



INTERNATIONAL UNION
OF RAILWAYS

2023

UIC SUSTAINABILITY ACTION WEEK

27 February – 2 March 2023 | UIC Headquarters in Paris, France

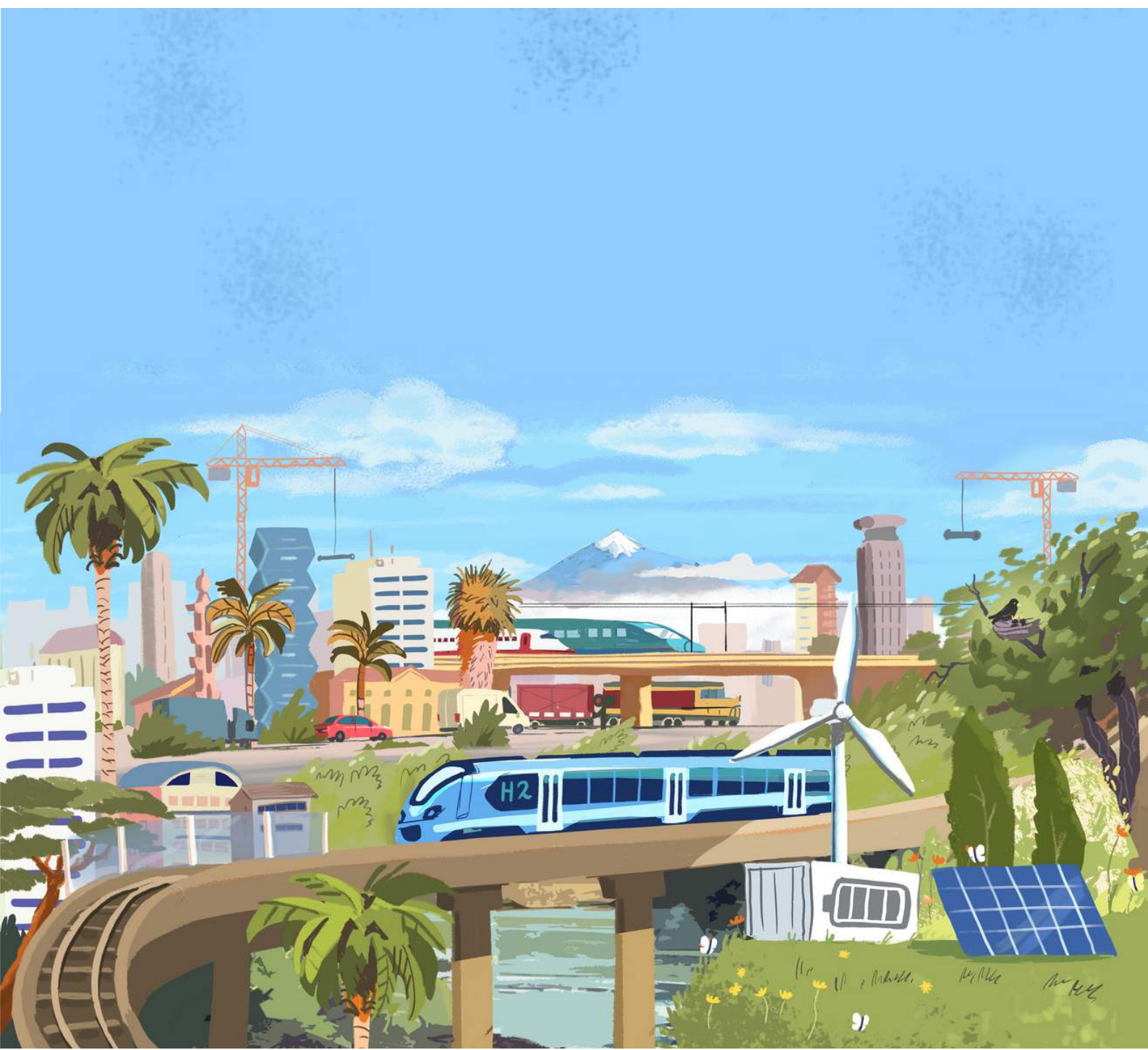


TABLE OF CONTENTS

- 1** Message from the UIC Sustainability Platform Chair
- 2** Feedback Survey and next edition
- 3** Outcome summary
 - Sharing and Collaborating
 - Celebrating Successes
 - Connect and grow networks
- 4** Annex
 - New reports
 - Acknowledgements
 - Our Sponsors

MESSAGE FROM OUR CHAIR

Welcome to all UIC members to this first 'Sustainability Action Week'. Both in person and on-line we will aim to celebrate successes, connect and grow networks, learn and update each other, share and collaborate, and create new ideas for future work.

The sustainable land use day will kick off the week. Biodiversity strategies, monitoring, reporting and enhancement, as well as policies affecting land use management will be discussed. Best practices for circular outflows in the rail sector will be discussed on Tuesday during the zero-waste railway workshop. In parallel, the railway noise days will run until Wednesday. That day also the energy saving task force will exchange its best practices with you.

It is encouraging to see that rail continues to improve, including in areas that go far beyond climate action. Noise and habitat damage remain central issues during this action week, even though significant progress has been made in recent years. More recent developments make it necessary to address newer topics such as sustainability reporting and financing. A whole afternoon will be devoted to that on Thursday.

But this week we will also celebrate the first completion of the Rail Sustainability index (RSi). While the UIC is very pleased with the participation rate achieved, I would like to extend a warm welcome to those members who have not yet submitted data. For those members who did participate by sharing the requested data, I would encourage you to actively provide your feedback and experiences with this first run of the tool.

This first edition of the Sustainability Action Week is also special in that the first ever UIC Global Sustainability report will be presented to you. 2022 has seen vital progress in many areas, with growing ambition and action within the railway. There is encouraging improvement in energy efficiency, in the use of renewables while phasing out diesel, and in the leadership and governance processes to deliver the UN Sustainable Development Goals.

In addition to rail's obvious positive contribution to climate change mitigation, I am proud to work in an industry that does not sit back complacently, but instead continuously improves itself to contribute to a better world. In doing so, the work of the UIC Sustainability Platform and its team is essential.



With kind regards,

Christine Vanoppen
UIC Sustainability Platform Chair

FEEDBACK SURVEY

Mark your calendars for the next Sustainability Action Week:

2025 Sustainability Action Week 10-14 March 2025

In the meantime, please take a few minutes to answer our feedback survey to help us organize a better event in the next edition:



OUTCOME SUMMARY



Thanks to the participation and engagement of members of the UIC Sustainability Platform and partners who attended the event both in-person and online, the first UIC Sustainability Action Week was successfully concluded. Our goal was to create a space for rail sustainability experts to come together as a community that can share lessons and collaborate to continue making greener, quieter and more resilient railways.

In the next pages, you will find a summary for each of the events, with links to further reading, and the illustrations produced by our colleagues at Flatland, during the event.

Happy reading!

***Making greener,
quieter and
more resilient
railways.***

UIC SUSTAINABILITY ACTION WEEK 2023

SUSTAINABLE FINANCE



RSI CELEBRATION



ENERGY SAVING



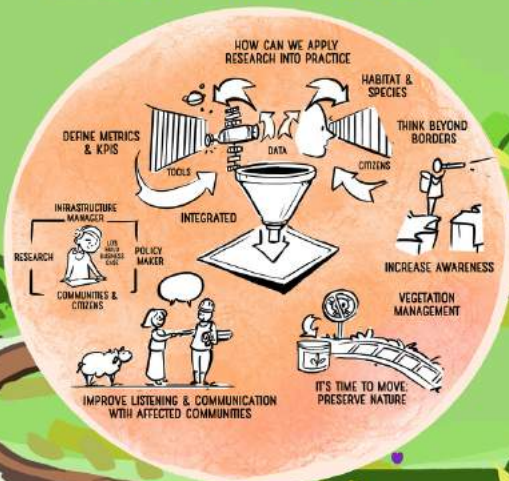
ZERO WASTE RAILWAYS



RAILWAY NOISE



SUSTAINABLE LAND USE



BISON WILDING RAILWAYS

On February 27, the "[BISON Wilding Railways](#)" event was organised by the [Biodiversity and Infrastructure Synergies and Opportunities For European Transport Networks \(BISON\)](#) project in collaboration with [UIC Sustainable Land Use \(SLU\) Sector](#). UIC is a key member of the EU-funded BISON project to represent railways and to showcase the best practices of its European members in biodiversity management.

The aim of the event was to **scale up the EU project's outcomes for railways** by providing an interactive platform for stakeholders from the transport and ecology industries to exchange ideas on the opportunities to integrate and enhance biodiversity in the railway sector and the challenges that come with this. After a hiatus in the project, the international event was a new chance to network and support the activities of the UIC Sustainable Land Use sector's members, whose results are widely referenced in the BISON project. A total of 70 participants took part in a hybrid format, with 50 of them joining the event in-person.

The in-person participants had the opportunity to join different think tank discussions moderated by BISON project leaders, which focused on the **possible solutions, obstacles and challenges related to biodiversity and transport** as a whole. Following these interactive sessions, the outcomes of the discussions and targeted high-level presentations were displayed on stage. In addition, the results and main messages of each activity were made into posters through the support of visual designers, opening up further avenues for visualisation and communication.

Click and watch:



[Yannick Autret, MTECT](#)



[Ethem Pekin, CER](#)

Break-down silos

Mobilizing research to dare to take risks and support innovative approach beyond convention

Time is running and fundings resources are rare: policies need to reinforce their coordination and adopt quickly a mix of new and progressive perspectives to create a symbiotic relationship between infrastructure and biodiversity in the transport sector. This is especially in light of the EU Biodiversity Strategy 2030, where railway infrastructure investments are required to double or triple rail traffic in the coming decades. Railways are also to play a crucial role in enriching the EU's biodiversity goals by providing habitats to rare species.

Enhance connectivity and provide opportunities

The Land cover, sealed surfaces, and nature-based solutions session discussed the threats of climate change and how to halt biodiversity loss. This includes the challenges of implementing nature-based solutions in the transport sector, the rewilding processes and the management of invasive species to be performed in synergy with daily railway operations. As a basis, this requires knowledge on the actual land use and land cover of railway lands. Presentations were given on how the application of nature-based solutions may help to increase infrastructure resilience as well as to benefit biodiversity, and the possibilities of railway operators to contribute to ecosystems and ecological connectivity preservation and restoration.

Maintain constant productive communication

Having a connection with the landscape and communities should continue to be key for the railways, as they can deliver vital biodiversity enhancement. The presentations showed how the railway, alongside other landowners, can engender a landscape change, with biodiversity strategies including the UIC rEvERSe project's vision to deliver "A well-managed green infrastructure which will bring biodiversity benefits and helps to support safer and more reliable railway operations."

Be a frontrunner in exploring and promoting alternatives

The [UIC TRISTRAM](#) project drew attention to important goals for railways regarding vegetation management: Avoid the use of chemicals, develop alternative non chemical methods, optimise the use of herbicides, and adopt new digital tools and advanced technologies. Furthermore, SNCF in France demonstrated how they have phased out glyphosate use in vegetation management and its consequent further advancement. The development of new product mixtures for use on railways, detection tools, and improved adjacent landscape management and the upgrading of conventional spray trains were given particular emphasis

Click and watch:



[Carne Rosell, Minuartia](#)



[Thomas Schauppenlehner, BOKU Vienna](#)



[John Varley, Clinton Devon Estates](#)



[Thomas Schuh, ÖBB](#)



[Michael Below, DB](#)



[Baptiste Bonzon, SNCF](#)

Click and watch:



[Sylvain Moulherat, UPGE, TerrOiko](#)



[Hervé Le Caignec, LISEA](#)



[Julia Baker, Mott MacDonald](#)



[Sila Husar, STUBA](#)



[Neil Strong, NR](#)

Enhance effective monitoring and reporting

Think tank discussions drew the attention to what biodiversity value is, and how to monitor and measure it thanks to digital models such as Building Information Modeling and Digital Twins to help managing the cooperation between practitioners from different sectors working on the same infrastructure. The expected future role of digital tools on the key issues within the scope of the BISON project were highlighted, explaining what the existing monitoring mitigation hierarchies are and how to implement them with support of digital models. Case studies regarding biodiversity monitoring, management and reporting in the rail sector were presented, addressing both operators and infrastructure. Metrics should be developed to achieve a biodiversity net gain and not only enhance biodiversity but also combat the climate crisis, via an innovative approach to the development and adaptation of nature-based solutions for carbon sequestration and land stabilisation on railway terrain.

Develop tools for ecosystems services

As part of the BISON project, an e-learning platform to gain knowledge on ecosystem services is being developed to raise awareness about the needs, benefits and limits of harmonising transport infrastructure and biodiversity protection. Moreover, detailed information on the [UIC Ecosystem Valuation for Railways \(ECOV4R\)](#) project was presented, which is a global platform on how to apply ecosystem services thinking and science to land management techniques, and to better understand the habitats and associated services on railway land.

WANT TO KNOW MORE?

BISON can be followed on [LinkedIn](#), [Twitter](#) and on its [project website](#)

The documents of the event can be found on the website: [link](#).

Contact the team:



Pinar Yilmazer

Senior Programme Manager - yilmazer@uic.org
Noise & Vibration | Sustainable Land Use



Lorenzo Franzoni

Junior Sustainability Advisor - franzoni@uic.org
Sustainable Land Use | ERPC Working Group

MAINSTREAMING EU BISON PROJECT OUTPUT AMONG RAILWAY STAKEHOLDERS

1

BREAK DOWN SILOS



2

BE a FRONTRUNNER in EXPLORING and PROMOTING ALTERNATIVES



TALK WITH THE COMMUNITY



MANTAIN CONSTANT PRODUCTIVE COMMUNICATION

3

DEVELOP EFFECTIVE MONITORING & REPORTING



UIC Railway Noise Days 2023:

INTERACTIVE ACTIVITIES TO BE A GOOD NEIGHBOUR

Taking place between 28 February and 1 March, the [UIC Railway Noise Days 2023](#) once again convened experts from different backgrounds to tackle the problem of noise on railways. The biannual gathering in Paris, with an alternative framework that supports interactive participation by changing the traditional workshop culture, hosted around 100 participants, of which 80 were in person.

To inspire solutions to mitigate railway noise and leverage the collective knowledge of the diverse participants, the concept of “What if I were in your shoes” was conceived as an open discussion platform where participants positioned themselves in a different stakeholder position to contribute to effective noise mitigation as well as the European Zero Pollution Action Plan.

NOISE DAY 1

On UIC Noise Day #1, insights from the hackathon discussions were blended with presentations from key speakers to support the active briefing. Speakers representing policy, lineside residents, suppliers, infrastructure managers, operators and researchers shared with participants the latest activities they are currently engaged in.

Click and watch:



[Marco Paviotti, EC-DG ENV](#)



[Ethem Pekin, CER](#)



[Pinar Yilmazer, UIC](#)

Policy

The session focused on the latest developments at European level for the management of railway noise. Marco PAVIOTTI from the European Commission DG Environment explained how the Commission builds up the railway noise policy. The session was concluded with a presentation from the Community of European Railways (CER) by Ethem PEKIN concerning noise-free future on the way to the modal shift to rail. The key message was that being a good neighbour requires action at all levels to reduce the number of people chronically disturbed by transport noise and that the cost-effective solutions currently available on the railways need to be urgently implemented in a holistic approach.

Supplier

Joan SAPENA from ALSTOM explained the challenges faced by suppliers when delivering rolling stocks regarding noise performances, local specifications, policy compliance and noise sources considered to be related to external factors. Heike BRICK from DZSF, emphasised how suppliers may best support the learning curve through collaborative activities and highlighted that EU funded projects are important steps in bringing together different sectors to create solutions and deliver the optimum value.

Click and watch:



[Joan Sapena, ALSTOM](#)



[Haike Brick, DZSF](#)

Operators

Martijn WOLF from NS has then presented to the audience relevant insights on the main noise related issues for operators namely pass-by noise, parked trains noise and starting noise. In this regard, the procurement specifications play a vital role for operators. The hackathon discussion moderated by Jamie WILKES from Network Rail highlighted the trade between costs and noise. A strong focus was put on the concept of incentives and how these are tight with communication with infrastructure managers, information gathering, equal treatment from policy makers and delivery of cost-effective measure complying with operator's efficiency goals. The key appears to be in identifying a path between innovation and implementation, reinforcing collaboration between stakeholders and incentivising change



[Martijn WOLF](#)



[Jamie Wilkes, NR](#)

Research

Thomas MALY from TU Wien presented the current ongoing activities in Austria on noise prediction models regarding Rail roughness, Curve squeal, Transparent noise barrier elements and Wheel defect noise. In this regard, reliable noise prediction is essential for reasonable and timely noise protection and improvements of the European prediction model are required for legally binding predictions. Lorenzo FRANZONI from UIC summarized the outputs of the discussion on research in the railway sector underlining the struggles in accessing funds, the difficulties in having long term projects and the issues regarding the application of global innovations on a local scale.



[Thomas Maly, TU Wien](#)



[Lorenzo Franzoni, UIC](#)

Click and watch:



[Laurent Droin, CidB](#)



[Alf Ekblad, Traficverket](#)



[Urs Schoenholzer, SBB](#)



[Michael Dittrich, TNO](#)

Lineside resident

The presentation from CidB, represented by Laurent DROIN, drew the attention on how complaints are collected and managed to solve environmental noise pollution in France. Alf EKBLAD from TRV summarised the group's opinion on how residents' expectations should be managed and how trust can be gained and what lineside residents expects in terms of actions. Strengthening the communication between local authorities and organisations is important to determine how neighbours perceive and frame complaints and is in fact an often a key factor for the best way to resolve the problem in the simplest way.

Infrastructure managers

Urs SCHOENHOLZER from SBB informed the audience that infrastructure managers have achieved substantial noise reduction in the past. However, future progress require an intensive collaboration of all stakeholders in the entire field, including research institutions, suppliers, operators and policy makers. Michael DITTRICH from TNO managed the hackathon discussion on this matter where the obstacles and possible solutions in a growing railway demand were identified. For noise reduction, cost-effective solutions are required, whilst overcoming obstacles such as funding, other regulations, test track availability, technical risks and system bottlenecks

Concluding remarks

The moderator of the event Jakob OERTLI, Chair of the UIC Noise Vibration Sector from SBB in his closing remarks, pointed out the value of dialogue with various stakeholders in combating railway noise, the importance of open-discussion platforms that encourage collaboration rather than a single point of view, as well as focusing on existing solutions to achieve being good neighbours, and congratulated the participants for their contribution to the railway sector.



NOISE DAY 2

During UIC Noise Day #2, UIC Rail System Department organised a panel discussion moderated by Christian Chavanel, Rail System Director at UIC, together with the chairs of the UIC sectors, in order to underline the specific role of collaborative efforts to address noise on railways and to promote collaboration towards achieving noise mitigation on railways. The participants were then provided with an overview of current UIC activities, the results of which are of interest to acoustic and track engineers as well as other stakeholders. In this regard, the [UIC LONWOISEPAD](#) project and UIC's work on acoustic rail roughness were shared with particular emphasis. Further presentations by Eduard Verhelst from SD&M and Emilie Freud from SBB can be viewed on the YouTube channel.

Slides from both days of the workshop can be downloaded via this link: [UIC Railway Noise Days Documents](#).

Click and watch:

lownoisePAD



[Eduard Verhelst, SD&M](#)

Acoustic Rail Roughness



[Emilie Freud, SBB](#)

MISSED THE EVENT?

Presentation recordings can be found on YouTube in the [#UICRail Sustainability Action Week - 2023 Playlist](#)

Contact the team:



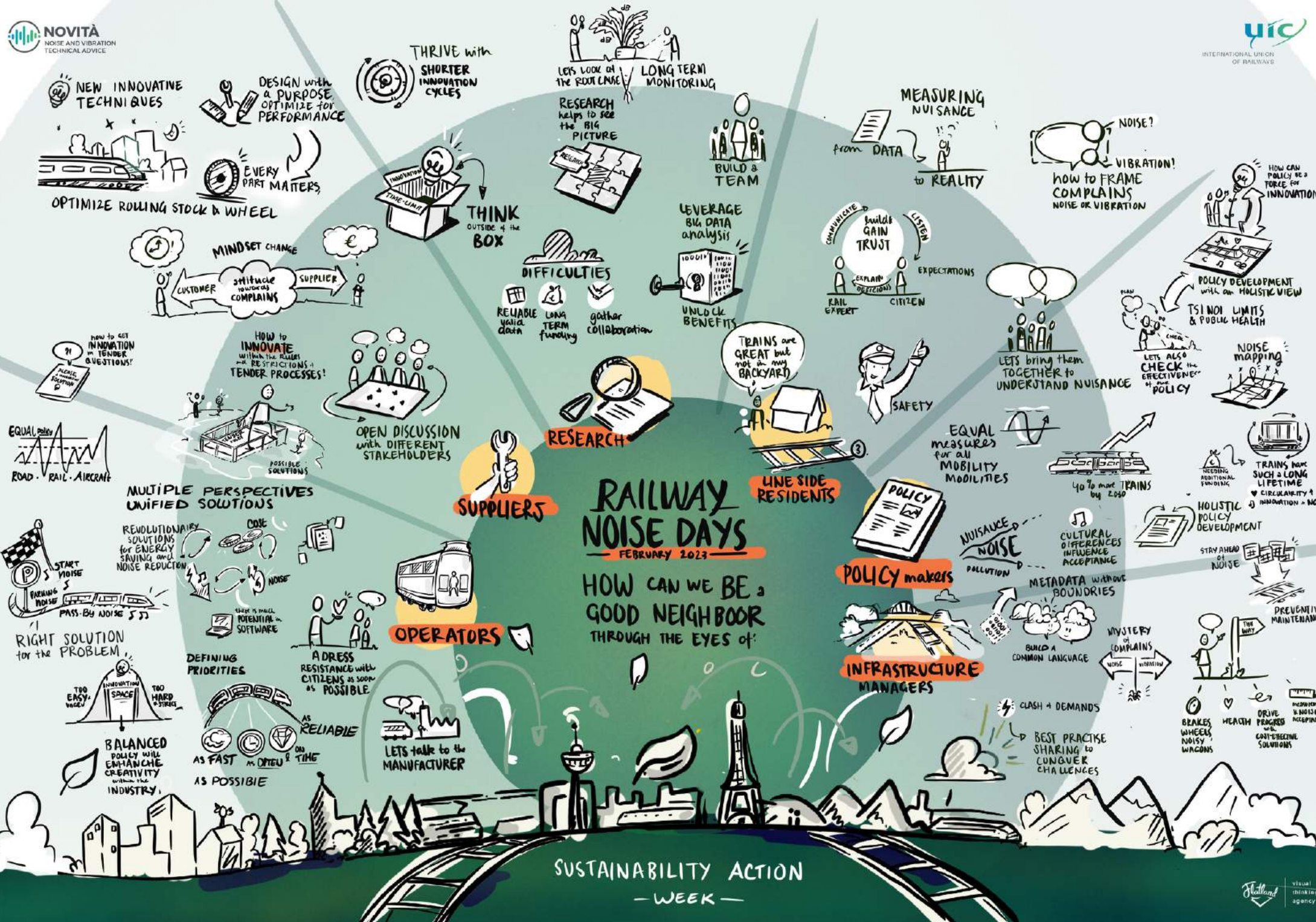
Pinar Yilmazer

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Sustainable Land Use | ERPC Working Group



Zero Waste Railways:

CIRCULAR OUTFLOWS

The second edition of the Zero Waste Railways workshop invited Circular Economy Experts from the rail sector to focus on circular outflows and share practices to help reduce the environmental impact at the end of the lifecycle of products.



Keynote on circular outflows

Leyla Acaroglu's presentation focused on how to optimize the value delivered to society and reduce the negative externalities produced in the process. A key step in closing the loop is stepping back focus on recycling and recalibrating it to address on design and how to create products that take into consideration the lifecycle of the material - 'designing it for the future'. Highlighting Redesign as the key solution to create end-to-end systems, asset management as a key enabler in going 100% circular by including circularity parameters in procurement. A behaviour shift is needed to start considering the Earth as a huge metabolism able to digest biological waste in a benign way, but not technical streams (such as polymers, steel, concrete). This cultural shift also requires considering products as services designed to meet needs, instead of making profit, and to regenerate our ecosystem. This will foster value creation and long-term partnerships with stakeholders. Tools such as LCA are of great help. Leyla Acaroglu ended her keynote emphasising the importance of making the human experience desirable to make people feel they are gaining something in the process.

Session I

Best practices to achieve circular outflows from the Rail transport sector



The Green Rail project

Bénédicte Gourmandin, CE engineer, SNCF Réseau

The project was aimed at improving rails life cycle at every stage, assuming used rails could serve as raw material for new rails produced locally, reducing logistics costs, while at the same time supporting the French steel industry. A small scale short-loop model was tested successfully during the Covid-19 pandemic. Relying on close collaboration and coordination between worksites and external stakeholders, the new rails produced contain 35 % of recycled steel from end-of-life rails, are 100% quality and safety compliant, were transported by train to the track renewal sites. And the transition from foundry to electric steel plant saved a total of 200 kt CO₂e.



The “99% Circular Trains” programme of Dutch Railways

Ilse de Vos-van Eekeren, Circular Business Manager, (NS)

The project of 20-year-old train modernization started in 2016 with the aim to extend the lifetime of rolling stock by 20 years. 85% of the dismantled end-of-life products could be reused. 14% gained a second life elsewhere. The remaining 1% was incinerated for energy recovery. To save non-recyclable products from landfill NS sought for industrial partners to industrialize upcycling. Dozens of upcycle products have been produced in collaboration with a network of upcycling companies and partners and were sold in upcycle pop-up stores demonstrating that waste does not exist. NS is also seeking for new partners for further EoL products and has been involved in other initiatives such as Eurospec, Europe’s Rail Joint Undertaking and Biomicyr.nl to promote smarter design. More at www.ns.nl/upcycle.



Structural re-use of traditional thermoset composites

Pieter Schreuder, researcher at Windesheim University

The reuse of traditional thermoset components has been scaled up to industrial technology and has provided a good business case for cost and CO₂-footprint reduction. Leaving the composite structure intact, the method uses composites as reinforcing elements in new composite products with addition of virgin to embed pieces of EoL composite. New products are strong and water-resistant and suitable to produce composite products of larger weight and simple shapes (profiles, panels). Demonstrators such as retaining wall, guiding beams, bridge decks and crane mats were implemented and gave excellent performance in terms of environmental safety (no leaching of dangerous chemicals). A rail sleeper was produced for NS from reused thermoset composite.



The New Eurospec Circularity Requirements

Martijn Wolf, Consultant, Ricardo Rail NL, environmental advisor for NS

The EuroSpec project was initiated by a group of European railway companies with a common interest to apply circularity principles to reduce life cycle cost of rolling stock, shorten delivery time, and speed up innovation cycle and deployment, to fill in harmonization/standardisation gaps, provide input to standardization processes and exchange on needs with the industry. EuroSpec bridges the gap to achieve higher residual value, reduced GHG emission, secure implementation of mono-materials and reversible connections, while reducing dependence on virgin material and increasing resilience of rolling stock procurement process. Based on existing definitions and standards and Circular transitions indicators of the WBCSD, the text requires a recyclability rate of at least 95% of the total Train Set mass, as well as justifications when materials cannot be recycled.

Read more here <https://eurospec.eu/circularity/>



The SUR+ app

Katy Beardsworth, Circular Economy Strategy Manager, Network rail

Network Rail was confronted with overordered materials creating surplus stocks (invisible assets) ending up as waste. Disposal of waste is charged to the company, generating public money as well as resources losses and unnecessary carbon emissions. To solve this issue, the SUR+ app was developed as a digital asset exchange platform and a centralised digital bank allowing management of assets and offline stocks across the business. The tool contributes to the reduction of extraction, carbon emissions and waste, generates cost savings, and accelerates procurement. Future development will improve the tool, increase engagement, and its use will be extended to external contractors to secure more savings.



Zero Waste Rolling Stock

Bruno Muller, Director of Strategy and Sustainability, Porterbrook

Porterbrook owns 25 % of UK passenger rail fleet and oversees the whole-life asset management. It has therefore an interest in keeping its rolling stock in service as long as possible. Porterbrook's supports the UK government's policy ambition to achieve 0 waste to landfill by 2025 and incorporates circular design as standard. Cases of 100% reuse of carriage include end-of-life passenger coaches donated to schools as a science lab, as additional classroom or library, extra space for children or adults outside hospitals. To balance off donation project costs (not generating profit), Porterbrook closed a sustainability-linked loan in 2022 including sustainability KPIs. When KPIs were hit, discounts were given on interest rates.



Zürich Werkstadt – Sustainable and circular transformation of an industrial area

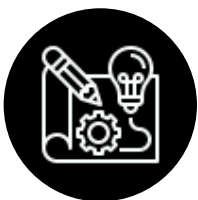
Heike Kiefer, Co-Head of Center of Competence CE (CoC CE), Swiss Federal Railways

This project was aimed at creating a workplace for local urban production as part of circular economy, to protect Zürich's heritage buildings and provide meeting spaces in the neighborhood, in constant dialogue with the users. It used a systemic approach and circular economy principles to ensure efficient resource water and energy use, low emissions during construction and operation, as well as preservation of ecologically valuable areas to help with climate change adaptation.

Specific case studies featured reuse of catenary masts or lighting railings, as well as reuse of old outdoor lighting modules to provide SBB with "Lighting as a service". An LCA showed that the reuse of material on the site would generate savings in CO₂eq, highlighting the importance of design to analyse/identify what and how existing material can be reused. Concluding her speech Heike Kiefer pointed out that digitalisation is a key enabling factor for reuse and will help the Swiss Railways reduce the need for storage space by optimizing use of materials spread nationally.

Session II

Extending the lifetime of products, Supply industry



Circular Economy at Alstom

Camille ROZANES, Responsible for Sustainable Solutions development

A global player for sustainable and smart mobility products and services for the rail industry, Alstom has embedded sustainability and CE in its corporate strategy. The 3 pillars of Alstom's CE strategy are "Design & supply" (resource intensity reduction and low impact materials), "Maintain & modernize" (env. impact of services is influenced by parts management, life extension based on renovation/repair, reuse/resell), and "Manage waste & recycle". Alstom is meeting the 2nd pillar challenges by using 'green materials' and forging partnerships, setting up a second-hand marketplace open to the public (StationONE) and repair supply capabilities. For the 3rd pillar, Alstom has put in place 'design for recyclability' & 'use of recycled content' by developing re-use & expanding lifespan with its LABEL RECQ, its brand for quality reconditioning of refurbished electronic products. To foster workforce engagement and collaborative work, Alstom organised a Circular Economy innovation race, where 11 sustainability and CE projects were shortlisted to be integrated into Alstom products and services.



Circular Economy at Schneider Electric

Shreya Uday Sonar, Circularity Senior Program Manager, Global Environmental Team - SCHNEIDER Electric

SE provides energy and automation digital solutions for efficiency and sustainability globally. SE new ESG strategy includes 6 Long-term Commitments (5 global +1 local): positive climate action, efficient resources management, Principles of Trust, equal opportunities, consideration of all generations and of local communities. Regarding resource efficiency (circular economy, CE), SE has put in place several frameworks and programmes (including CE KPIs) and will be scaling up its global circular programme from 2021 until 2025.

Successful examples of circularity implementation by SE include EcoDesign as part of its Green Premium programme that integrated the new compulsory repairability index (French law) in SE innovations. EcoFit is SE circularity and repairability service offer based on a modernisation programme to extend lifetime performance of equipment by 25 %, while reusing material. The Remanufacture product takeback program sets up a New Business Model where used equipment is recollected, disassembled, diagnosed, upgraded and tested and sent back to customer for reuse.

Interactive session



Using the Circular business canvas to address the impacts of our business models

Brieuc Saffré, CEO, Circulab

This last interactive part hosted by Brieuc Saffré reminded participants that we are part of living systems that are ready to collapse, requiring the design of new business models that are resilient. Participants were invited to work in groups on the design stage of a product. The importance of the essential needs of the end-users to be met with this product was highlighted to remind participants to bear in mind the capacity of Nature to meet this need. A “serious game” exercise involving “Regeneration” a fictitious furniture company based in France helped participants reflect on a product design including the product’s next stage (second first life) at end-of-life. The Circular Canvas is available in this [link](#).

Contact:



Isabelle De Keyzer

Senior Sustainability Advisor - dekeyzer@uic.org

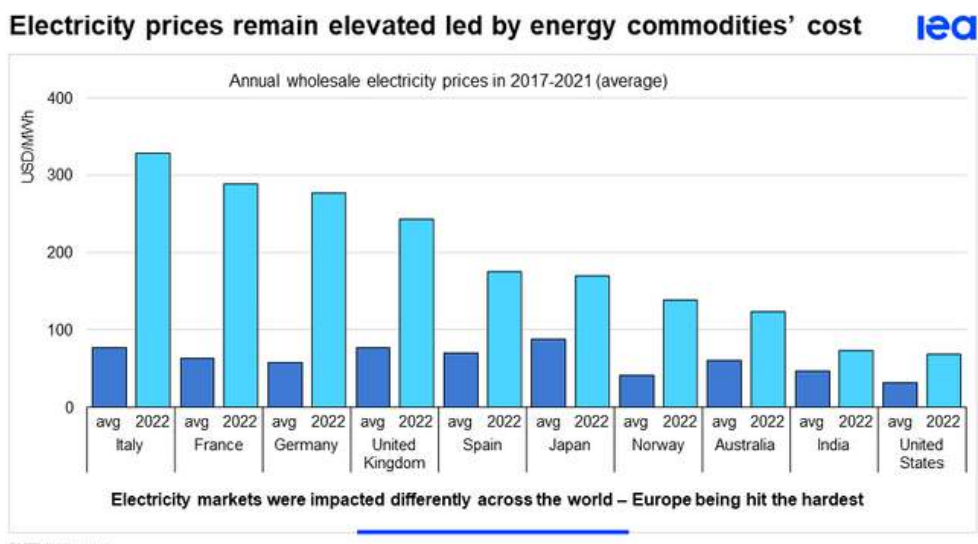
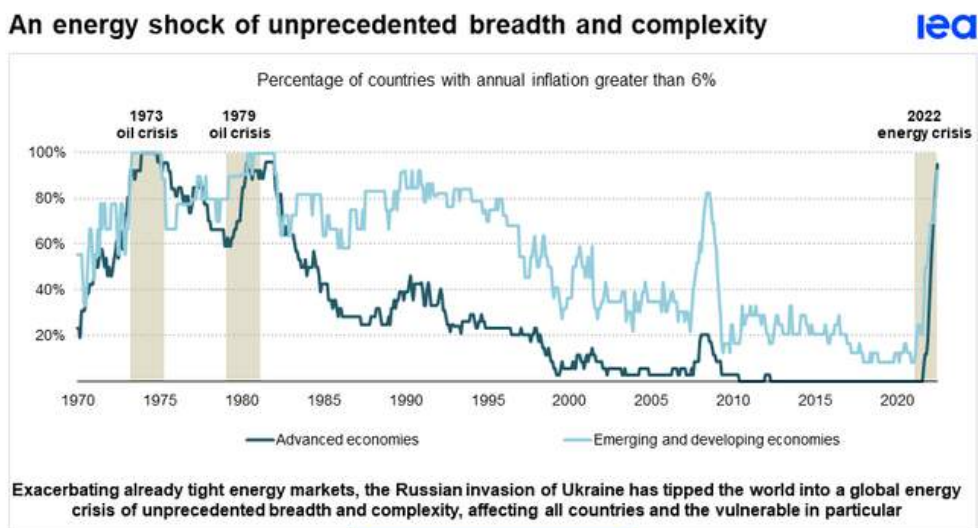
Circular Economy

Task Force on

ENERGY SAVING

UIC launched the Energy Saving Taskforce in November 2022 to provide a platform for collaborative knowledge sharing on techniques to save energy, fuel and costs for railway operations. As a highlight and conclusion to the first part of the Task Force's activity, an in person best-practice-sharing workshop was organised on the 1st of March.

The workshop started with a presentation from the International Energy Agency (IEA) based on the latest World Energy Outlook and the implications to the transport and rail sectors.



For the full presentation, click [here](#).

The workshop continued in parallel sessions, where participants discussed in small groups the following topics:

Energy contracts and Partnerships



Railways beside the energy market

The railway sector has a different relation with the energy market in each country. Thus, it is challenging to define a single “optimal” approach.



Use of Renewables

Rail makes maximal effort in connecting renewable energy to the railway infrastructure. This helps us to limit our exposure to electricity price fluctuation.



Stay competitive

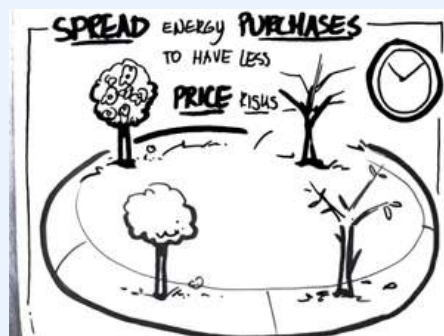
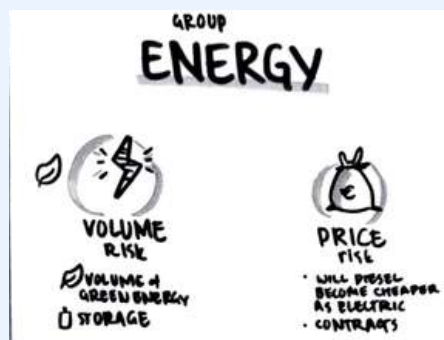
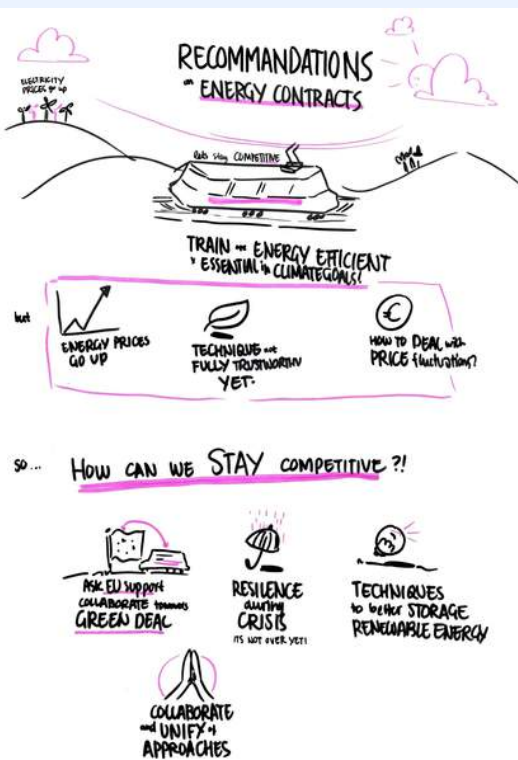
Rail wants to support countries to reach climate goals overtransport level. But we need to be able to do so. However, electricity prices were skyrocketing in 2023. How can we stay competitive? If rail is not competitive transport will shift to more polluting and less energy efficient modes



Risk hedging

Energy market wants to reduce risks and shift risks to end consumer. This will make it even more difficult to stay competitive.

For the full presentation and discussion content, click [here](#).



Operation and Rolling Stock



Moving forward

Buy the best and most energy efficient rolling stock.



Improve existing rolling stock

- I. with new components, e.g. LED as lighting source
- II. with new software, e.g. ecostabling



Energy optimised stabling or 'Eco-stabling'

Improve the way to use existing rolling stock, e.g. ecostabling organisation



Energy optimised driving or 'Eco-driving'

Improve the driving patterns of the trains, e.g. ecodriving information to train drivers

For the full presentation and discussion content, click [here](#).

NORWAY 2017
 NO. 1 INTEGRATED LOCAL TRAIN 2017
 SWITZERLAND 14%
 FRANCE: 10% (10% of energy)

BRAKING ENERGY
 SAVING and REGENERATED ENERGY by ELO-DRIVING

A. REGULATION
 DIFFERENCES between COUNTRIES

B. ADVICE is CHALLENGING by CULTURAL DIFFERENCES

TRACTION SYSTEM OPPORTUNITIES
 LIGHTNING of STORAGE
 LED? INFO INFO AS MUCH AS EXPECTED
 COST of STORAGE & GREEN ENERGIE

GROUP 3: OPERATIONAL MEASURES
 for RAILOPERATORS
 COST/BENEFIT/TIME/ENV.
 RADICAL ECO STABILING

ECO STABLE
 push down the parking graph automatic by HUMAN!

FRESH AIR INTAKE
 CONTROL CALL IN THE TRAIN TO SAVE ON HEATING

ECO-DRIVING
 SIPS IN TRACTION

3 main CHALLENGES

- Get the consumption information at the end of the Trip (driver assessment)
- Acceptance of the Tool / driving historical (5% in SBB)
- Get the good and complete track data collect

3 main SUCCESSES

- TEACH the drivers with DAS "Bottom-up" to not worth to use it
- Good ACCEPTANCE by freight drivers and traffic managers
- Punctuality really improved

What could be the next steps with UIC to go on?

- Best practices sessions
 - online workshops
 - onsite meeting
- SFERA Group go on

USER GROUP

ECO-DRIVING
 IT'S ABOUT TECHNIQUE & TRAINING

DRIVING ASSISTENT TOOLS
 REQUEST
 INFO TO TRAIN DRIVER
 TRAIN DRIVER
 VALUE RANGE (THE DAS) SYSTEM
 IT'S A SUCCESS STORY
 WE NEEDED THE DRIVERS
 PUNCTUALITY WAKE UP!

HOW CAN WE SAVE ENERGY WITH ECO-STABILING?

TEMPERATURE OUTSIDE & TEMPERATURE IN THE TRAIN (1°C in ECO mode)
 LIGHT OFF? → HOLD MUCH ENERGY CAN BE SAVED!

THREE APPROACHES
 MANUALLY
 TO GO TO COACH
 ECO-DRIVING
 TO GO TO COACH

WHAT WE LEARNED
 CONNECT TRAIN → STABLE
 TIME TABLE
 HOW TO WAKE UP THE TRAIN TIME?

Infrastructure and Buildings



Main consumption drivers and solutions

Switching to more efficient lighting (LED), making more use of energy storage with renewable energy, improving switch heating and curves/speed limits for traction energy savings for undertakings.



Monitoring

Being able to track consumption levels is key to know where to save (can't control what you can't measure).



Management challenge, Awareness, Training of staff

Making the entire personnel aware and actors of the saving strategy.



Funding measures

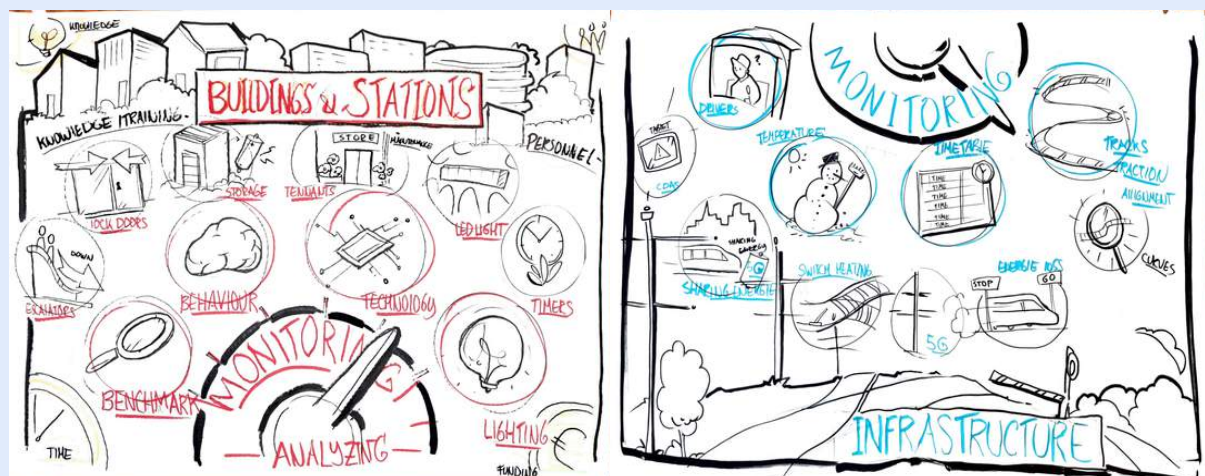
A lot of technical saving measures require large investments (over the whole set of buildings).



Time

As for funding, deployment of solutions would require a lot of time (e.g. about 3000 stations of SNCF needs time for management).

Visual summary of discussions:



CONCLUSION

The sessions allowed to identify, by field of activity, what should be dived into. Eco driving and eco stabling as ways to go further in saving traction energy, will continue being explored by UIC Members following the session. Beside that, Driver Advisory System and Energy Measurement Systems are key levers to get more benefits.

Competitiveness of rail remains of importance for energy saving and sustainability but dealing with the energy market make it challenging, in these times of crisis and it is to be continuously assessed given the evolving context.

The infrastructure and buildings management appears to be more challenging versus proper funding, time and resources management, given the scale of changes that should be made. Identifying specific solutions for energy saving and sharing experience will continue under the frame of both the UIC Energy & CO2 Sector and UIC Energy saving Task Force.

For full agenda, reading materials and presentations of the Energy Saving Workshop, click [here](#).

Contact:



Philippe Stefanos

Senior Sustainability Advisor - stefanos@uic.org.
Energy & CO2 | Air Quality

TASK FORCE ENERGY SAVING BEST PRACTICES



GROUP 1 OPERATIONS & ROLLING STOCK

A LOT OF ENERGY ^{can} be saved by HAVING high-speed TRAINS ECO STABLING

WE ASKED DRIVERS about ECO DRIVING!



A ECO STABLING



BEST PRACTICES

and SHARE with MEMBERS



HOW CAN WE PUT TRAINS ASLEEP and WAKE THEM UP?!

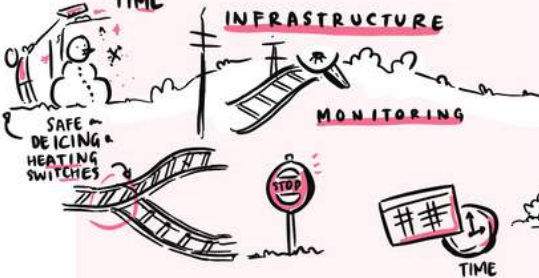
SIDE BENEFITS of ECO STABLING



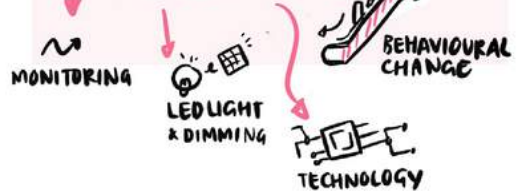
B ECO DRIVING



GROUP 2 INFRASTRUCTURE & BUILDINGS + STATIONS



IDEAS:



GROUP 3 ENERGY

CONTRACT & PARTNERSHIPS



HOW DO WE STAY COMPETITIVE with higher PRICES?



SAVE ENERGY by PUTTING IT INTO SLEEP MODE



CHALLENGES



SPREAD ENERGY PURCHASES to MITIGATE PRICE RISKS



BEST PRACTICES:



UIC SUSTAINABLE FINANCE

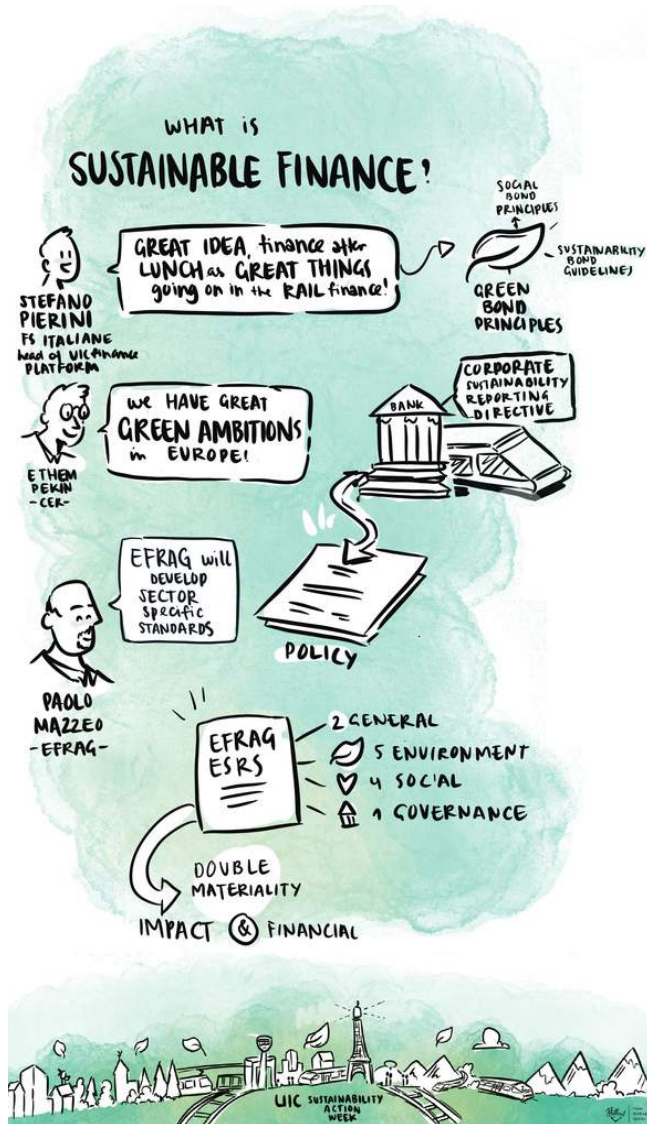
The Sustainable Finance workshop brought together members of the Sustainability Platform and the Finance Platform for the first time, to discuss the nexus between the two initiatives and how to better align both to attract more finance into rail.

What is Sustainable Finance?

In the first part of the event, Stefano Pierini, FS Italiane, and Head of the UIC Finance Platform provided an **overview of the definition of sustainable finance** and presented its main products and highlights of the market, with an optimistic view of the growing market and potential for rail to benefit from it.

Following the scene setting, Ethem Pekin, CER, presented the implications of the **EU Taxonomy and the Corporate Sustainability Reporting Directive (CSRD) for the European rail sector**, but also the opportunities that stem from improved reporting, such as more credibility, reduction of 'greenwashing' and potential to promote modal shift.

Finally, Paolo Mazzeo, EFRAG, took a deep dive into the CSRD and its **innovative double materiality approach for sector agnostic reporting efforts**. Rail activities are still pending approval for sector specific reporting standards, which are being developed between 2022-2026.

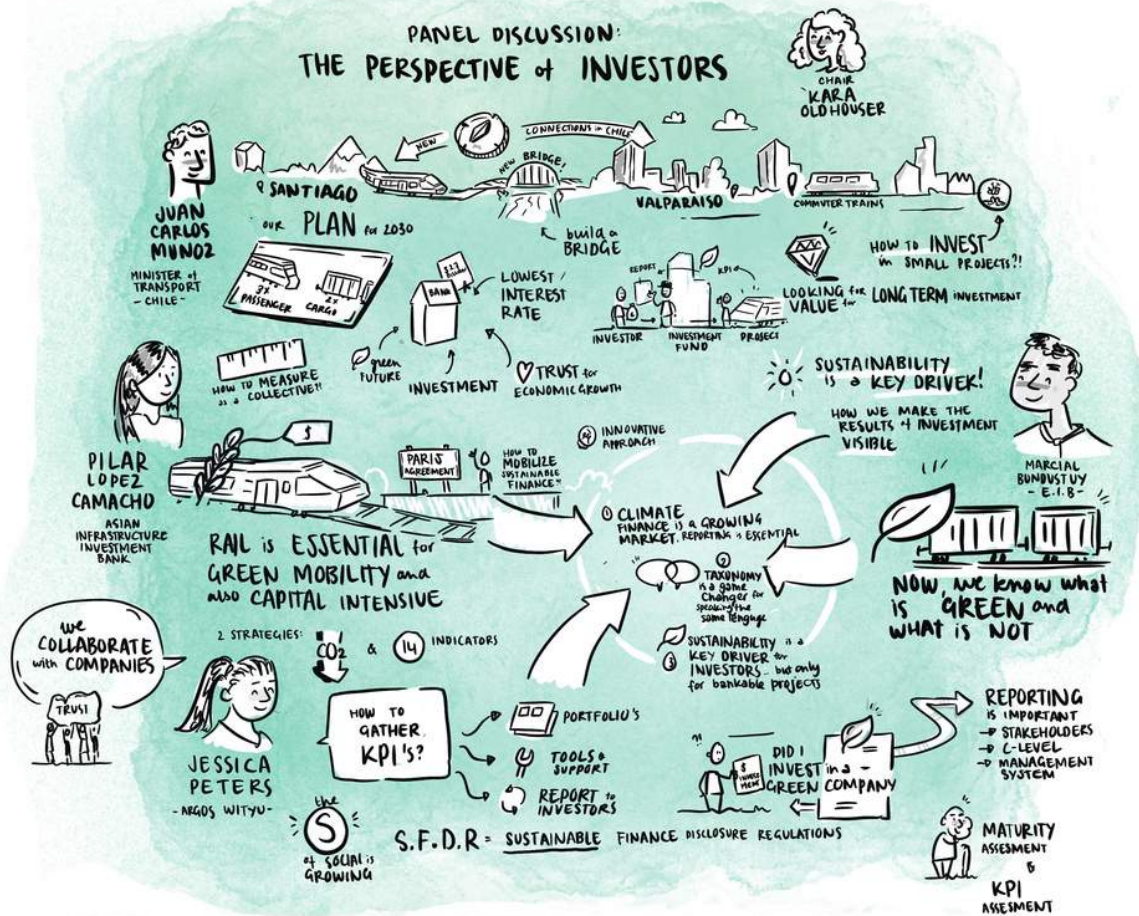


Click and watch:



Ethem Pekin, CER and
Paolo Mazzeo, EFRAG

2023 UIC Sustainability
Action Week



The Perspective of Investors

In the second part, a panel discussion moderated by Kara Oldhouser, Amtrak, convened distinguished speakers from public sector, **Multilateral Development Banks (MDBs)** and **private sector on the opportunities for rail to attract climate finance**. The Minister of Transport of Chile, Juan Carlos Munoz, shared the country's goal to triple the number of passengers and double the cargo transported by the state railway company, by 2027, using green bonds and private investment to finance the high speed, commuter trains, and freight rail projects. Pilar Lopes Camacho, Asian Infrastructure Development Bank, and Marcial Bustinduy, European Investment Bank, have both addressed the importance of MDBs in supporting rail companies to mobilize private capital, de-risking investments, focusing on the importance of good reporting to ensure the verifiable impact of investments. Finally, Jessica Peters, Argos Wityu, shared the perspective of investment funds and the importance of KPIs to demonstrate to investors, the ESG performance of their portfolio.

Click and watch:



[Juan Carlos Munoz, Minister of Transport, Chile](#)



[Pilar Lopez Camacho, AIBB](#)



[Marcial Bustinduy, EIB](#)



[Jessica Peters, Argos Wityu](#)

Best practices at UIC

UIC members shared practical examples of use of such sustainable finance products, with a short discussion moderated by Christine Vanoppen, LINEAS and Head of UIC Sustainability Platform.

The first example was of FS Italiane, on how sustainable finance is endorsing a sustainability strategy in that **ESG principles guide the company's financial decisions**.

Jernhusen committed to reaching climate neutrality by 2045 and has recently launched a new framework for new green financing. Combining certification programs with energy efficiency requirements that are evaluated by third parties, it is an example of cooperation between finance and sustainability creating a **virtuous cycle for investments in railway related infrastructure**.

In 2022, ONCF launched the first green bond project for the infrastructure sector in Morocco, and first in the mobility sector in Africa. Thanks to this issuance, the company was given financial capacity to attract further investments, allowing **ONCF to continue carrying out its green transformation by switching 25% of its overall energy consumption to green energy**, to reach 50% in 2023 before increasing 100% in the medium term.

The day was concluded with a short exercise to collect some of the views from participants on what UIC can do to support its members in this topics. Suggestions included continuing to find and share great best practices and case studies in sustainable finance for rail, as well as developing materials that shed light on **how we can move from setting goals to implementing transformation, using tools like sustainable procurement**.



Click and watch:



[Pia Orthen, Jernhusen](#)



[Oussama Lachhab, ONCF](#)

Contact:



Joo Hyun Ha

Senior Sustainability Strategy and Int'l Partnership - ha@uic.org
Global Advocacy and Gender Equality working group

2023 UIC Sustainability
Action Week

RSI CELEBRATION **FIRST** SCORING CAMPAIGN

The Rail Sustainability index (RSi) event celebrated the first year of data collection and shared the success stories of RSi users based on their SDG performance. The RSi tool was designed to collect data, share best practices and to show rail as leading sustainability solution. In this event, the 1st UIC Global sustainability report, based on the analysed data from the RSindex and other UIC databases such as the RailISA statistics, the Traction energy and emissions database as well as from case studies of winners of the International Rail Sustainability awards 2022.

Some of the best in class

Companies that achieved a high score in Environmental, Social, Governance sustainability parameters shared the best practices that set them up for success.

Social Sustainability

Fabio Sgroi, Italo S.p.A



Italo addressed social sustainability by focusing on SDG 5 gender equality with the adoption of an ethic code and corresponding monitoring. As part of its gender equality policy, Italo also wished to enable women to avoid violent situations in their professional and family life by giving all female staff members a self-defence training, and by setting up a framework to prevent gender-based violence. Italo promotes gender equality as part of the wider diversity inclusion (gender, ethnicity, physical and motor disability). Regarding its contribution to SDG8 Full employment and decent work, Italo's HR policy has been focusing on providing vocational training to its staff. In addition, Italo has a high share of permanent contracts, and its health and safety management system is OHSAS 18801/ISO 45001 certified with appropriate monitoring. To demonstrate Italo's support to sustainability and economic growth, the company has developed an impact assessment model measuring the reduction of GHG emissions, the GDP growth associated with tourism and monetary value for passengers, and the reduction of road accidents. The company considers training hours monitoring and wider welfare initiatives as integral part of a decent work environment philosophy.

Engaging the workforce with REPAIR badge ecosystem



Tjaša Govedič, Slovenske železnice

The REPAIR project was set up to create communities of practices engaging staff members to make their contribution to the SDGs visible by using digital open badges. Tjaša Govedič explained that the open badge ecosystem was presented at a workshop to the Slovenian railways trainers of rail workers who earned an "SDG Aware badge". A survey revealed they were feeling empowered by the badges and were eager on knowing more on how to integrate SDG awareness and ways to contribute to their achievement in their curricula. Soon the Slovenian Railways will develop more badges such as "Sustainable Trainer" and will include sustainability and contribution to SDGs in the training curricula.

Engaging the workforce with REPAIR badge ecosystem

Carlos García, ADIF



ADIF, the main infrastructure manager in Spain and one of the largest high-speed networks in the world with 4000 km of high-speed tracks, presented its actions within the REPAIR project. With its six training centres, 120 staff members and 100 trainers providing training to the whole staff, ADIF is successfully taking up many training challenges. REPAIR was presented to fifty trainers at a workshop who learned about the advantages offered by the use of badges as a recognition of their daily activities contributing to the achievement of the SDGs. The workshop attendees claimed badges and provided feedback via a survey. The survey will be circulated further among ADIF staff and personal interviews will be conducted to delve into more detailed aspects of trainers' engagement level towards the SDGs. Finally, the creation of a dedicated REPAIR website was announced and it will disseminate the results of the project and the set up of a new version of the badge management platform, expanding the functionalities currently available.

Governance, process, and management systems

Yguanira Muhren, Rail Cargo Group



With its presence in 18 countries, RCG is a leading logistics provider in Europe and part of the Austrian Federal Railways (German: Österreichische Bundesbahnen/ÖBB). The company achieved a RSindex score of 70 points corresponding to manager level. RCG developed the 'Ecolator' tool to allow the company to calculate sustainability KPIs for all the rented offices. It uses scientific data and to make indirect calculations to produce accurate figures for auditing, especially to measure CO2 emissions. KPIs are key elements of governance and management systems in RCG and are applied in the sustainability measures the company has taken, such as switching to green energy, convening a Sustainability board annually, obtaining ISO certifications (ISO14001 and ISO45001), producing corporate and product carbon accounting, obtaining ratings (Ecovadis, RSindex, CDP...) and many more.

Environmental Sustainability

David Villalmanzo, ADIF



ADIF and ADIF AV's strategic plan 2030 is based on stakeholder expectations, company challenges, and global challenges related to sustainable development and is articulated around four strategic pillars: Security, Service, Sustainability and Results-Driven, with the three levers: Communication, Digital Transformation, and Innovation. ADIF's Climate Change Action plan foresees mitigation and adaptation measures to reduce energy consumption and GHG emissions, while enhancing resilience of rail infrastructure by including vulnerability assessment to all projects, and measures increasing awareness raising, internally and externally, with a strong investment focus on projects related to climate change culture to help with dissemination. The plan is structured along 5 lines of actions namely energy management (deployment of smart grid in 2030 on HSL Madrid-Valencia), energy efficiency (energy storage with PV panel projects), decarbonization and renewable energy (green energy procurement), improvement of the infrastructure railway resilience (actions related with OHL and subsystems, electrification with EU funds) and culture & awareness.

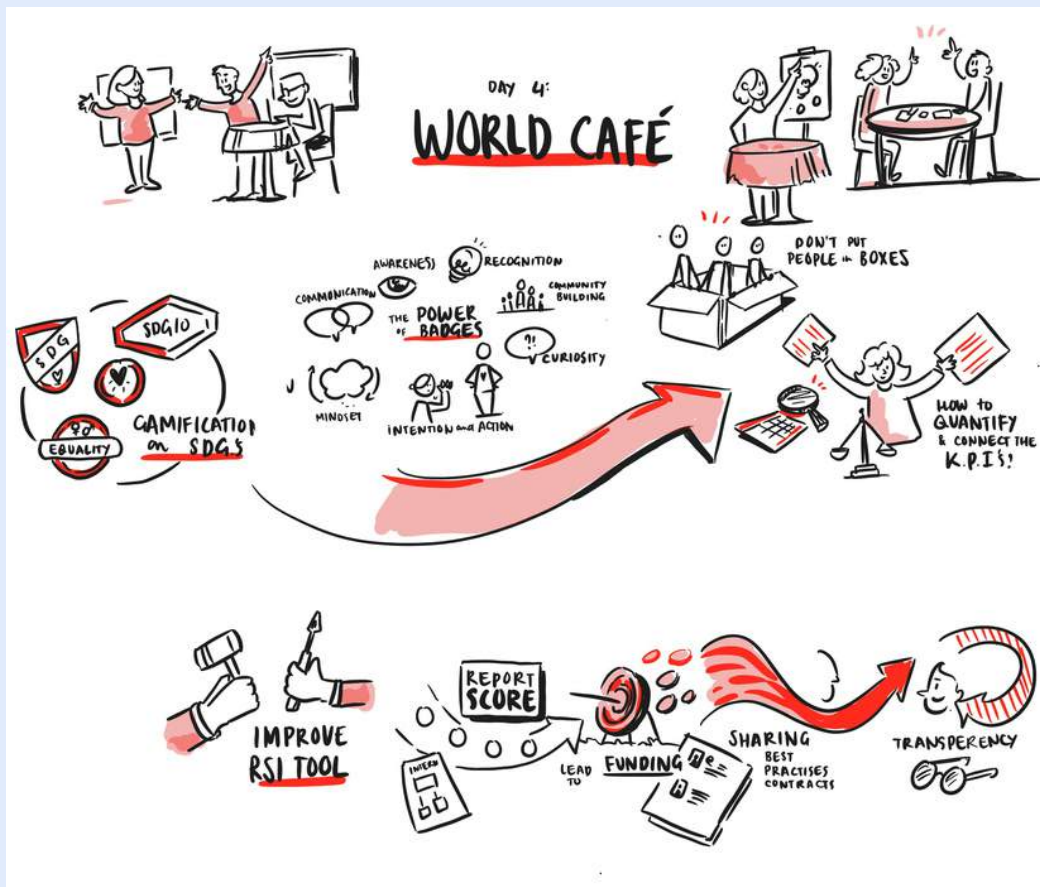
Making sustainability performance visible with Rsindex labels

To help members showcase their sustainability performance in CSR reports, websites and in any communication, UIC released bespoke Rsindex labels, displaying the score bands A, A-, B, B-, C, C-, D to D- corresponding to the levels of Leader, Manager, Pursuer, Beginner.



World Café

Visual summary of discussions:



Improving the tool

- Providing feedback on their user experience, participants highlighted the difficulties they had in filling out the tool's interfaces when faced with tables with sometimes insufficiently detailed user guidance. Among the suggested improvements, participants highlighted the need to have a clear and publicly available methodology, defining precisely the indicators that companies are requested to provide data, insisting on having more detailed and transparent information on the score calculation formula to avoid being disadvantaged by non-reported data. Also, users found useful to be able to understand the underlying assessment process used to score text content entered to respond to qualitative KPIs. Access to RSindex tool respondents' contact list to exchange reports and information, as well as contact details of 'best-in-class' for each SDG made available on a voluntary basis were highlighted as a "nice-to-have features", to enable other users to understand how to achieve better scores based on best practice exchange between tool respondents.
- Asked on the use they intend to make of their score and of the good practice data, participants indicated data and scores could be used as starting point for improvement, for awareness raising, comparison and benchmarking between rail and other sectors, publishing in annual reports and for obtaining fundings.

The goals and metrics

- Participants provided feedback on how to implement the RSi with further relevant data. Participants advised that the future version of the tool should strive to align even more with international reporting directives, standard and guidelines, making it easier for members to collect and share data. Although the SDG selection of the RSi tool is well aligned with members' activities in the railway sector, participants recommended to include SDG 15 "Life on Land" for the impact of railways on biodiversity and environmental assets in the coming years, as well as SDG 10 "Reducing Inequalities" in order to encompass data on passengers with reduced mobility, addressing inequalities from a broader spectrum than gender equality only, falling under SDG 5. Regarding the latter, analysing the gender pay gap data will be an important subject to be addressed in the tool.
- Finally, the expansion of KPIs falling under SDG 8 "Decent Work and Economic Growth" where activities such as employees training, and data on employees' injuries on the workplace need to be considered.

REPAIR

- Participants started by claiming their badge stickers from 7 sustainable railway badges, including "Rail + Bike Advocate", "Gender Equality Empoweree" and "Green Driving Supporter". After having the first-hand experience of claiming badges, participants considered the possible impacts of badges on improving sustainability of the railway sector. Based on the discussion, the groups came up with several hypotheses and tested them by brainstorming on how badges can be applied at the organisations.

- At the end, participants shared their ideas on the badges they would like to see with the whole group. Many ideas were brought up by the experts who also benefitted from learning about the different solutions found by different companies.
- The [REPAIR project](#) will continue working to consider how badges can be used to increase railway sustainability. All participants were invited to visit the website, claim their badges and share their badges in their company or organisation: Home - REPAIR (uic.org). It is believed that the railways sustainability will flourish through our collective work



For more information about the Rail Sustainability Index project, click [here](#).

Contact:



Snejana Markovic-Chenais
Economics Advisor - markovic@uic.org
Rail Sustainability Index project



Isabelle De Keyzer
Senior Sustainability Advisor - dekeyzer@uic.org
Rail Sustainability index project | REPAIR

BUILDING COMMUNITY

The 2023 Sustainability Action Week brought together experts from various fields of sustainability to build a community of peers but also, allow for organic exchanges between the different fields of expertise. By participating in different events and through networking breaks, it was expected to have created some cross pollination between the sectors and bring about potential transversal collaboration.



BISON Wilding Railways



Zero Waste Workshop



Noise Day 1



Energy Saving Workshop



Sustainable Finance Workshop



ENSURE FULL PARTICIPATION IN LEADERSHIP AND DECISION-MAKING

THINGS TO DO

Gender Balancing		Date
1	Organization	47% (W) - 53% (M) =
2	Manager	35% (W) - 65% (M) ↑
3	Board	22% (W) - 78% (M) =

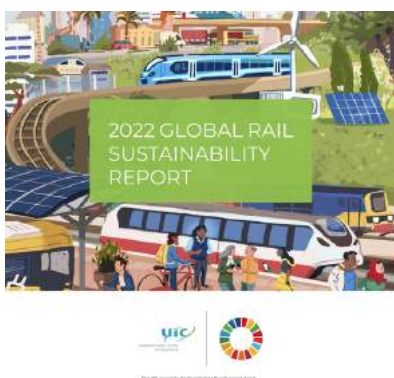
Women's pay VS men's pay (Italo AVG rate 76%)

RSi Celebration



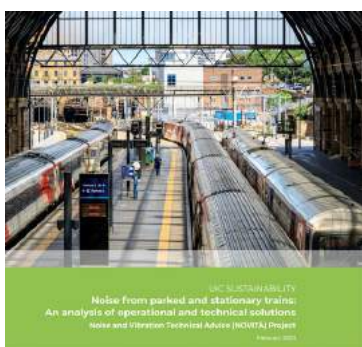
NEW REPORTS

The 2023 Sustainability Action Week also saw the launch of three new reports: 2022 Global Rail Sustainability Report and two new reports from the Noise working group.



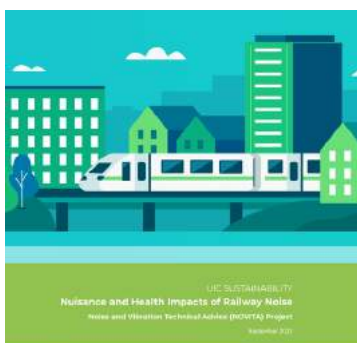
2022 Global Rail Sustainability Report

The results of the first Rail Sustainability Index (RSi) have been rendered into a report, capturing the efforts, performance, and prospects of the rail sector in delivering the UN Sustainable Development Goals. It tells global and regional stories of how the railways are implementing environmental, social and governance action in their businesses and are playing their part in transforming the transport sector.



Noise from parked and stationary trains: an analysis of operational and technical solutions

The report elaborated in partnership with [Vibratec](#). It brings a detailed technical survey, literature review, round table discussions, as well as analysis of the regulatory framework and collection of measurement data.



Nuisance and health impacts of railway noise

In collaboration [Atkins](#), UIC has for the first time completed a critical analysis of the railway noise impacts and complaints situation on European railways. In this report, understanding the main sources and characteristics of railway noise and the relationship between noise exposure and health/complaint outcomes is key to identifying cost-effective noise mitigation measures that can help reduce the number of people annoyed by railway noise.

ACKNOWLEDGEMENTS

The 2023 Sustainability Action Week was organized by the UIC Sustainability Unit and it was an opportunity to convene members and showcase the great collaboration done under the Sustainability Platform. Members of the team continue to work diligently to facilitate tools and solutions that advance the mission and goals of the platform.



Lucie Anderton

Head of Sustainability Unit - anderton@uic.org



Alice Favre

Head of Statistics Unit - favre@uic.org



Isabelle De Keyzer

Senior Sustainability Advisor - dekeyzer@uic.org
Circular Economy | Rail Sustainability index project



Lorenzo Franzoni

Junior Sustainability Advisor - franzoni@uic.org
Sustainable Land Use | Noise & Vibration | ERPC Working Group



Joo Hyun Ha

Senior Sustainability Strategy and Int'l Partnership - ha@uic.org
Global Advocacy and Gender Equality working group



Snejana Markovic-Chenais

Economics Advisor - markovic@uic.org
Rail Sustainability Index project



Philippe Stefanos

Senior Sustainability Advisor - stefanos@uic.org
Energy & CO2 | Air Quality



Pinar Yilmazer

Senior Programme Manager - yilmazer@uic.org
Noise & Vibration | Sustainable Land Use

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Key Benefits of the SemperSilent™ rail pad

- 
Reduces Noise
 up to 50%*
 of passing trains
- 
Low Life Cycle Costs
 compared to alternative
 noise reduction measures
- 
Efficient maintenance
 no additional activities or parts
 needed on the tracks

Example of noise measurement results*
(average noise difference > 20 trains)

Standard soft rail pad	SemperSilent™ rail pad
88.3dB	84.7dB

Noise reduction of 3.6 dB

*Test results may differ based on type of reference pads, train types and program train noise emissions

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 Semperit Technische Produkte GmbH
 Thaler Strasse 26, 1020 Wien, Austria
 +43 1 885 2144
 www.semperitgroup.com
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