chair of the UIC North America region. During the second part of 2019, particular attention was given to the consolidation of the governance.

Regulations were prepared in order to support the future development of the region. These regulations were presented and adopted during the UIC General Assembly of December 2019.

The Region challenges are based on a common vision. The strategic document "Railway Vision for North America – A smart choice for the future; safe, efficient, reliable", published for the first time in 2018, will be updated in 2020.

KEY ACTIVITIES

NARA activities are otherwise defined and ratified in an action plan. The UIC North America region works with its members and partners on a series of priorities, such as:

▶ the management of interfaces between rail and public transport;

▶ the development of a multimodal approach. End of 2018, UIC signed a Memorandum of Understanding with the American Public Transportation Association (APTA).

Other priorities were identified, such as:

▶ Take advantage from the know-how of other industries (such as civil aviation, to get closer to ICAO, and their standards);

▶ Further involve North American members in topics of common and global interest (Safety/level crossings; digital; standardisation, environment, stations, etc.).

KEY EVENTS IN 2019

▶ "Vision for innovation" panel session organised within the 4th North America Regional Assembly, Colorado Springs.

This event gave the opportunity to discuss and exchange best practices on the Rail Research & Development issue. Representatives from the Transportation Technology Center (TTCi), the Federal Railroad Administration (FRA) and UIC participated in the exchanges.

The audience was particularly interested by the presentation of the main telecom challenges (Future Railway Mobile Communication System FRMCS) and the Digital developments of the UIC Digital Platform, both presented by UIC.

UIC projects attracting the attention of US members included the DIGIM (Digital impacts on railway business) programme.

This presentation then made it possible to establish fruitful working relationships, with FRA and TTCi included in the work of DIGIM programme from that moment.

KEY WORDS

COOPERATION, UNITY, VISION, CONSISTENCY, SHARING OF BEST PRACTICES

TO LEARN MORE
uic.org/north-america

UIC SUPPORT ACTIVITIES

FINANCE

UIC's Finance department ensures the conformity of its accounts and finances for its auditors and for the French tax authorities.

The UIC accounts are validated by the Budget and Audit Committee composed of six member-representatives.

UIC reports on project management to its members, enabling them to monitor their investments, and to the European Commission for projects funded by the European Union.

UIC implemented its Quality Management System (QMS) certified Quali'OP – commitment for quality of service by AFNOR in 2017. In 2019, UIC's activities in this area focused on confirming this certification and continuing to improve internal processes.

The department monitors 170 projects funded by the members, six regional budgets, nine special groups as well as a portfolio of 20 projects funded externally by the H2020 and the Shift2Rail Programme from the European Commission. These external projects have a budget totalling € 6.2 Million.

The UIC Finance department manages the interface with UIC members as follows:

▸ The UIC Finance Platform is composed of five working groups (passenger and freight accounting, financial exchange between the railways, taxation and debts clearance) responsible for updating UIC leaflets/IRSs to take account of regulatory or market changes;

▸ Taking into account the importance of relations with the OSJD (the organisation for cooperation between railways), joint UIC/OSJD finance meetings are organised twice a year to share experience;

▸ Legal Group: the main objectives of the group are to provide members with legal analysis and advice and propose solutions on major legal issues for the sector (new MERITS business model, analysis of best practices relating to liberalisation of the market for passenger services, impact of GDPR, compliance policies, etc.).

KEY ACTIVITIES:

▸ establishing the budget and the annual accounts for UIC and its three subsidiaries;

▸ recovering of fees and project contributions;

▸ running the Project Management Office (PMO) with an efficient project control;

▸ ensuring compliance with legal framework and specific contractual constraints;

▸ ensuring consistency of UIC functioning with statutes and internal regulations;

▸ ensuring ongoing process improvement within improvements in productivity, efficiency and quality.

ACHIEVEMENTS TO BE HIGHLIGHTED IN 2019

Project Database:

The PMO implemented an upgrade of the UIC Projects Database which now represents the single reference tool for project reporting to the Members. It includes the status of the planned deliverables and financial data relating to project Revenues and Expenses, allowing complete information on work in progress.

New Financial Control Tool:

At UIC internal level, strong efforts have also been invested in the construction of a new tool for financial control, targeting a consolidated overview at each UIC Department level. This new tool will allow better control by Directors over their complete budget, including HQ and projects activity. This tool will be completely operational at Q2 2020, and will also enable regular reporting to the technical Working Bodies, involving them more in the financial decision-making process.

Quality Management System:

2019 was the second year of UIC operation under the Quali'OP certification. The key objectives of this year were to update and standardise rules for an effective functioning of the association. Several Terms of Reference

have been implemented, three of them being approved by the General Assembly at the end of the year, with the aim of gradually applying UIC's quality commitments in all its working bodies.

Thematic workshops were organised in order to raise awareness among UIC staff, working groups met to answer specific issues and regular feedback was provided to the members' representatives at statutory meetings.

The AFNOR audit held in December confirmed for a second time the Quali'OP certification, as well as the progress made since the previous year (AFNOR report is available to members on the UIC Extranet).

PUBLICATIONS IN 2019

▶ UIC Leaflet 301 (Accountancy regulations for international passenger traffic) was updated and migrated into IRS 30301 in 2019

▶ UIC Leaflet 304 (Accountancy and allocation regulations between carriers applicable to international freight) update and migration into IRS 30304 is in progress to be completed in 2020

KEY WORDS

ACCOUNTS, BUDGET, REPORTING, PROJECTS, CONFORMITY, QUALITY, CERTIFICATION, PROCEDURE, CONTINUOUS IMPROVEMENT, SUPPORT, TRANSVERSAL

TO LEARN MORE

uic.org/support-activities/finance

INSTITUTIONAL RELATIONS

In its role as an international association, UIC acts through its members who guide its actions, and within a network of partners who help it to promote and disseminate these actions. This is the raison d'être of this department, which is responsible for exploiting the members' contributions to UIC, for overseeing the benefits that UIC can bring to them in return, for compliance with its statutory rights and obligations and for developing effective partnerships.

Finally, it oversees the Data, Statistics and Economic unit. This unit provides cross-functional expertise and knowledge for core and opt-in projects managed by UIC's forums, platforms and other departments, or through calls for tenders, in the domain of e-business, common IT Coding and economic studies.

KEY ACTIVITIES

The Institutional Relations department is the main point of entry for the daily contact with UIC's members which it manages through a global and bilateral relationship. It handles the recruitment of new members and directs them towards departments according to their areas of interest.

The department oversees agreements and memoranda of understanding, and develops and maintains UIC's activities in close collaboration with leading international organisations: regional and international standardisation bodies, local authorities, governmental and intergovernmental organisations, financing institutions and international banks, civil society associations, railway industry stakeholders and contractors and other transport sector players. UIC's various partnerships help to position the association as the key railway stakeholder on the international stage. UIC was designated by the United Nations as a non-governmental organisation in 1950 and was awarded special consultative status in 2015.

The Railway Statistics Group is composed of UIC member representatives responsible for statistics. The group is committed to active participation and international cooperation in relation to the provision and exchange of statistical information. Cooperation with the OSJD, Eurostat and the International Transport Forum (OECD – ITF) is key to establishing consistent and complete datasets.

The Statistics Steering Committee (SSC) comprises some members of the Railway Statistics Group, as well as its chairman, and is supported by UIC's Head of Statistics. It prepares, develops and enforces all UIC statistics activities based on members' proposals or on its own initiative.

The Railway Statistics Group may decide to create ad hoc working groups with a view to studying and resolving specific statistics-related issues. These groups are convened for individual missions, and their programme is defined by the SSC.

The Statistics Group is currently chaired by Roman Sterba of SŽDC.

RAILISA application (progressive development since 2017)

RAILISA (RAIL Information System and Analysis) is an online tool which allows the user to visualise and download data provided by railway companies worldwide. More than 80 variables related to 11 topics are available for more than 100 railway companies: length of lines and tracks of the infrastructure network, passenger and freight traffic (e.g. passenger-kilometres and tonne-kilometres), train movements, rolling stock, staff, financial results, etc.). Some of these variables have been documented since 1995, and the database is updated on a regular basis. RAILISA allows two levels of accessibility: 'UIC member' and 'public'. Please consult the RAILISA application here: uic-stats.uic.org

Management of RICS codes (codes for data exchange between railway undertakings)

The number of codes currently exceeds 1,300 and there is an upward annual trend.

The 2018 peak corresponded to the month of October of that year, when 400 codes were created under the CGU, and which coincided with RICS codes being allocated and managed free of charge. An increase in requests for codes has, nevertheless, been observed over time.

In 2019, 151 codes were created, 94% of which were in EU countries and the remainder in continental Europe (Serbia, Switzerland, Albania, Andorra), although this year does not necessarily give a representative picture of railway agility by country.

KEYWORDS

TRANSPORT, RAILWAY, STATISTICS, RAILISA

ACHIEVEMENTS TO BE HIGHLIGHTED IN 2019

▶ 204 members including 11 new members in 2019

▶ 2 General Assemblies and their preparatory meetings

▶ 6 new agreements added to the existing 54; updating work has started on the oldest of these agreements

▶ Support for the Railway Systems Department for managing new European projects focused on new technologies (Rail Topo Model and NeTIRail Web Application)

▶ Conclusion of the management of the GO4AR project (Governance of the IF for Rail and Intermodal Mobility): the objective of this project is to define a sustainable governance structure for the interoperability framework (IF) with a view to creating the right conditions for the introduction of seamless mobility services and to foster the development of multimodal travel services

▶ RAILISA application (progressive development since 2017)

▶ Management of RICS codes (codes for data exchange between railway undertakings)

PUBLICATIONS

▶ Railway Synopsis 2018

▶ International Railway Statistics 2018

▶ Executive Summary for the financial year 2018

▶ Global Footprint Study

KEY EVENTS

▶ 36th UIC Statistics plenary meeting: 27 November, 2019

▶ UIC Statistics Steering Committee meetings: 15-16 May, 26 and 28 November, 2019

COMMUNICATIONS

UIC's communications activities have a direct connection with the Association's principal objectives of highlighting the benefits of rail transport globally and supporting members in their efforts to make rail transport more efficient and attractive for customers and sustainable for society.

UIC communication objectives are threefold:

▶ **Influencing**: aiming to consolidate UIC's position and accessing broader fields of expression where possible. These goals reflect UIC's remit of representing the railway sector and the association's potential for influence in key strategic areas. UIC is committed to improving its visibility and enhancing its reputation, as well as increasing recognition of its role by international institutions, key finance organisations and all stakeholders involved in mobility at the very highest level;

▶ **Information**: imparting information to target groups. These objectives relate to the provision of information and promotion of UIC know-how (internal communication), as well as reinforcing the association's position as an unparalleled platform for international technical expertise, particularly with regard to other stakeholders and bodies involved in the transport sector and the integrated mobility chain (external communication);

▶ **Relationships**: aiming to unify, develop and encourage cooperation and good relationships. These objectives relate to the unifying role of the professional association and the activities undertaken in this vein, not only for the benefit of UIC members, but also with regard to third parties and future potential members (promotion and public relations activities).

ACHIEVEMENTS IN 2019

Among the subjects particularly highlighted in 2019, UIC Communication accompanied the change in governance (change of Director General in June 2019), the telecom subject (1st FRMCS conference in May 2019), the necessary sustainable dimension of Railways (campaign to motivate Railways to sign the UIC pledge in December 2019, the UIC participation in COP25), the advantages of rail freight (Noah's train campaign throughout 2019), etc.

UIC continuously develops and improves its communications tools in order to inform members and partners rapidly and efficiently of the results and output from international cooperation activities.

Members are thus more actively involved in the activities of the international association, regularly receiving brief news bulletins or more detailed information on the work and projects led or monitored by UIC.

HUMAN RESOURCES

UIC has 132 employees - 67 women and 65 men - representing 24 different nationalities: 66% French, 23.4% other European, 6.4% African and Middle-Eastern, 2.8% Asian. Its staff includes 24 secondees from UIC member companies in ten different countries. The composition of the UIC workforce is a clear illustration of its multicultural ethos.

KEY ACTIVITIES

Recruitment and turnover management

Nine secondees joined UIC in 2019, six of whom were hired to replace departing secondees. Three new roles were created within the context of new projects.

Six UIC employees left the organisation in 2019 due to retirement, completion of contract and resignation, and seven new employees were hired. Three of these were hired on fixed-term contracts for new projects or as temporary replacements for employees on sick leave.

Working organisation

The HR department formalised in 2019 a remote working procedure with Trade Unions to allow one day per week working from home.

Talent and career management

28 employees took part in numerous training courses, with a total of 74 sessions completed (2.64 training sessions on average per participating employee) and corresponding to 1,510 hours of training, i.e. one employee in full-time training during the year on an average of 100 employees.

In addition, 12 secondees benefited from professional training actions, in French language lessons or in group training courses such as project manager, public speaking, etc.

ACHIEVEMENTS TO BE HIGHLIGHTED IN 2019

▶ With regard to social relations, 2019 saw the negotiation and signature of one collective agreement and the organisation of staff representative elections for the establishment of the social and economic committee.

KEY WORDS

RECRUITMENT, TALENT, CAREER, SUPPORT, TRANSVERSAL

INFORMATION TECHNOLOGY

UIC IT is a transverse support function that aims to provide a high-quality service to its users, whether internal (UIC Staff) or external (Members).

A few figures to illustrate the scope of this service:

- some 30 servers,
- 95 web environments, among them 19 applications,
- 150 PCs and laptops; three 128 MySPL databases,
- three Oracle databases,
- over 100 websites,
- UIC.org: 120,000 visits per month,
- extranet with some 5,000 users.

KEY ACTIVITIES

The cloud-oriented strategy decided and implemented since 2016 has been enhanced with the roll-out of two major services: OneDrive and SharePoint.

The generalisation of these two devices has allowed UIC to develop even more the collaborative work approach with easy access and sharing of documents and files among involved partners.

It has generated the development of collaborative spaces, encouraging new synergies among UIC teams: "Share – Open – Connect".

This deployment has considerably reinforced and improved the integrity and security of UIC IT.

The development of SaaS is being pursued with the same objective: to allow UIC to align its policy with the high-level quality requested by its Members in terms of reliability, availability and security.

ACHIEVEMENTS TO BE HIGHLIGHTED IN 2019

- During the second half of 2019, UIC has developed the organisation of web-conferences using new digital technologies.
- Considering the new working modes and the Members' demands, this trend is most probably to be strengthened in the near future.
- The design of a new Extranet was launched in 2019 with an expected implementation in mid-2020: updated and designed with latest technologies to better meet users' requirements and needs.

KEY WORDS

TECHNOLOGIES, SUPPORT, TRANSVERSAL

UIC-P

UIC-P is one of the three subsidiaries of UIC (with ETF and L&T) and its strategic field of activity is the management of UIC facilities.

UIC-P provides a day-to-day service for the successful operation of working spaces for staff and meeting rooms for our members and our clients, both internal and external.

There are eight members of staff in the UIC-P subsidiary. The logistics section is principally concerned with:

▶ Ensuring that UIC's assets are compliant, through a series of annual safety checks in various areas;

▶ Managing staff and facilities within UIC with qualified staff trained in fire safety (SSIAP);

▶ Ensuring compliance with current regulations for high-rise buildings;

▶ Assisting certification bodies (Bureau Véritas and others) with periodic checks throughout the year;

▶ Maintaining all UIC work spaces, setting up and relocation of offices, managing contractors and service providers.

The technical team comprises qualified technicians in audio-visual and new technologies. They respond to requests from our clients, according to their needs and requirements.

The Espace Congrès is an ideally-located conference centre with a commercial manager and a client manager, specialising in the marketing of venues for conferences, meeting and events.

UIC-P hosts a range of events – ministerial and industry meetings, as well as private national and international companies, and also filming (Carlos, Welcome Aboard, My Way).

It has 16 rooms with natural daylight, accommodating between 10 and 300 persons. The spaces are modulable, functional, air-conditioned and equipped with recently-updated technical equipment in all main rooms. Salle Friedrich List has an LED HD image wall, a first in France for a screen of this size: 4.80 x 2.70 m.

UIC-P hosts around 200 meetings a year, attended by between 20,000 and 30,000 participants.

UIC-P staff are available at all times to assist UIC members and clients and are dedicated to providing safe spaces for conducting a range of projects.

UIC-P is listed on several venue hire platforms.

KEY WORDS

CONFERENCE FACILITIES, EVENTS, HIGH QUALITY SERVICES

TO LEARN MORE uicp.fr

ETF
RAILWAY TECHNICAL PUBLICATIONS

ETF (Editions Techniques Ferroviaires) is a UIC subsidiary dedicated to the publication and distribution of UIC products. It serves as the interface between UIC, UIC Members and Rail-related Companies worldwide. It is the keeper of UIC's intellectual property.

KEY ACTIVITIES
Editing & publishing documents:

▶ IRSs (International Railway Solutions),

▶ Technical reports & drawings,

▶ Technical railway reference documents,

▶ Terminology products: RailLexic, railway dictionary,

▶ Statistics,

▶ Proceedings.

Sales & distribution:

▶ Through the online shop: shop-etf.com
  - For UIC members,
  - For customers from all over the world,

▶ Distribution of all UIC products: documents, databases, software, etc.

▶ Securing legal issues: ISBN, dépôt légal,

▶ Copyright protection,

▶ Archiving,

▶ Newsletter.

ACHIEVEMENTS TO BE HIGHLIGHTED IN 2019

▶ **Managing the UIC Code for IRSs and UIC Leaflets – classified by railway subject areas**

▶ **Supporting the UIC departments in the standardisation of rail transport equipment**

▶ **Part of the Standardisation Unit**

▶ **Archiving and tracing of UIC documents**

KEY WORDS

QUALITY, STANDARDISATION, HARMONISATION, ADDED-VALUE, BEST PRACTICES

TO LEARN MORE
shop-etf.com

L&T
TECHNICAL LANGUAGE SERVICES

UIC's subsidiary for professional translation and interpreting solutions provides high-quality language services for UIC, its members, and the railway industry as a whole.

KEY ACTIVITIES

Interpretation

L&T has a qualified team of interpreters with longstanding experience not only in rail transport, but also in other areas such as engineering and technology, economics, IT, finance, law, environment and telecommunications.

L&T provided interpretation for the following UIC events in 2019 as well as many others:

▶ General Assembly,

▶ Security Week and Global Security Congress,

▶ Energy Efficiency Days,

▶ World Congress on Rail Training,

▶ nextstation 2019 Congress,

▶ Group of Experts on Dangerous Goods Meeting.

Its interpretation services guarantee clear and accurate communication at multilingual meetings with experts from different countries speaking different languages.

Its experienced and reliable interpreters help to make these meetings a success so that every participant can get the most from them.

L&T offers liaison, simultaneous, consecutive and whispered interpretation, both for in-person and online meetings. Its main working languages are English, French and German, but interpretation can also be provided in other languages.

Translation

L&T is also responsible for translating various UIC documents such as IRSs, reports, meeting documents and the like.

In 2019, the L&T team translated IRSs (International Railway Solutions), technical reports and catalogues for UIC to help readers all over the world to understand and apply UIC solutions, delivering translations not only to UIC members but also to the railway industry.

All L&T translators work into their native languages and cover a wide variety of subject areas.

Proofreading

L&T also offers proofreading for authors drafting texts in a language other than their mother tongue. This service includes language and grammar checking.

ACHIEVEMENTS TO BE HIGHLIGHTED IN 2019

▶ **940,985 words translated for IRSs, technical reports and papers, press releases, meeting documents, etc.**

▶ **644 hours of proof-reading etc.**

▶ **231 man-days of interpretation for the UIC General Assembly, conferences, technical platforms, working groups and other meetings**

KEY WORDS

MULTILINGUALISM, COMMUNICATION, INTERPRETATION, TRANSLATION

TO LEARN MORE
langues-technique.fr

TERMINOLOGY

UIC has a long history of building bridges between countries and languages across the globe. Its RailLexic term bank is a unique lexicon, available online, for those who work at the international level.

KEY ACTIVITIES

The UIC terminologist together with the UIC Terminology Group update RailLexic in up to 27 languages, working with top-rank experts in a myriad of projects. These include particularly the International Railway Solutions (IRS).
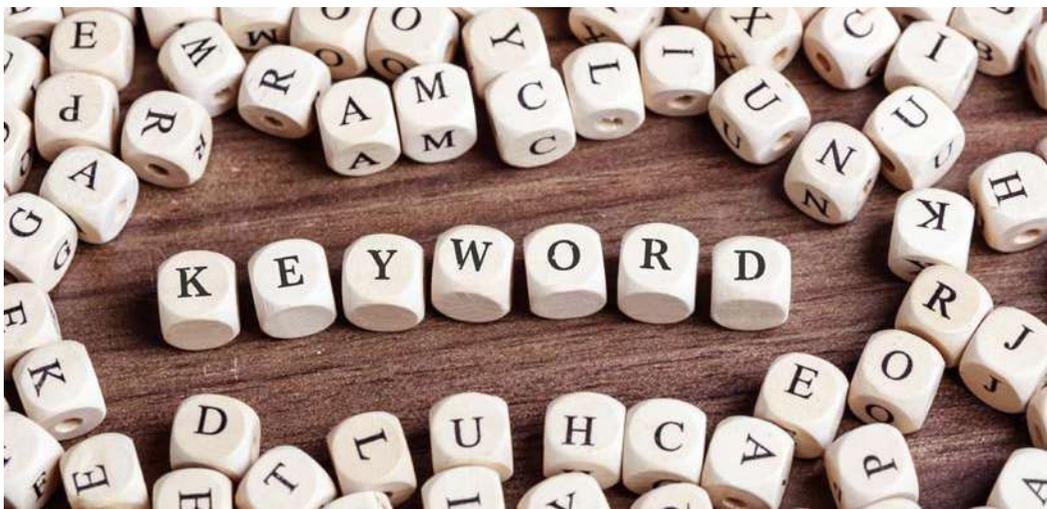
The Terminology Unit strives to develop concrete partnerships with the UIC members as well as universities. English tends to become the lingua franca in the working groups, but diversity remains key to meeting the challenge of globalisation. That is why concepts should be defined both locally and internationally to save technical meetings from lengthy discussions of the terms.

Terminology takes the shape of glossaries prior to the drafting of IRSs and other documents, as well as dialogue on a selection of subjects all year round. It focuses on key, state-of-the-art topics covered in real projects and suggested by the railway stakeholders in the field.

Quality in written and oral communication requires the use of the correct terms, which in turn rely on clear concepts with concise definitions. The ultimate goal is therefore to standardise suitable, equivalent terms to facilitate communication while guaranteeing efficiency and safety.

www.uic.org

Twitter LinkedIn Pinterest Instagram YouTube

#UICrail

uic

INTERNATIONAL UNION
OF RAILWAYS

UIC

INTERNATIONAL UNION
OF RAILWAYS