OUTCOMES **REPORT**

INTERNATIONAL UNION
OF RAILWAYS

#uicsustainabilityactionweek

September 2025

CONTENTS

REFLECTIONS FROM THE UIC SUSTAINABILITY PLATFORM CHAIR 4

THE WEEK IN NUMBERS 6

Big thanks to all our speakers 6

Members who took part 7

THE POSTER EXPO: SUSTAINABILITY IN ACTION 8

STRATEGIC THEMES 10

Driving the Future: Sustainable Solutions for a Greener Railway 10

TECHNICAL THEMES 16

Railway Noise 16

ERJU QuieterRail Project 18

Gender Equality 20

Energy and Decarbonisation: Research & long-term prospects workshop 21

Sustainable Tourism 25

Climate Change and Adaptation Seminar 28

Zero Waste Workshop: The Power of Procurement 31

Tracks of Harmony: Railways & Nature 38

Air Quality Management in Rail 40

READING MATERIALS 42

REFLECTIONS FROM THE UIC SUSTAINABILITY PLATFORM CHAIR

Lia Talarico

Head of Sustainability, Trenitalia

Dear Sustainable Action week participants,

I am grateful for the incredible contributions and engagement during last UIC's Sustainable Action Week in March 2025.

Days spent together brought passionate individuals and innovative ideas that inspired meaningful conversations and actions toward sustainability in the transport sector.

Thanks to everyone who participated, and to all the speakers and organisers who made this event a success. Your dedication to sustainability continues to drive positive change in our sector and beyond.

I look forward to building on this momentum and making an even greater impact in the future.

The railway sector is a crucial part of the global transportation network, and as I said, the backbone for the future of mobility providing an efficient, collective, low impact, secure and sustainable mode of transport for both people and goods.

Looking forward to seeing many of you at our next plenary meeting, in Paris again on 30th September

Lia

You are encouraged to share your reflections and reactions using:

#uicsustainabilityactionweek and to tag us **@UICrail**

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IRJ
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vía libre
The Spanish Railway Magazine since 1964

With Thanks to Visual Facilitators

Flatland

THE WEEK IN NUMBERS

300
Participants in Paris

95
Participants online

47
UIC members represented

5
UIC regions

9
Technical Seminars

4
Plenary Sessions

2
Networking receptions

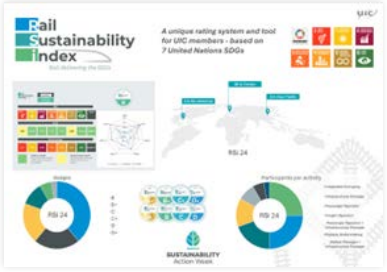
80+
Speakers with 50:50 gender split

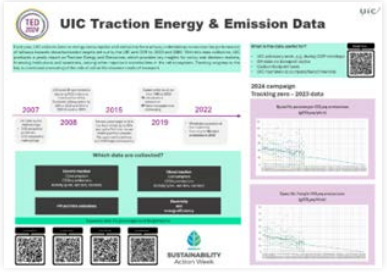
3
Working group meetings

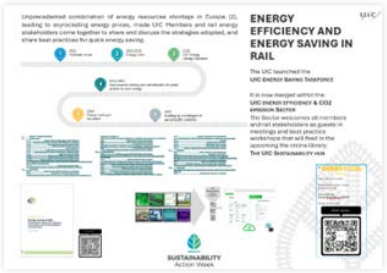
BIG THANKS TO ALL OUR SPEAKERS

MEMBERS WHO TOOK PART

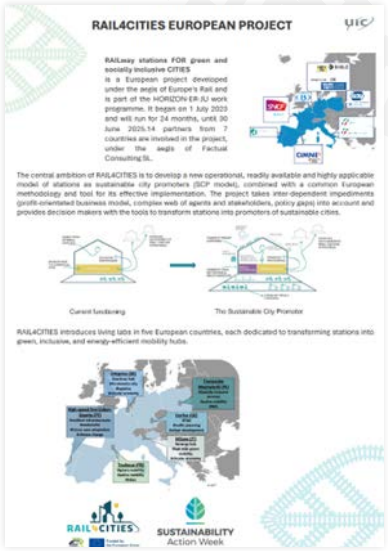
THE POSTER EXPO: SUSTAINABILITY IN ACTION





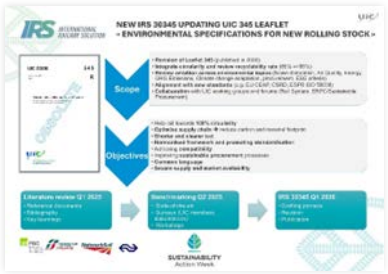



MultiModX
Integrated Passenger-Centric Planning of Multimodal Transport Networks
MultiModX objective:
SUSTAINABILITY
Action Week


RAIL4CITIES EUROPEAN PROJECT
SUSTAINABILITY
Action Week


NOVITÀ
VIBRATEC
NOISE FROM PARKED TRAINS
VIBRATEC Services
A structured approach ensures ensures data consistency & clear guidance!
SUSTAINABILITY
Action Week


ECOV4R
ECOSYSTEM VALUATION FOR RAILWAYS
The Essential Value of the Ecosystem Service Assessment
Who Can Benefit from the Global Framework?
Practical Steps for Ecosystem Services Assessment
Pilot Sites Analysis: Validating the ECOV4R Framework
SUSTAINABILITY
Action Week


NEW IRS 30345 UPDATING UIC 345 LEAFLET
- ENVIRONMENTAL SPECIFICATIONS FOR NEW ROLLING STOCK -
Scope
Objectives
SUSTAINABILITY
Action Week


The UIC SUSTAINABILITY PLATFORM
Be the voice
Provide the tools
Convene the community
Sustainability Platform
Sustainability Taskforce
Gender Equality
Noise and Vibration
Circular Economy
Air Quality
Sustainable Land Use
Energy Efficiency & CO2
Save the Date:
30th September 2025
Plenary Meeting,
UIC HQ, Paris
SUSTAINABILITY
Action Week


IRS 30345 - MAIN CHALLENGES
SUSTAINABILITY
Action Week

STRATEGIC THEMES

DRIVING THE FUTURE:
SUSTAINABLE SOLUTIONS FOR A GREENER RAILWAY

Does Rail Matter? – A Discussion On The Future Of Global Sustainable Transport

Key Messages from IEA – **Rail Energy Nexus**

Rail is the most sustainable and energy-efficient mode of passenger transport today, emitting far less than air and car travel. Despite serving 9% of passenger and 8% of freight activity, it accounts for only 2% of global transport energy demand. While rail's electricity consumption is set to grow, its transport service demand share remains stagnant based on current policy framework and market trends. To achieve net-zero emissions by 2050, rail must expand, increasing its transport service share beyond 10% and shaping a more electrified and low-emission energy landscape. **The challenge is not improving rail but using it more**—without its expansion, climate neutrality is impossible.

Rail must leverage its strengths to stay relevant in the evolving transport energy sector. Electrification, urbanization, digitalization, and AI offer rail a major opportunity if it capitalizes on its efficiency and automation. Rail reduces energy use, emissions, and oil dependence while offering speed, reliability, and cost benefits. This directly benefits country's energy security. Strategic investments and rail-friendly policies are crucial—making rail more affordable, promoting awareness, and shifting subsidies from aviation to rail. Governments must prioritize rail in development strategies to maximize its potential.

Data is key for the IEA to address rail challenges, with UIC playing a central role.

Key Messages from UNESCAP – **Women and Rail**

The discussion highlights the significant role of rail in climate change mitigation and improving mobility, particularly for women. Rail systems can help reduce emissions and provide better access to essential services like schools, jobs, healthcare, and childcare. Ensuring that rail systems cater to both men and women is crucial for reducing gender disparities in health, education, and economic participation, ultimately contributing to more equitable societies.

Key obstacles to increasing rail ridership include safety concerns, particularly for women, and inadequate first/last mile connectivity. Safety issues, such as overcrowded or empty trains, can deter women from using rail. Solutions include improving visibility through better infrastructure, adding security measures, and addressing sexual harassment. Improving connectivity and making the first/last mile more accessible, along with ensuring affordable fares, can also enhance female ridership.

Increasing female participation in the rail workforce is important for addressing potential future staff shortages and encouraging innovation in the sector. International cooperation is essential to share best practices, such as improving safety and promoting gender equality in transport systems, to accelerate progress globally.

Key Messages from Asian Development Bank - **The Role of Rail in Asia's Future**

Rail has significant potential for growth in Asia, but it is being overshadowed by road infrastructure development. Despite increasing demand for rail, particularly in countries like India, the Philippines, and Bangladesh, road networks have expanded at a much faster rate. The Asian Development Bank (ADB) is shifting its focus to rail projects, with half of its transport portfolio dedicated to rail, including urban transit. Although ASEAN has seen a 30% growth in rail infrastructure since 2000, road networks have outpaced rail's growth. While rail infrastructure has expanded, heavy rail usage has declined by 5% annually. Urban rail, however, is growing rapidly and is expected to increase significantly by 2035. This expansion is happening at a lower GDP per capita than in other regions, with more focus on urban rail rather than bus systems to meet decarbonization goals.

ADB emphasised the need for integrated solutions, including planning, services, and institutions that ensure financial sustainability. Maintenance and asset management should be prioritized throughout the project cycle, and adopting advanced technologies can improve rail systems' efficiency. Gender-sensitive designs are also important to boost ridership and revenue.

Finally, international cooperation was seen as crucial. ADB highlighted the role of financing, knowledge sharing, and the private sector in rail development. Collaborating with institutions like UIC and UITP can promote best practices, while the private sector can help with technology and cost optimization. ADB's key thematic areas for joint work include noise reduction, resilience to climate events, and alternative fuels for decarbonization.

Key Messages from UITP – **Multimodality**

Rail should serve as the backbone of urban mobility networks, complemented by other modes such as buses, cycling, and walking. This approach aims to create seamless, efficient, and sustainable transportation options for passengers. Haon highlighted the importance of developing multimodal hubs that facilitate easy transfers between different transport modes. He stresses that public transport and active modes are complementary components of an integrated mobility ecosystem. Integration not only enhances service diversity but also contributes to the overall efficiency and sustainability of urban transport systems. UITP sees the necessity of interoperability between various transport modes and within the rail sector itself. Advocating policy measures and regulatory frameworks that facilitate, rather than hinder, inter-modality. By focusing on corridor development around major industrial axes and ensuring equal societal costs between modes, true multimodal solutions can be achieved, leading to a more connected and passenger-friendly transportation network

Is sustainability integrated into business strategy?

How sustainability regulation can be turned into **an opportunity for the railway sector?**

Ethem Pekin

Head of Economic Policy and Sustainability
CER

Strong green credentials of rail, the sector should support higher ambitions in sustainability, which could create opportunities in the long-term. A higher ambition in sustainability legislation matters for modal shift to rail, attracting talent and accessing capital. Railways are the most sustainable mode of transport, rail's energy efficiency is strategically important during the current geo-political crises, and railways are a sector to be invested to create sustainable ecosystem.

We need, however, fair rules for transport modes to compete with each other, ensure adequate financing to rail, and provide support to rail digitalisation projects. A perfect example to investigate a high sustainability ambition is found in high-speed rail, a masterplan was requested by Enrico Letta's report Much more than a market.

Placing sustainability at the heart of your business strategy: **the case at RENFE**

Adrián Fernández

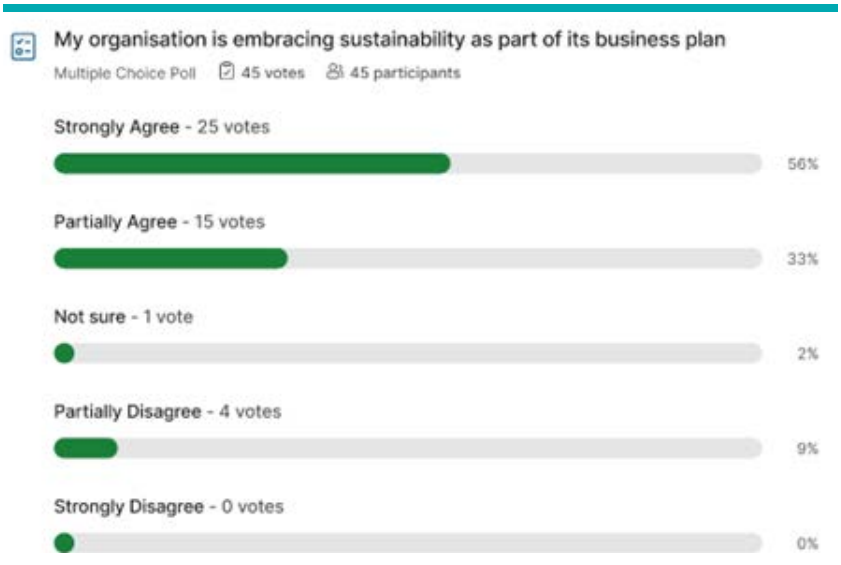
Director of Sustainability and Energy Efficiency

RENFE

Renfe is undergoing a major cultural and digital transformation to remain competitive in Spain's newly liberalized high-speed rail market, with sustainability as a key focus. The company has launched a new Sustainability Master Plan grounded in ESG principles, developed through a materiality assessment that identified climate change, customer focus, business ethics, and workforce issues as priorities.

Key initiatives include a decarbonization plan aiming for net-zero emissions (Scopes 1 & 2), circular economy efforts, and partnerships for improved intermodality. Social efforts emphasize workforce development, diversity, customer service, and regional economic growth. Governance initiatives focus on transparency, ethics, legal compliance, and technological innovation. This plan will guide Renfe's strategy update next year, aligning with EU regulations.

The Participating audience largely felt that their organization was strongly embracing sustainability as part of its business strategy



Integrating sustainability into the overall strategy or a Stand alone document?

An independent sustainability strategy has the advantages:

- You can follow the logic and methodology inherent in the sustainability subject; for example, the effective method outlined in the OECD›s due diligence guide, the UNGP, and, importantly, the CSRD. An example here is the establishment of goals in the short, medium, and long term; another example is the value chain perspective.
- It becomes easier to both set and perceive the direction sustainability work has for a company when you do not have to «look» for the sustainability goals within the overarching strategy. It also facilitates the understanding of the connection between the various sustainability goals within a company and how they complement one another effectively.
- At times, an independent sustainability strategy may be required as a separate document, for instance, to document the sustainability efforts in public procurement or certification processes.

Integrating the sustainable goals into the overall strategy has the advantages:

- The goals are regarded alongside the company›s other objectives. Any discrepancies between the sustainability goals and other targets are clearly evident.
- Another advantage is that the goals are not «forgotten»; they are positioned alongside other objectives, such as profitability and productivity. Different levels of management are «encouraged» to consider sustainability goals, both in developing and updating the strategy.
- It is also easier to incorporate these goals into standard reporting routines, as they are treated like any other objective. Perhaps there are other functions, such as the finance function, responsible for the reporting regime. In this case, it is beneficial for the sustainability department that these goals are included with all other objectives.

How Do We Engage Customers and Stakeholders in Climate Challenges?

Sustainability Reporting: Transparency or Greenwashing?

Future of sustainability reporting in rail

- **Paolo Mazzeo, Sustainability Reporting Senior Technical Manager, EFRAG**
  the initial observed practices on the implementation of ESRS EFRAG_ESRS initial observed practices Q2 2024 final version.pdf.
- **Jeremie Joos, Partner, ESG Reporting & ESG Transformation Lead, KPMG France**
- **Gabriel Castañares, Management Systems Manager, RENFE**

Discussion Outcomes – Future of Sustainability Reporting in Railways

Sustainability as Essential
- Railways play a key role in sustainable transport, with reporting now a necessity, not an option.

Drivers of Change
- Transparency, technology, and rising scrutiny from regulators and consumers.

Opportunities
- Transparent reporting showcases energy efficiency and social contributions.
- Standardized frameworks (SDGs, EU Taxonomy) improve comparability and credibility.
- Transparency fosters collaboration and innovation across the sector.

Risks & Safeguards
- Greenwashing threatens trust and credibility.
- Strong verification, data-driven evidence, and long-term systemic changes are essential.

Path Forward
- Commit to accountability, embrace technology for monitoring, and report both challenges and successes.
- Railways can lead sustainable transport by aligning with global standards and building trust with stakeholders.

World Café outcomes

Rail Sustainability Index
- Scoring exercise (badge, spider graph) is helpful on communication inside and outside the company
- New topics to be included: biodiversity, water use, social inequalities
- Guidance on how and what to do better

IRS 30330: Sustainability Reporting
- Useful to keep in mind CSRD's purpose: Improving sustainability considerations for all companies
- In practice human factor plays an important role on understanding and application of requirements: was highlighted the importance of clarity, user friendliness.
- CSRD also helps protecting the business: IROs are a great opportunity to help companies think longer term
- There is a difference of criteria between firms or auditors: this is to be considered for guidance
- It is important to keep going trying to fulfil, even if not mandatory and unclear. To better be prepared.
- Second important topic was the value chain: Cooperation with the industry is necessary. If there are best practices with suppliers, you are kindly invited to share. The size of the country or company has an impact on the flexibility to introduce strong sustainability requirements.

New Circularity indicators
- Align RSi circularity indicators with the mandatory CSRD ESRS E5 quantitative datapoints of resource inflow & outflow/waste
- Express quantities in tons (not % or calculate % based on tons)
- Keep it simple and make it as user-friendly as possible
- Automate data exchange where possible (take advantage of AI when feasible)

Read about UIC activities on reporting here including the latest Global Rail Sustainability Report

TECHNICAL THEMES

RAILWAY NOISE
Sustainable Railways Strive to Be Good Neighbours

Debates on Solutions, Progress, and Future Challenges

A dynamic series of open debates brought together a wide range of professionals—engineers, researchers, infrastructure managers, consultants, and environmental experts. These sessions created a platform for free exchange, where participants explored the trade-offs of different railway noise mitigation strategies. The discussions were collaborative and not tied to any single company's views, aiming to better understand how rail can stay both sustainable and competitive while contributing community wellbeing with less noise pollution.

- **Vehicle vs. Track Noise Mitigation**: Vehicle-based measures such as quieter brakes and onboard noise monitoring systems offer fast, flexible implementation across fleets. However, track-based upgrades—like smoother tracks & rails, improved material and damping characteristics—deliver broader, long-term benefits for entire communities, despite higher upfront investment by infrastructure managers.
- **Have Railways Done Enough?** Significant progress has been made through fleet modernisation, infrastructure enhancements, and noise action plans. Nonetheless, continued complaints—particularly around freight and stationary trains—highlight the need for harmonised standards, consistent implementation across countries, and stronger engagement with communities. While complaint rates are not definitive indicators, the wellbeing of residents living near rail lines must be ensured with clear communication plans.
- **Higher or Lower Noise Limits?** Stricter noise limits are linked to public health and environmental gains and can encourage innovation. On the other hand, overly rigid thresholds may increase costs, reduce rail's competitiveness, and risk shifting freight to more polluting road transport. A balanced approach is needed—one that protects communities without compromising rail's role in sustainable mobility.
- **Building Near Railway Lines:** Construction near railway corridors supports compact, transit-oriented cities and reduces car dependency. However, concerns remain over noise exposure, safety, and future rail infrastructure needs. Well-designed buildings and integrated urban planning are essential to address these challenges.

Across all sessions, the common thread was clear: reducing rail noise must go hand in hand with efficiency, environmental responsibility, and smart long-term planning.

Latest Policy Developments & Investments:

Key policymakers and experts discussed the latest developments in noise policy, with a strong emphasis on noise mitigation and health impact. The session featured four speakers representing different areas of EU policy, investment on infrastructure projects, and regulatory action.

- **Environmental Noise Mitigation:** Vytaute Bacianskaite from the Directorate-General for Environment (DG-ENV) highlighted notable progress in the implementation of the Environmental Noise Directive (END). The focus is on improving consistency across Member States in reporting and data management. However, despite progress, the EU is still not on track to meet its 2030 goal of reducing chronic noise disturbances by 30%. Railways remain a significant contributor to noise, underlining the need for EU-wide noise-mitigation targets and binding limits. New actions are recommended to be considered, including land-use planning measures, noise source reduction, and regulatory incentives to reduce sound transmission. The feasibility of these targets shall be assessed in light of legal, technical, and socio-economic factors. In parallel, efforts continued to prioritise action within source-specific legislation and sectors, with a focus on addressing major contributors to environmental noise, fostering cross-sector coordination, and encouraging the adoption of innovative mitigation measures and best practices.
- **TSI Noise Regulations – Interoperability Focus:** Sandy Zaehringer from the Directorate-General for Mobility and Transport (DG MOVE) shared the latest updates on the TSI Noise regulations, emphasizing the establishment of “quieter routes” introduced in 2019. These routes with a minimum length of 20 km and an average of 12 freight trains per night will require vehicles to meet specific noise limits starting December 2024. Vehicles operating on these routes in Europe must comply with specific noise limits, including those for stationary, starting, pass-by, and driver’s cab interior noise, though limits for parked trains are still under development. Upcoming revisions to TSI NOI regulations will focus on reducing complexity and promoting innovation, with a special focus on addressing noise from parked trains. Definition of parked train and respective noise limits and assessment methodology is one of the aspects that revision shall be completed in midterm 2028/2029. Additionally, the ERA is working on defining noise limits for parked trains, with recommendations on limit values expected by 2028. Key topics for future development include optimised regulation, innovation uptake, and completing the Single European Railway Area (SERA). Moreover, Ethem Pekin from CER highlighted as rail activity grows, a comprehensive EU-level noise impact assessment is needed, especially focusing on cities, noise hotspots, and children’s health in schools. The discussion also emphasized the importance of addressing rail noise from parked trains through harmonized measurement procedures, with a coordinated EU measurement campaign planned for 2025 to define achievable noise limits.
- **Challenges in other regions - The Asian Development Bank (ADB)** specialist Carlito Mendoza and Bertrand Goalou outlined challenges in adhering to noise measurement standards and the difficulty of managing noise exposure during construction. In Philippines, current noise measurement equipment measures instantaneous noise but lacks a procedure

for assessing exposure, complicating the monitoring process. The ADB advocates for more standardised procedures, particularly for short-term measurements and adjustments to construction schedules, such as shifting activities to nighttime, to minimize disruptions. This discrepancy complicates monitoring to address noise exposure at sensitive sites like hospitals and schools. Looking ahead, ADB's future projects include the L4 Ortigas to Taytay Metro Project, Jakarta Metro Project, and extensions to the Manila Railway Project, all of which will require continued focus on noise mitigation strategies and careful management of construction-related disruptions.

These discussions underscore the ongoing commitment from policymakers to tackle transport noise, improve rail system sustainability, and protect public health. The event highlighted the importance of cross-sector collaboration and innovation to meet Europe's noise mitigation goals.

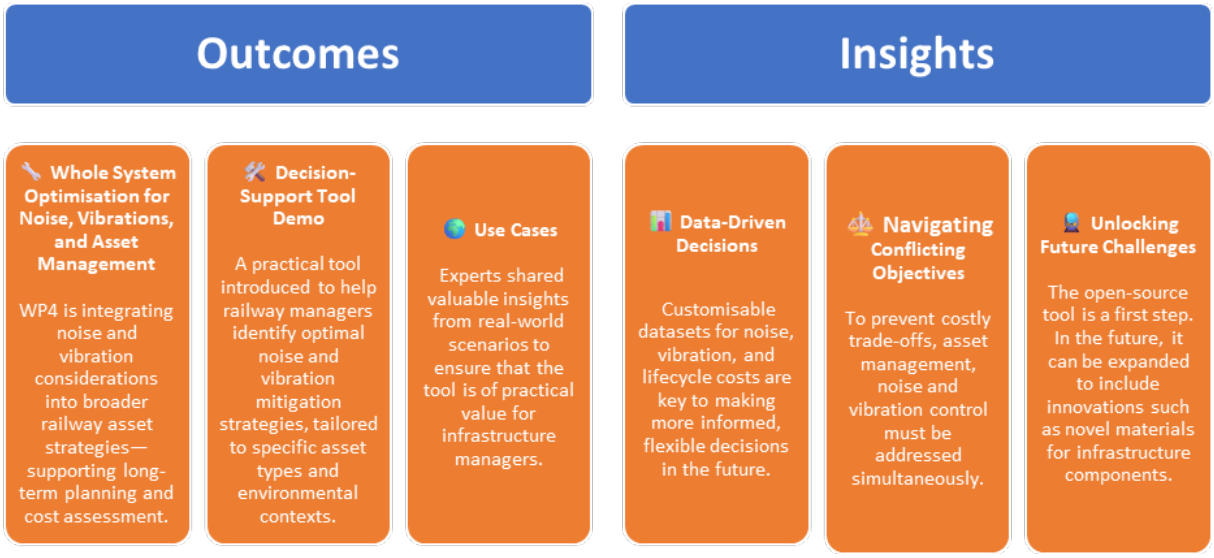
ERJU QUIETERRAIL PROJECT

Advancing Cost-Effective Railway Noise Mitigation

The ERJU-QuieterRail project, funded by Europe's Rail Joint Undertaking (ERJU), presented innovative strategies for cost-effective railway noise mitigation during the UIC Railway Noise Days. The event focused on two main work packages: WP3, dedicated to rail roughness monitoring and grinding strategies, and WP4, focused on track optimisation for noise, vibration, and life cycle costs. Here are the key outcomes and insights shared during the conference.

WP3: Rail Roughness Monitoring and Grinding Strategies

WP4: Track Optimisation for Noise, Vibration, and Life Cycle Costs



Moving Forward: The Path to a Quieter Railways

As the QuieterRail project progresses, the integration of WP3 and WP4 will continue to drive the development of cost-effective and sustainable noise mitigation strategies. Key goals for the future include:

- **Standardisation of Monitoring Systems**: Ensuring accurate data collection through harmonized measurement standards across Europe.
- **Enhanced Collaboration**: Fostering stronger partnerships between rail operators, suppliers, and researchers to share knowledge and best practices.
- **Long-term Noise Control Integration**: Building noise mitigation strategies into the overall asset management lifecycle, ensuring that noise control measures are not only effective but also cost-efficient and sustainable.

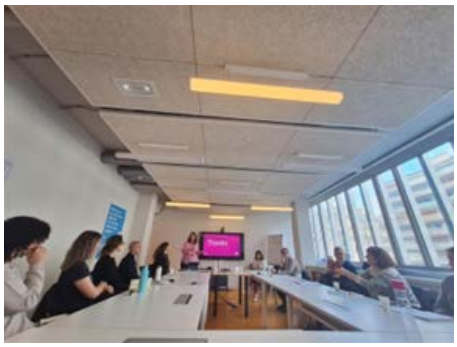
The QuieterRail project is laying the groundwork for a quieter, more efficient, and sustainable railway network, with lasting benefits for both the railway industry and the communities it serves.

This project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No 101176865.

GENDER EQUALITY

Enhancing Gender-Responsive Solutions for Rail Stations

Walking technical visit + workshop @ Montparnasse station



Key takeaways from the workshop:

- Clear communication and education are key to training railway staff and informing station users.
- Inclusive design must be co-created with stakeholders and follow a people-centred approach.

Understanding gender-responsive design in railway stations

The visit began with an introduction by Assia Benziane, President of SNCF Mixité — an initiative within SNCF Group dedicated to promoting gender equality and diversity in the workplace. SNCF Mixité works to foster an inclusive environment across all areas of the company, encouraging the representation and advancement of women at all levels. During her opening remarks, Assia Benziane emphasized the critical role of training in achieving lasting gender equality, highlighting how education and awareness are key to transforming workplace cultures and ensuring that gender-responsive practices are fully integrated into daily operations.

Following the introduction, a technical visit of Montparnasse station was organized by Séverine Long, the Director of Montparnasse Station, along with her team. They guided the group through various parts of the station, illustrating how gender-responsive design principles are incorporated into the station's layout and operations. Throughout the visit, Séverine Long and her team shared practical examples of how infrastructure and services are adapted to meet the diverse needs of all passengers, ensuring greater safety, accessibility, and comfort for women and other underrepresented groups.

This visit highlighted the importance of integrating gender considerations into the management and design of public spaces like railway stations, ultimately contributing to a more inclusive and equitable urban environment.

Roundtable: best practices and case studies

- **Security of Women in the Rail Environment, by Marie-Hélène Bonneau, UIC Security Department**
  - Rail Security is a key element in developing rail traffic by attracting more passengers
  - Security is at first the responsibility of the authorities, but railways have a major role to play in enhancing security
  - The rail sector is investing greatly in ensuring the security of women
  - Security of women is a collective responsibility
  - To put an end to gender-based violence / sexist and sexual harassment in the rail environment, a societal change is needed
- **From data to actions: Gender Mobility Data, by Anna Colia, RFI - Infrastructure Department of Regulatory Affairs & Anti-trust - Passengers rail rights - Handling of Complaints Office**
  FS Group and RFI's latest actions for passengers and workers:
  - Data analysis in a gender perspective (RFI's Surveys aboutCustomer Satisfaction and Travel Behaviour of Railway Station Users 2024; RFI's Railway Station Users Complaints (2023-2024)
  - Walkshops (Walking workshops) UX User Experience
  - Pink Parking Lots for late-night shift female workers
  - 5Ds Social Campaign against sexual harrassment in public places
- **Enhancing Gender-Responsive Design for Rail Stations Cairo case, by Aurélien Clédière, Strategy & Development Manager RATP DEV Egypt**
  - There are specific challenges in Egypt (e.g. social & cultural).
  - Inclusivity needs to be tailored and co-created from the very beginning.
  - A gender-responsive approach improves safety, accessibility, and user experience for all.

ENERGY AND DECARBONISATION: RESEARCH & LONG-TERM PROSPECTS WORKSHOP

Longer term roadmap and developments for energy efficiency and decarbonisation (UIC Energy Efficiency & CO_2 Emissions Sector)

The workshop on research and long-term prospects for energy efficiency and decarbonisation explored the common roadmap for priority topics for infrastructure as well as rolling stock including battery trains, partial electrification, efficient and decarbonised tracks operation & maintenance, SFERA Connected intelligence Driver Advisory System (C-DAS) & new features Digital Instructions (DI) and Free Text Communication (FTC) for efficient operations, interactions between IM and RU; rail benefits to society (scope 4), and within the transport sector.

Here are the key takeaways based on the workshop's timeline:

***Moderators**: Philippe Stefanos & Gerald Olde Monnikhof, ProRail, Energy & CO_2 Sector Chair*

Keynote speech: IEA key findings, technology and innovation

Oskaras Alsauskas, IEA

Oskaras Alsauskas gave an overview of the transport sector's energy perspective, emphasizing the more and more mature electrification of the market, and the challenges brought by the future scarcity of the specific resources needed to that long term growth.

Common topics (Relevant for both sessions)

- **Carbon free maintenance (grinding, milling, etc) - Matthijs Doesburg, Gerald Olde Monnikhof, ProRail**

  M. Doesburg and G. Olde Monnikhof, shared individually in each session, about ProRail's long term vision to decarbonise track maintenance via an extensive control of the supply chain and equipment/ fleets management, that is planned to be electrified, with a close and long-term follow-up with the main supplier having to propose the needed developments.

- **Traction Energy Settlement: measurement & data exchange, IRS 90930, energy market - Bart Van der Spiegel, Infrabel**

  Bart Van der Spiegel explained the regulatory context around Traction Energy Settlement in rail, and the Technical Specification of Interoperability (TSI), introducing the challenges around meeting these requirements and how IRS 90930 guides to better meet simple and helpful data exchange, as an additional motivation.

- **2050 carbon neutrality technologies dedicated to railways from a life cycle perspective - Kayoung Shin, KRRI**

  K. Shin shared an overview of the 2050 decarbonisation objective framework relying on the Science Based Targets initiative (SBTi), Environmental Product Declaration (EDP) and ISO 21106 for rolling stock recyclability, with a full set of -highly concrete and thoughtful- solutions to avoid emissions allocated to each respective Scope 1, 2, or 3.

  A deeply holistic approach based on calculation tools to track the progress following the implementations undertaken for this framework. The main reductions will occur by phasing out diesel in favour of hydrogen power; moving to more efficient heat pump and inverter technologies, coupled with circular economy and avoiding embedded carbon with cement-free works.

- **SFERA (DAS & Digital European Instructions) Sébastien Dislaire, SNCF Réseau (support Bart Van der Spiegel)**

  S. Dislaire explained the context around Driver Advisory System (DAS) implementation, and how the UIC SFERA project is leveraging useful requirements to make the different DAS productions interoperable in the long term, for efficient cross-border operations with real-time timetable information & updates. He also highlighted how the new version of IRS 90940 (proposing SFERA) will also propose a harmonised framework for Digital Instructions related data exchange.

- **Battery trains | Results of a survey on electricity strategies - Paul Tobback, TUC Rail**

  As the chair of the CR350 task force on battery trains and chair of the EIM ENE WG, P. Tobback is able to share key insights about the development for the harmonisation of battery trains charging. Sharing an important set of important technical details for how battery trains should best be put to work.

Session 1.1: Operations/rolling stock

- **Energy digital twins for energy saving and CO_2 reduction - Luis Alonso & André-Philippe Chamaret, SNCF Voyageurs**

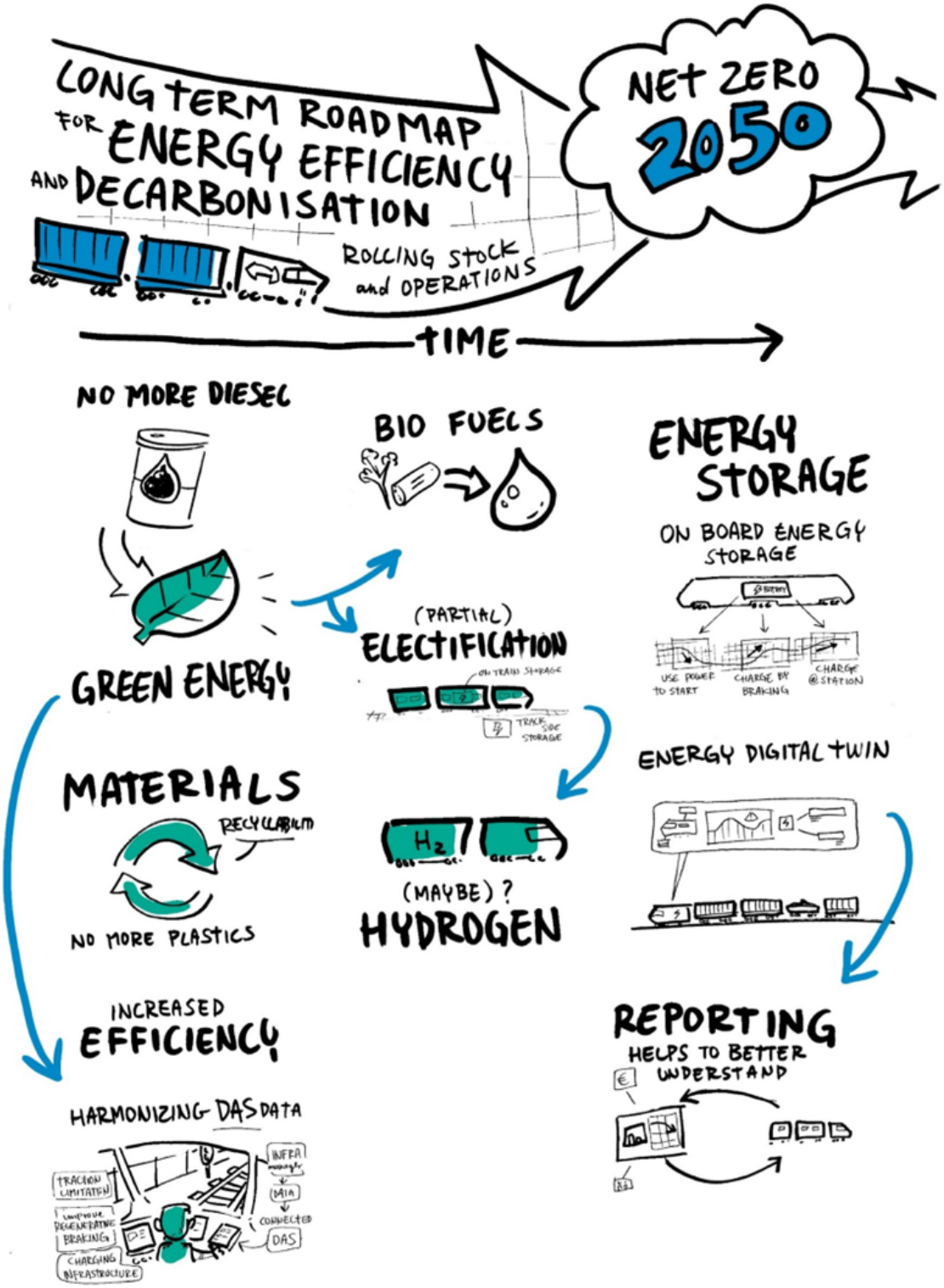
  SNCF's rolling stock experts introduced how they use energy consumption and battery trains' state of charge data to model operational energy consumption, to ensure planification and timetable fits perfectly battery trains capacities. And how to, if necessary, also according to energy supply, adjust the timetable and train run profile.

Session 1.2: Infrastructure/ stations/buildings

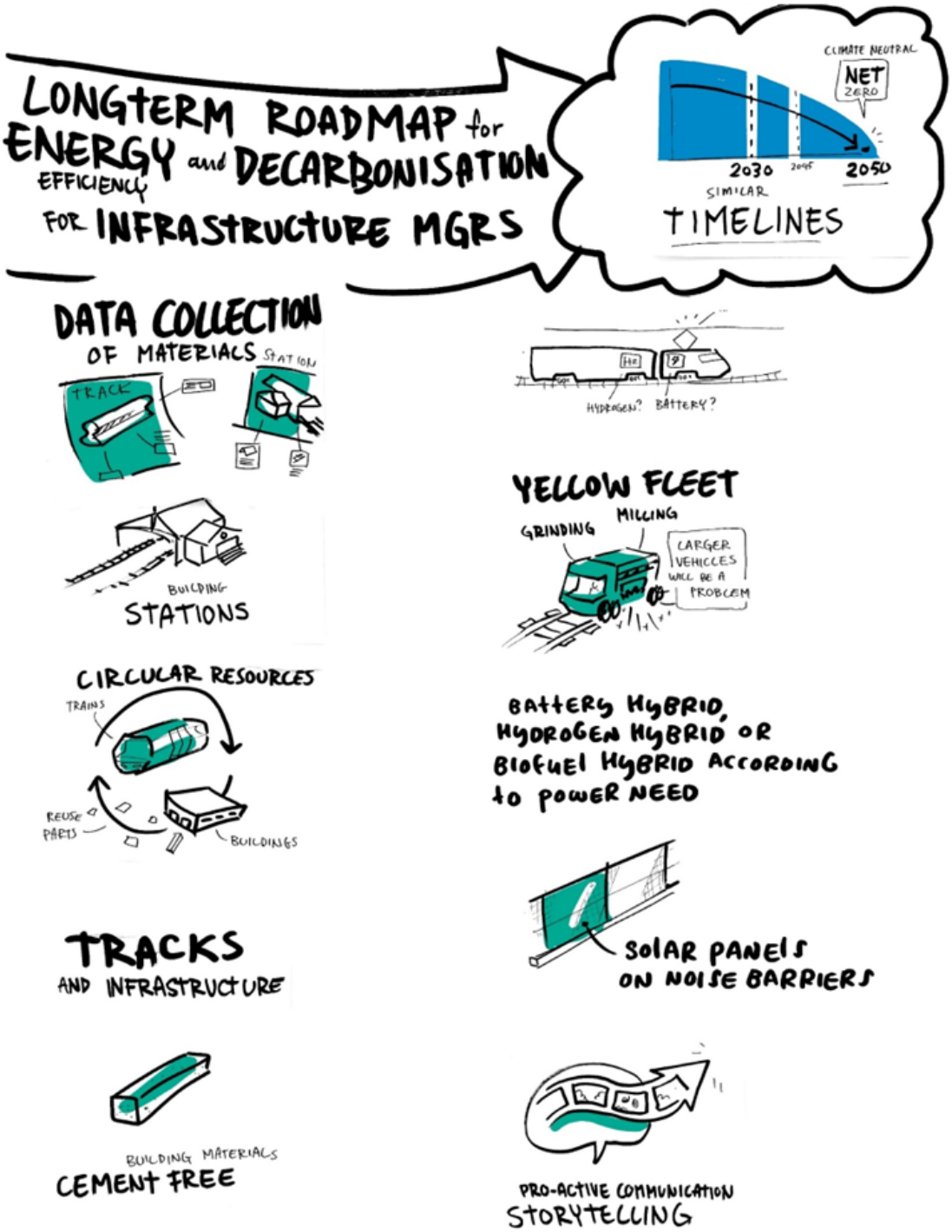
- **Climate transition plans - Karoline Hjertø, Dereje T Asefa, Bane NOR**

  Bane NOR's strategists shared about the ambition of cutting the emissions by 50% by 2030, by means of completely getting rid of direct emissions and incentivising the supply chain to do so, based on the Norwegian's government recommendation to cut direct emissions wherever possible. They highlight that it also goes along with preserving resources with circular economy and nature by taking care of avoiding disturbing ecosystems and optimising land use.

Operations/Rolling stock drawn idea board



Infrastructure/Stations/Buildings drawn idea board



Energy and Decarbonisation related documents

- Slides: UIC EnergyCO2 Long-term prospect workshop
- Poster: Energy saving
- Poster: Traction Energy Database
- Poster: SFERA
- Poster: Ecopassenger

SUSTAINABLE TOURISM

How leisure rail tourism can contribute to sustainable mobility, with a focus on regional services and customer experience

On March 11, 2025, as part of UIC's Sustainable Action Week, the UIC organized a Sustainable Tourism Workshop in Paris. The event was convened by railway professionals, policy makers, tourism stakeholders, and sustainability experts to discuss how rail can play a leading role in advancing sustainable tourism globally. The workshop featured multiple sessions, each addressing key themes: enhancing customer experience, innovating for sustainability, and unlocking the potential of regional and commuter trains for tourism.

Enhancing Customer Experience in Rail Leisure Tourism

Discussions began with a focus on the customer journey. Vanessa Pérez from UIC presented the Tourist-Friendly Categorization and TopRail Awards, launched to recognize excellence in rail tourism. Marco Genovese of Trenitalia highlighted results from the Future Rail Tourism survey, underlining digitalization, safety, and scenic routes as key factors shaping tourist preferences. Josef Schneider from EPF (European Passenger Federation) emphasized the importance of door-to-door convenience, accessibility, and affordability for leisure travelers, while Agathe Daudibon from the ECF (European Cyclist Federation) underscored the need for improved rail-bike integration, based on recent surveys showing the main barriers highlighted by cycling tourists using trains.

Rail's Role in Sustainable Tourism Transition

Jörg Ostwald presented insights from CEMP (UIC Customer Experience Platform) and the Gotthard Panorama Express, showcasing how tailored services and flexible rolling stock improve user experience. Stefano Scarci from EY (Ernst and Young) shared results from behavioral studies indicating younger generations and eco-conscious seniors as crucial markets for sustainable tourism. Adrián Fernández from Renfe detailed three major initiatives—Spain Rail Pass, Thematic Trains, and the upcoming *Billete Único* (single ticket)—all aimed at boosting rail's appeal while supporting sustainable development across regions.

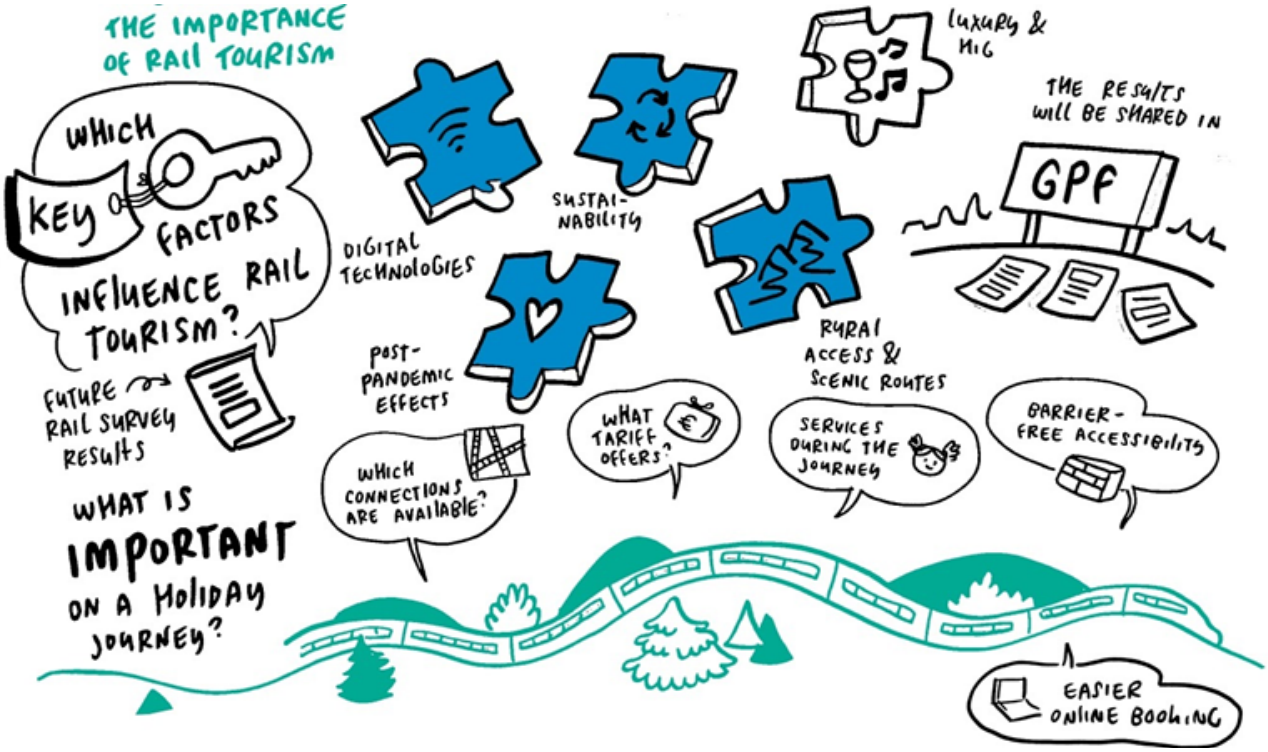
Unlocking the Potential of Regional and Commuter Trains

The final session was led by Federica Follesa, chair of the UIC CRTS (Commuter and Regional Train Service Sector) who explored how commuter and regional lines can foster local tourism. Examples included Italy's Gite in Treno, Trenitalia's Regionale brand rebranding efforts, Denmark's DSB initiatives along the Coastal Line, and the Erasmus+ EU project Tour&Rail project, which links rail tourism with rural economic revitalization.

Across all initiatives, multimodality, flexible ticketing, and partnerships with local actors emerged as essential enablers of success.

Conclusion

The workshop emphasized railways' unique potential to lead the transition toward sustainable tourism through inclusive design, customer-centric services, and innovative practices. Participants agreed on the need for seamless international travel, cross-sector cooperation, and strategic investment in sustainable transport. With continued collaboration, railways can become a cornerstone of climate-friendly, accessible tourism across regions.



CLIMATE CHANGE AND ADAPTATION SEMINAR

Beyond the Tracks: Building Partnerships and Transport System Resilience

- Emergency experiences in Valencia, October 2024 - Javier Peiro Bolos, Head of Coordination and Monitoring of Operations in the EAST Region, ADIF
  P.D. Sostenibilidad ambiental - Cambio climático - Adif
- Transport system resilience and supply chains - **François Combes, Freight Transport Economist, Co-director of the Planning, Mobility and Environment Department, Université Gustave Eiffel**

Francisco Cabrera Jeronimo, Deputy - Head of Operations & Safety, UIC

RERA Temp and RERA Rain UIC projects found that climate resilience must be systematically integrated into railway planning and operations. RERA Temp highlighted the growing risks of extreme heat on infrastructure, equipment, and service reliability, underlining the need for proactive adaptation measures such as heat-resistant materials, monitoring systems, and revised maintenance strategies. RERA Rain demonstrated how heavy rainfall and flooding increasingly disrupt services and damage assets, emphasizing the importance of robust drainage systems, predictive modelling, and risk-based asset management. Together, these projects show that data-driven assessments and collaborative approaches are essential to prepare railways for climate change and ensure safe, reliable, and sustainable operations.

For Urban Public Transport networks - Katherine Drayson, Senior Environment Manager, Transport for London (TFL)

There is a need to bridge the gap between day-to-day resilience to severe weather, and longer-term climate change adaptation – and that this could only be done through improving our data on our assets (location, condition, etc.), and incidents and performance (including being better about assigning causes, even if only as guesswork). The need to work collaboratively across geographical, sectoral and organisational boundaries – TfL demonstrated this through the interdependencies project.

TfL adaptation webpage

The interdependencies work can be found here (chapter 8)

- **For Ports and waterborne freight - Jan Brooke, Chair of the Permanent Task Group on Climate Change, PIANC**

  Climate change poses significant risks to seaport operations, particularly from changes in wind patterns and extreme storm events, which can exceed design expectations and allow little recovery time between events. Inland waterways face increasing risks from both high and low flow conditions, with low flows during droughts potentially disrupting transport for months. Ports, as critical nodes in transport networks, rely on resilient connections to road, rail, and waterways, and disruptions—such as the 2024 damage at Holyhead Port—can severely impact supply chains and mobility, as seen with the diversion of 1,200 lorries daily and the disruption of 100,000 travelers. Adapting ports to climate change involves more than physical upgrades; it also requires improved operational resilience, data use, contingency planning, and early warning systems to enhance preparedness and reduce recovery time.

  Damage caused by Storm Darragh at the Port of Holyhead, Wales,

- **For Airports and Aviation - Rachel Burbidge, Senior Policy Officer, Environment and Climate Change, Eurocontrol**

  The aviation sector is used to operating in disruptive weather but climate change is making disruptive weather more severe, intense and more frequent. Storms are probably the biggest challenge for aviation, but heavy precipitation, extreme temperatures and wildfires are also increasing challenges. Effects and impacts will vary for every airport depending on geographical location, type of operation, base climate and how the climate change. Airport-specific climate risk assessment is essential. One thing almost all airports have in common is reliance on ground transport to get passengers, crew, cargo, ground staff, catering, and so on, to and from the airport. Without surface access, it doesn't matter how resilient the airport itself is, flights are not going to take-off. For example Charles de Gaulle airport serves around 70 million passengers a year, an average of around 200,000 per day that all have to get to and from the airport – more at peak periods. Cross modal coordination and contingency planning to make sure surface access stays open during a disruptive event is essential, or that when the airport can't operate passengers can be transferred to other modes. We need to consider low-probability, high impact events. There is a need for data to demonstrate the costs of an event and therefore inaction and the need for action.

- **On Building partnerships and transport system resilience**
  - One mode or transport node is only as resilient as the weakest link in the network.
  - Dialogue and coordination with other transport operators and service providers is needed to understand interdependence, identify risks, and facilitate joined up adaptation planning.
  - Collaboration can also help identify opportunities for joint solutions and possibly shared costs. International associations such as UIC, PIARC, PIANC and EuroControl therefore have a vital role to play in raising awareness, facilitating cross-modal collaboration, and sharing evolving good practice.

ZERO WASTE WORKSHOP: THE POWER OF PROCUREMENT

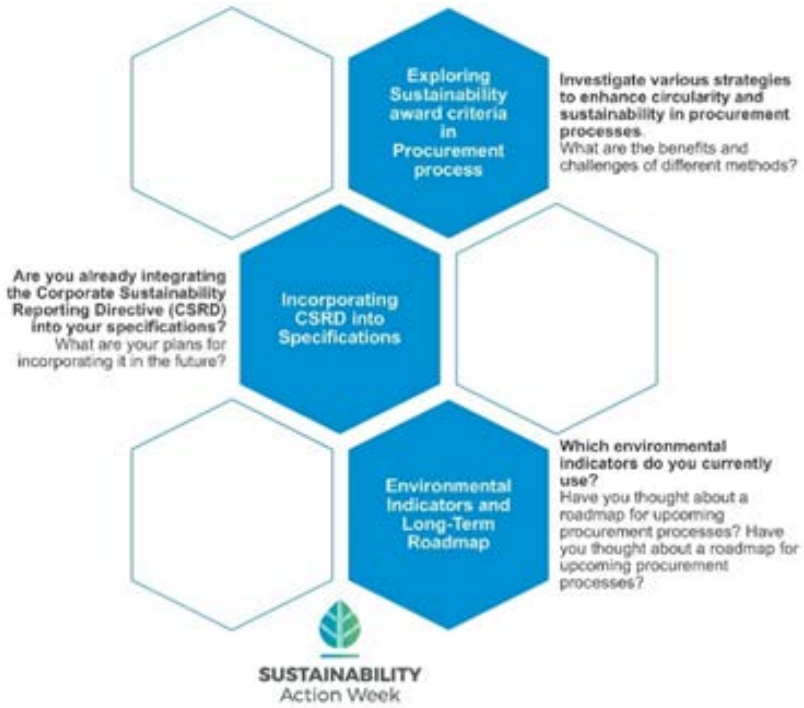
Procurement Best Practices and Data Flows for Sustainable Rolling Stock and Railway Material

Sustainable rolling stock procurement towards sustainable and circular railways

↗ **The importance of standard setting for sustainable rolling stock procurement - Christa Gjaltema, Consultant, RICARDO Rail**

In 2006, UIC published the UIC leaflet 345, providing environmental specifications for new rolling stock. After reviewing it, UIC concluded it needed updating to reflect 2025 standards. The new IRS will aim at assisting organizations in their procurement processes with an environmental focus. In recent years, significant progress has been made in areas like noise, air quality, CO_2-e emissions, and circularity.

The leaflet's updated version, i.e. the new IRS 30345, will follow a structured development process involving literature and benchmark studies. It will cover the above-mentioned environmental indicators. The IRS will also integrate CSRD reporting requirements. Additionally, if possible, it will provide an outlook for future improvements until 2050. This update will ensure that the IRS remains relevant and effective in promoting sustainable practices in procurement processes. The presentation ended by outlining the main challenges identified in the updating process as discussed in the breakout tables.



Best practice Session - Circularity in procurement

Success stories from the ERPC Sustainable Procurement Group - Chair Ines Sturm, ÖBB

- For ERPC's Sustainable procurement Group,
  - Circular procurement involves social benefits (creating/keeping local jobs requiring high technical/manual skills)
  - Application of the 10 Rs of circular economy to concrete and steel helps keep value, maintain safety and meet technical requirements
- ÖBB focuses on upcycling: how to use material in order to create more value, the more quality you keep, the better.
- 20% of ÖBB sustainability criteria in tendering are circularity criteria such as reparability/ longer warranty and are a balance between 'easy to apply' and innovative. Other criteria involve ESG criteria.

Tools for embedding circularity in procurement: ProRail case study with Environmental Cost Indicator (ECI) - Quinty Soede & Jan Zandbergen, ProRail

- The tool calculates the environmental impacts of a project and converts them into costs (in €)
- The ECI considers all lifecycle aspects of a material (listed in 12 categories)
- Useful to stimulate suppliers/project managers to deliver new things
- Best project benefits from fictitious discounts used to award contracts: "lower environmental impact means lower price".
- Main challenge: getting the right data involves considerable data collection work (through LCA data base and software).

Labelling of refurbished electronic equipment– Coline Mellin, ALSTOM + Benoît Varin, Recommerce & RCUBE

- By setting up its activity of using refurbished electronic equipment, Alstom has worked to elaborate solutions
  - To reduce lead times, ensure supply of products that are no longer produced in order to keep/reuse assets
  - To reduce costs, waste generation, and contribute to CSR policy of customers
- Starting this new activity since 2021
  - Avoided 1 ton of WEEE
  - Key railway operators have trusted Alstom
- An initiative to gain legitimacy/reassure customers on quality requirements: a label (label Recq) is under development with RCube and DEKRA. This will ensure compliance with future legislation on the subject.
- An official assurance for quality and safety will promote social adhesion to the reuse of equipment.

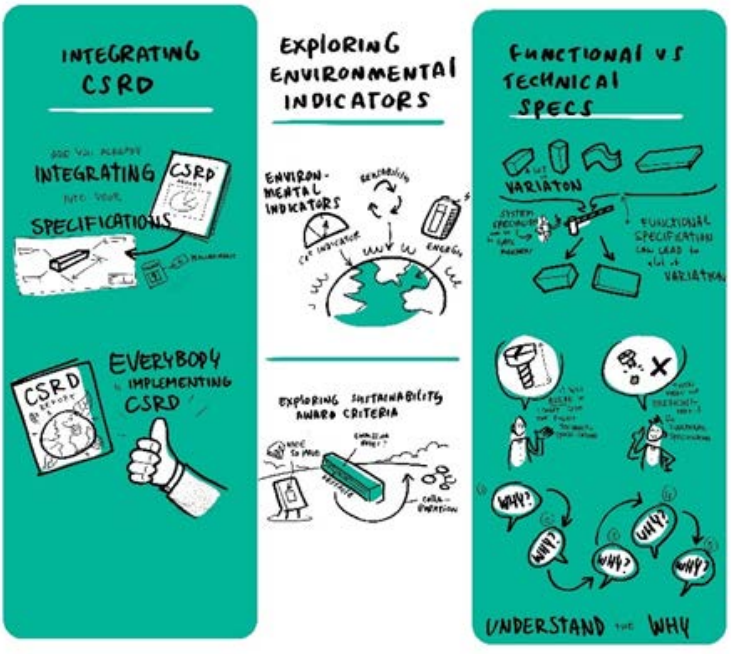
What does the supply industry need from the railway operating community?

- **Lena Kriesel, Round Table Rolling Stock (RTR-initiative):**
  - More standardization/ harmonization in requirements specification/ rail design (enabling reusability, cross-company reuse and reduce obsolescence)
  - Sharing of operational data by operators
  - A lifecycle approach in procurement/ awarding.
- **Davide Bonaffini, Hitachi Rail**
  - Clear and measurable Targets on Circularity Performance
  - Roadmap to achieve the above targets
  - Targets and Roadmap extended to all UIC members (in a mandatory way!)
  - If well addressed, this message can support Manufacturers (Supplier) in building a unique approach regarding Circularity, regardless of the customer worldwide and the new UIC IRS 30345 can support this.
- **Rose Stephani, Railsponsible**
  - **Increased** collaboration **to develop more sustainable solutions**
  - Participation in forums **such as UIC and Railsponsible to build better relationships and foster that collaboration**
  - **Inclusion of** sustainability criteria **in tenders, so that suppliers who develop more sustainable solutions can benefit**
  - Standardisation **and continuous** improvement of data **to allow everyone to make better decisions.**
- **Closing words by Panel host, Ilse de Vos-van Eekeren, NS:**
  - This topic is vital for achieving sustainable and circular railways.
  - Circularity cannot be achieved in isolation; there's a need for cooperation across the entire supply chain.
  - Every euro spent on railways is an opportunity to make the system more sustainable, greener, and circular.
  - Collaboration, data-transparency and strategic investment are key in building a future where railways serve not only as a mode of transportation but as a pillar of environmental sustainability.

Challenges with updating the UIC Leaflet 345 and circularity in procurement

Challenge 1 - Exploring Sustainability award criteria in Procurement process Investigate various strategies to enhance circularity and sustainability in procurement processes. What are the benefits and challenges of different methods?
(Host: Lena Kriesel, Sofie Hoffman, ROUND TABLE RAIL)

- **Current Award Criteria** Companies are already using sustainability award criteria, which are becoming critical for procurement decisions (e.g., EPDs, ECI, code of conduct…)
- **What challenges do you see in the future?** Stricter application, higher weighting and consideration of a second life (reuse and refurbishment) are currently the biggest challenges.
- **Solutions to challenges**: Closer collaboration with suppliers, pre-market consultations, and transparent target setting (requirements) can help overcome these barriers.
- **What is needed to implement / extend Sustainability award criteria in the future?** Future procurement strategies should integrate circularity metrics, adapt traditional award criteria, and balance cost, quality, and sustainability.



Challenge 3 - Which environmental indicators do you currently use? Do you use a roadmap for upcoming procurement processes? Do these targets become higher in the long term? What are the current reference values based on? Trends, regulations, or internal strategies?
(Hosts: Martin Wolf & Christa Gjaltema, RICARDO RAIL)

- **Current Circularity goals**: Players use different recyclability and recycled content percentages.
- **Long-term goals**: Most participants do not have specified long-term goal for procurement.
- **Benefits of specifying requirement for new rolling stock in IRS 30345.**
  a. Motivation and Simplicity: indicating rationale for requirements in the procurement specs will motivate compliance. IRS requirements need to be simple and understandable to users.
  b. Cost Incentives: in tendering phase, including sustainability in award criteria could benefit sustainable procurement.
- **Challenges of rolling stock procurement:**
  a. Operators want evidence of environmental factors, but manufacturers often can't or won't provide it. Getting additional data is hard as it is not legislated. Standardization could help hereby.
  b. Small Batches Issue: hard to focus on environmental aspects when buying small batches of trains/trams.
  c. Infrastructure vs. Trains: More environmental requirements exist for infrastructure (e.g., green steel) than for trains due to the difference in complexity. It is advised to focus on parts of the train first when implementing environmental factors in the procurement process.

Challenge 2 – Are you already integrating the Corporate Sustainability Reporting Directive (CSRD) into your tender specifications? What are your plans for incorporating it in the future?
(Host: Ilse de Vos-van Eekeren, NS)

Implementation of CSRD Reporting

- All participants are familiar with CSRD and actively integrating CSRD reporting within their organizations to comply with requirements.

Materiality of CSRD Standards for Railway Companies

- There is a difference in material ESRS standards among suppliers, train operators, and infrastructure managers.
- The IRS project scope being 'rolling stock' procurement, standards ESRS E1, ESRS E5, ESRS S1, and ESRS S2 are considered the most material.
- A position paper has been written by CER: CER input to the European Sustainability Reporting Standards

Integrating CSRD into Specifications

- Participants reported that while certain relevant data points for CSRD reporting are already being requested, data gaps remain to achieve full compliance with CSRD.
- Utilizing 'Eurospec Circularity Requirements' and requesting 'Eurospec Material Passport' during new rolling stock procurement, adequately covers the data needed for CSRD ESRS E5.

Advice/conclusion for the IRS project: Additional research is needed to explore full integration of CSRD into Rolling Stock procurement specifications.

Challenge 4 - Choosing Functional or Technical Specifications for more sustainable materials? (Hosts: Thomas Kortekaas, Eric Mackay, ProRail)

The session aimed at discussing how to specify functionally without losing the benefits of technical specification, allowing more room in the system specifications for sustainable or circular material use.

Group results were:

- **Understand Business Needs: This helps uncover the underlying reasons for certain technical requirements and leads to more targeted functional specifications. Involve the owners of the specifications intensively in this process.**
- **Transparent Evaluation Criteria: Establish clear and transparent evaluation criteria. This ensures there is still a final gate review, but with more focus on the functional requirements.**
- **Risks and Opportunities: Acknowledge the risks and opportunities of functional specifications. Pilots can help test feasibility before scaling up. This builds confidence in the new approach.**
- **Standardization and Variety: Functional specifications do not necessarily lead to an undesirable variety of products. As long as functional requirements are clear, like LEGO blocks of different materials that fit well together, standardization can be maintained. Additionally, over-specification also leads to less reusability.**

Ecodesign Forum & Digital Product Passport (DPP) within Ecodesign for Sustainable Products Regulation (ESPR)

Introduction on the EU Eco-Design for Sustainable Products Regulation (ESPR) (Cornelia Schalch, Swiss Federal Railways, SBB)

- The new EU regulation is aimed at increasing sustainability data availability, quality and transparency on a range of products (steel, iron, textile, furniture, chemicals).
- It sets out stakeholder obligations along the whole value chain.
- Is a central lever for the rail sector to reduce supply chain emissions and achieving net zero emissions by 2040.
- It also impacts railway undertakings & infrastructure managers outside the borders of the European Union.

ESPR Ecodesign Forum (Ethem Pekin, CER)

- Under the umbrella of UIC Circular Economy (CE) Sector, CER (Community of European Railways), has been designated to apply and participate in the EU Commission's Ecodesign Forum, with technical support of the UIC CE Sector, and other technical sectors.
- The Ecodesign forum's purposes were presented, and other European railway undertakings & infrastructure managers were invited to support the initiative.
- Collaboration on standards and rules is key to enable rail sector access to first-hand information, to influence specific product group regulation, and bring the sector a step closer to achieving net zero emissions in time.

Digital product Passport (Dominic Hurni, Swiss Federal Railways, SBB)

- A working group (SBB, Voestalpine, DB Cargo and DB Systel), has been developing a proof of concept (PoC) for the automated exchange of verifiable sustainability data for rails.
- It is important to make learnings of the PoC available for the development process of sector specific standards, rules, and legislation.

Breakout Session:

- Participants were invited to list subjects to promote on behalf of the rail sector (railway undertakings & infrastructure managers) by the Rail representative in the Ecodesign Forum, under the following 4 categories: Strategy & Programs, Projects, Needs & challenges, Benefits & Opportunities.
- Outputs will be further discussed within the UIC CE Sector.

TRACKS OF HARMONY: RAILWAYS & NATURE

Sustainable Land-Use Day

This event concluded **UIC Sustainability Action Week**, uniting experts and stakeholders to shape a **nature-positive future for railways**. Why? Because rail infrastructure interacts deeply with ecosystems—it can be a **driver of biodiversity loss** but also a **solution for landscape restoration** if managed effectively.

World Cafes Outcomes

Innovations in Vegetation Management

- New techniques for **chemical-free rail corridor management**, including **livestock grazing, electro-weeding, cryogenic treatment, and laser technology**.
- **Collaboration is key**—knowledge-sharing between rail operators, ecologists, and technology providers will **accelerate sustainable solutions**.

Infrastructure & Landscape Integration

- How to design railways that **coexist with wildlife**—balancing permeability and safety.
- Solutions discussed: **green bridges, fauna culverts, and nature-based mitigation measures**.

Advancing Biodiversity Standardization

- Biodiversity remains **difficult to compare across sectors**—this session tackled the **need for unified data and reporting**.
- **ISO and international banks** emphasized the role of standardized biodiversity metrics in guiding **sustainable financing**.

Bird Protection & Mortality Risk

- Rail networks pose **significant risks for bird mortality**, requiring **systematic data collection** and **targeted mitigation**.
- importance of **cross-sector knowledge-sharing** to implement effective bird protection strategies.

Biodiversity must become visible in rail sector decision-making, just like CO_2 emissions.

Event Presentations Core Themes

Financing Sustainable Infrastructure

- **EBRD and ADB** provided insights on the **biodiversity and sustainability criteria** required for infrastructure funding.
- Austria's **biodiversity & infrastructure strategy** highlighted the challenges of reconnecting habitats and implementing **nature-based compensations**.

Ecosystem Services & UIC ECOV4R Project

- The **UIC ECOV4R project** is pioneering **ecosystem services valuation** for railways, helping the sector **quantify environmental benefits** and make informed decisions.
- The **real estate and transport sector** must integrate **nature-based solutions** into infrastructure planning to **enhance biodiversity and resilience**.

EU-RAIL SYMBIOSIS Project Next Steps

- Updates from the **EU-RAIL SYMBIOSIS Project** reinforced the need for a **cross-sectoral approach** to biodiversity and infrastructure. UIC invited attendees to contribute by joining the **Technical Stakeholder Group & Advisory Board**.

Railway Best Practices & New Commitments

- **Rail Baltica** is working on **ecological corridor monitoring** and minimizing fragmentation effects.
- **RhB is leading the way** in **nature-related financial disclosure (TNFD reporting)** to ensure rail investments support **biodiversity and climate resilience**.

UIC Sustainable Land Use Sector: Permanent Commitment from 2026

Starting in **2026**, the **UIC Sustainable Land Use Sector** is evolving into a **permanent, strategic initiative** and strengthening its role in shaping **railway biodiversity** and **land management strategies**. This transition ensures:

- A long-term platform for collaboration on ecological connectivity, vegetation management, and biodiversity integration.
- Coordinated workstreams to align rail infrastructure with evolving environmental policies and meet regulatory compliance
- Strategic support for UIC members, helping them and meet sustainability and biodiversity positive commitments.

AIR QUALITY MANAGEMENT IN RAIL

Deepening The Understanding Of Air Pollution In Rail, And How To Manage It

Air Quality workshop enabled to highlight the challenges and solutions specific to rail when it comes to air pollution

Interactive brainstorming, experts sharing work & analysis from SNCF, RSSB, Swedish Royal Institute of Technology, INERIS and Members of the UIC Sector, gave useful insights to participants.

Participants were invited to discuss the challenges faced in the domain, and a selection of solutions for rail:

- Mechanical filtering
- Electrodynamic braking
- DAS & efficient operation
- Steering wheelsets / bogies

And a full list of the solutions mentioned by the Air Quality Sector for a soon to be published report.

Understanding air quality in rail

Speakers:

- Introduction & workshop: What influences AQ? (e.g. aerodynamics, number of trains, brake types, material, …) - Christa Gjaltema, NS Ricardo

Christa Gjaltema animated an introduction to Air Quality, why it is an issue, and started the brains of participants by asking them what could influence emission of unwanted pollutants.

See slides: https://uic.org/events/sustainability-action-week-2025

Summary from AQ Sector and an overview of solutions

- Laurent Dupont, SNCF

Laurent Dupont gave an overview of the knowledge cumulated with the Air Quality Sector on the understanding of pollution and sources, regulation and the ways to measure and control this pollution.

See slides: https://uic.org/events/sustainability-action-week-2025

Monitoring/measurement overview, prediction models, validating models vs measurements

- Connor Albutt-Wilkinson, RSSB
- Minghui Tu, KTH (Sweden's Royal Institute of Technology)

Deep dives into RSSB's Air Quality Monitoring Network and KTH's modelling of Air Pollution ; pushing further the understanding of the pollution flows on site, and the efficiency of changes to control/avoid it.

See slides: https://uic.org/events/sustainability-action-week-2025

Challenges in managing air quality

Question to all participants:

- What are your company's specific challenges?

Participants mentioned several important challenges related to Air Quality management

- Impact of new EU Directive on Air Quality & water pollution
- Low-cost sensors & limits
- Consideration of ultra fine particles
- Linking measurements to the sources of pollution
- Communication around air quality

Jessica Queron, INERIS

- Toxicity: effects on health, what we know, and what we don't

Jessica Queron introduced the TOXin Transport project, aiming to deeper characterise the links between pollutants and their toxicological impact due to the higher concentration in underground stations. INERIS was then able to identify the specific microenvironments that are the most problematic.
She also highlighted INERIS was able to publish their guide for harmonised air quality measurements.

See slides: https://uic.org/events/sustainability-action-week-2025

Focus on a selection of solutions

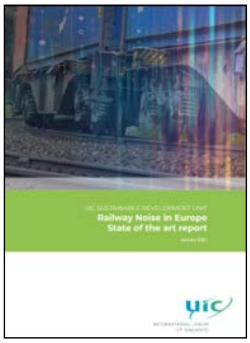
- Avoid emissions: Electrodynamic/electromechanical braking
- Reduce emissions: DAS & efficient driving
- Reduce pollution: Mechanical filtration

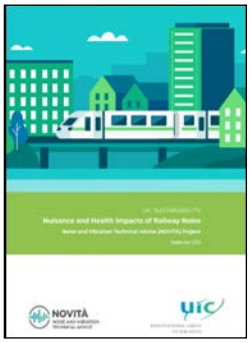
The participants were finally guided through posters, featuring the UIC Air Quality Sector's preferred solutions to improve air quality, which of course, like for greenhouse gas, is best first to avoid emission of pollutants with regenerative braking, efficient driving and steering wheelsets.

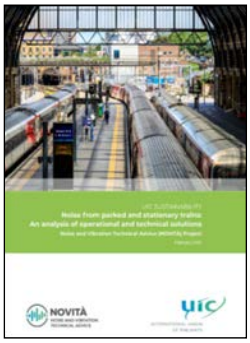
See posters: https://uic.org/events/sustainability-action-week-2025

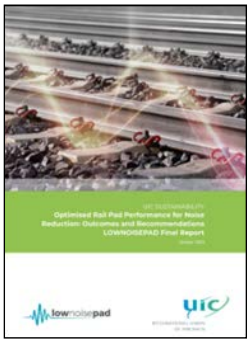
READING MATERIALS

Noise and vibration

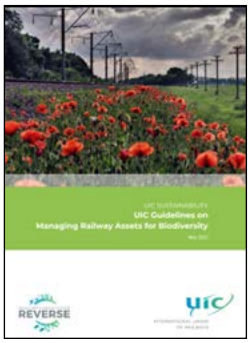


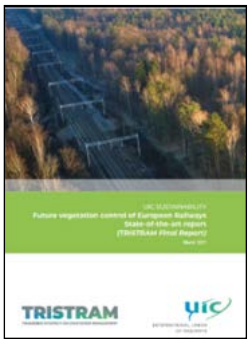






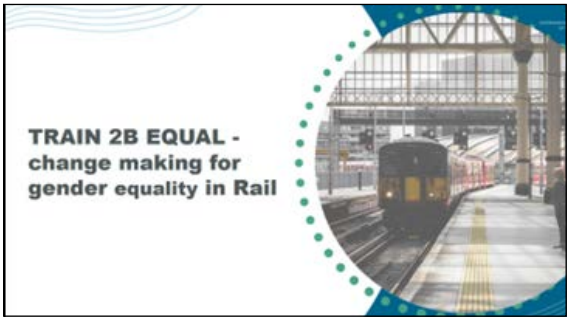
Sustainable land-use



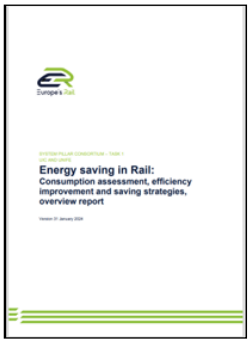


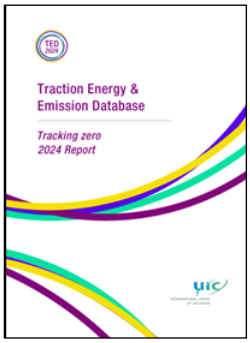
Circular economy

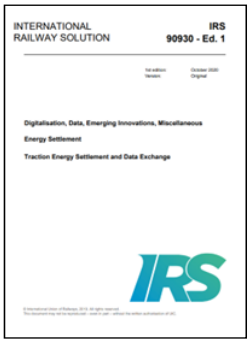
Gender



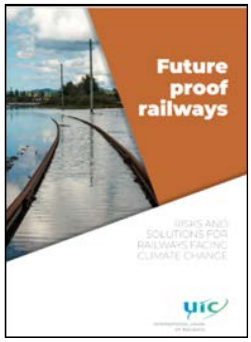
Energy efficiency & CO_2 emissions

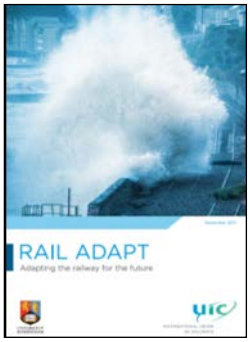






Climate change adaptation and resilience





International Railway Solutions

- IRS 70723: Technical aspects of vegetation control and tree risk management - Guidance and recommendations (link)
- IRS 75717: Track noise measurement guidelines - A methodology to measure and compare noise emissions during train pass-bys (link)
- IRS 90940: SFERA Protocol: Train Operation Data Exchange with On-Board Devices (link)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