



UIP report “Noise – State of play”

November 2019

1. Introduction

Noise continues to be high on the European agenda where noise creation aspects are legislated and on the national one where noise reception is dealt with according to the subsidiary principles. Accordingly, all European countries have noise reception limit values for new railway lines and in almost all Member States limit values exist also for upgraded lines.

Initial considerations towards noise in rail transport were taken through the [Interoperability Directive \(EU\) 2016/797](#) and the [Noise Technical Specifications for Interoperability](#) (TSI NOISE). In addition, the [Environmental Noise Directive 2002/49/EC](#) (END) requires Member States to submit noise maps and action plans to assess the number of people exposed to different noise emission levels throughout Europe. However, the END does not define any noise limit values nor does it prescribe the measures to be taken in these action plans. Consequently, different pathways are being pursued at both European and national levels.

Rail Noise Reduction – the Challenging Pillars

EU	MS	Industry/Sector	MS
Noise Reduction Action Plans	Noise Reduction at Source	Noise Abatement Measures	Noise Operations Restriction
Green Paper on Future Noise Policy COM(96) 540 Environmental Noise Directive 2002/49/EC NDTAC (1 st Railway Package)	MS Noise Abatement Strategy and National Plan	(TSI NOI) Rolling Stock retrofitting Infrastructure upgrade Agglomerations adaptation Polluter Pays	Bans and Restrictions By MS to Rail Sector

This paper provides an overview of the current EU legal framework and national activities in the different European States related to noise reduction and retrofitting of rolling stock.

2. Overview of EU Legislation and Initiatives

a) Commission Implementing Regulation

By following the objectives of the [White Paper 2011 Roadmap to a Single European Transport Area \(COM/2011/0144 final\)](#), the EC introduced an EU Noise Abatement Strategy. Moreover, under the recast of the First Railway Package, in 2015, the EC adopted the [Commission Implementing Regulation \(EU\) 2015/429 on Noise Differentiated Track Access Charges \(NDTAC\)](#) “setting out the modalities to be followed for the application of the charging for the cost of noise effects”¹:

¹ It shall be applied until the 31st of December 2021.



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- Member States may, on a voluntary basis, implement an NDTAC Scheme meeting the requirements set out under the Regulation;
- where the NDTAC scheme is applied, the Infrastructure Managers (IM) shall introduce a bonus for Railway Undertakings (RU) using retrofitted wagons (with a minimum level of €0,0035/axle km (i.e. €0,35-CENT/axle km));
- IMs may also introduce a malus for RUs running noisy trains, i.e. trains containing more than 10% of noisy wagons. Throughout the duration of the scheme, the total malus received may not exceed the total bonus paid out and the latter is not capped;
- to encourage further efforts by the RUs towards composing 100% silent trains, the IM may introduce an additional bonus for complete silent trains. Finally, the IM may introduce an additional bonus if “very quiet²” wagons and/or locomotives are used.

In March 2019, UIP contributed to the evaluation of the NDTAC Regulation³. In its response, UIP pointed out that as NDTAC schemes are currently only applied in Germany, Austria, and the Netherlands, the NDTAC Regulation did not prove effective in reducing railway noise directly throughout Europe. In addition, it was highlighted that the major barrier to wagon keepers’ ability to retrofit is not only the one-off costs of retrofitting but also the subsequent higher operating costs caused by increased wear and tear of the wheelsets. Against this background, NDTAC itself only represents a minimal financial contribution to countering these rising costs as very few countries have implemented such a scheme. Furthermore, while the NDTAC scheme incentivises primarily Railways Undertakings as they receive the bonus if they use TSI Noise compliant retrofitted wagons in their trains, the costs are on the wagon keepers. According to recital 14 of the NDTAC regulation, the incentives should, however, be passed on to those who bear the costs of retrofitting, namely the keepers. Despite this non-binding proposal, the passing on of the bonuses currently relies solely on the willingness of Railway Undertakings to enter private contractual agreements with the keeper(s). As a result, the bonuses are often not or not fully passed on. Therefore, we expressed our belief that the effectiveness of current schemes as well as the successful application of NDTAC schemes in more EU Member States (MS) can be increased, which is why we recommended to:

- Significantly increase the level of bonuses paid under NDTAC schemes in the EU to truly incentivise the retrofitting of wagons;
- Establish a functioning and mandatory mechanism allowing for the passing on of bonuses to those rail actors bearing the costs, i.e. the wagon keepers;
- Continue to compensate beyond 2021 the one-off costs of retrofitting and the higher maintenance costs for retrofitted wagons due to additional wear and tear through NDTAC as incentive scheme complementing the direct funding, such as CEF and national programmes.

Based on an evaluation which concluded in May 2019, the Commission will decide if a revision of the NDTAC Regulation is necessary and assess several different options in an Impact Assessment.

² It should be noted that the Regulation does not define “very quiet”.

³ UIP Position Paper on the evaluation of the Implementing Regulation (EU) No. 2015/429 (NDTAC), March 2019, available under http://uiprail.org/files/uip/20190307_UIP_Position_Paper_NDTAC_final.pdf

b) The “quieter routes approach” in the TSI NOISE

The revised TSI NOISE⁴ introduced the so-called “quieter routes approach”⁵ (entry into force in **December 2024**). According to it, if at least 12 freight trains are operated on these routes per night, they are defined as “quiet” and only allow for the use of silent wagons. It is hereby important to note that the **noise limits apply to the entire existing fleet**.

The following exemptions exist for the use of “non-silent” wagons on “quieter routes” throughout the EU according to 7.2.2 of Annex to NOI TSI:

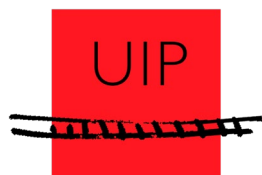
- **“Degraded operation”**: rolling stock failures, extreme weather conditions, infrastructure failures or **wagon**/infrastructure maintenance works which were scheduled;
- Wagons operated in lines with slopes > 40% gradient;
- Wagons running at a speed > 120 km/h;
- Wagons with an axle load higher than 22.5 t;
- Wagons subject to a derogation against a TSI Noise;
- Wagons, for which the application of this Regulation is not mandatory (e.g. ‘Schnabel’ wagons, on-track machines, wagons operated on the 1 520 mm track gauge system, wagons used **purely** for historical/touristic use);
- Wagons which are exclusively operated for infrastructure maintenance and construction works.

Moreover, specific exemptions exist in the individual Member States:

Exemption	BE	CZ	FR	IT	PL	SK
No one-to-one-solution for replacement of brake blocks		2031		2031		
Wagons fitted with tyred wheels	2027			2027	2037	2027
Need of kink-valve	2027	2035		2027		2037
Need to use wheels compliant with EN 13749-1	2027	2030		2027	2037	
1Bg or 1Bgu brake configuration		2037	2031		2037	
Wagons designed for “S” traffic equipped with “SS” brake					2037	
Wagons with 59V bearings		2035				
Wagons with small wheels (diameter under 920mm)			2031			
Wagons with bogies of type 26-2.8 and cast iron blocks P10						2037

⁴ Technical specification for interoperability relating to the subsystem ‘rolling stock — noise’ (NOI TSI) adopted at the 84th Railway Interoperability and Safety Committee (RISC) in January 2019

⁵ From 8.12.2024, freight wagons not covered by point 7.2.2.2 of the Annex to the NOI TSI shall not be operated on quieter routes. A ‘Quieter route’ is hereby defined as a part of the network of a minimum length of 20 km in the geographical scope of this TSI, on which the annual average daily operated freight trains in 2015, 2016, 2017 during night-time is higher than 12. MS are obliged to update their national quieter routes map every 5 years based on a standardised template and an overview will be published on the ERA website.



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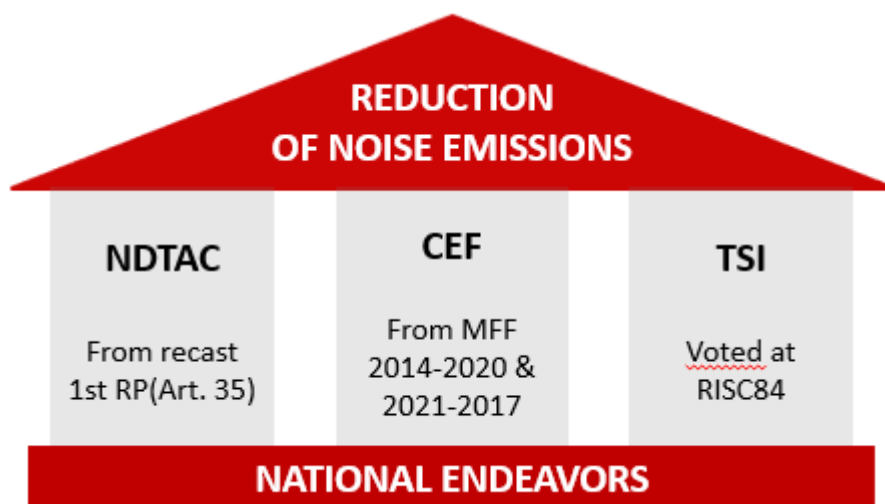
Both the [Silent Wagon Database \(SWDB\)](#) and the Rolling Stock Reference Database (RSRD²) are available as data sources for retrofitted wagons facilitating the use of “silent” wagons where and when necessary.

In contradiction to the quieter routes approach laid down in the revised TSI NOISE, different national deadlines for the use of noisy wagons exist within Switzerland (1st of January 2020) and Germany (13th of December 2020); from these dates on non-silent wagons may not be operated on the entire networks of these countries. This, in turn, means that special legal regimes only exist in some regions of Europe to the detriment of the objective of promoting and increasing rail freight market shares in Europe and addressing the challenges of climate change.

c) Funding initiatives at the EU level

The first CEF call for actions to reduce rail freight noise was launched between October 2016 and February 2017. The second call ended in April 2019 aimed at reducing rail freight noise by retrofitting existing freight wagons with composite brake blocks, and where necessary due to extreme weather conditions with disc brakes. One of the achievements UIP had advocated for was that for the first time the CEF contribution took the form of a unit contribution which simplified the application process and ensures certainty and transparency in the funding levels. In addition, reporting requirements had been reduced as no certification or financial statement needed to be provided by the beneficiaries and no Cost-Benefit Analysis (CBA) was needed. UIP members built consortia in order to reach the minimum threshold of 2,000 wagons and participated in the call. Together, **these two CEF will overall co-fund the retrofitting of more than 145,000 rail freight wagons with a financial contribution of ca. €36 million.**

The goal behind this is that the whole European wagon fleet, organised within UIP, becomes fully retrofitted and thereby TSI NOISE-compliant. According to current predictions, **by 2023 this will be achieved for 89% of the private wagon fleet.** Consequently, UIP will continue advocating for the topic noise under the CEF 2021-27 budget in order to allow for broad market deployment of economically feasible research results.



3) National Noise Legislation

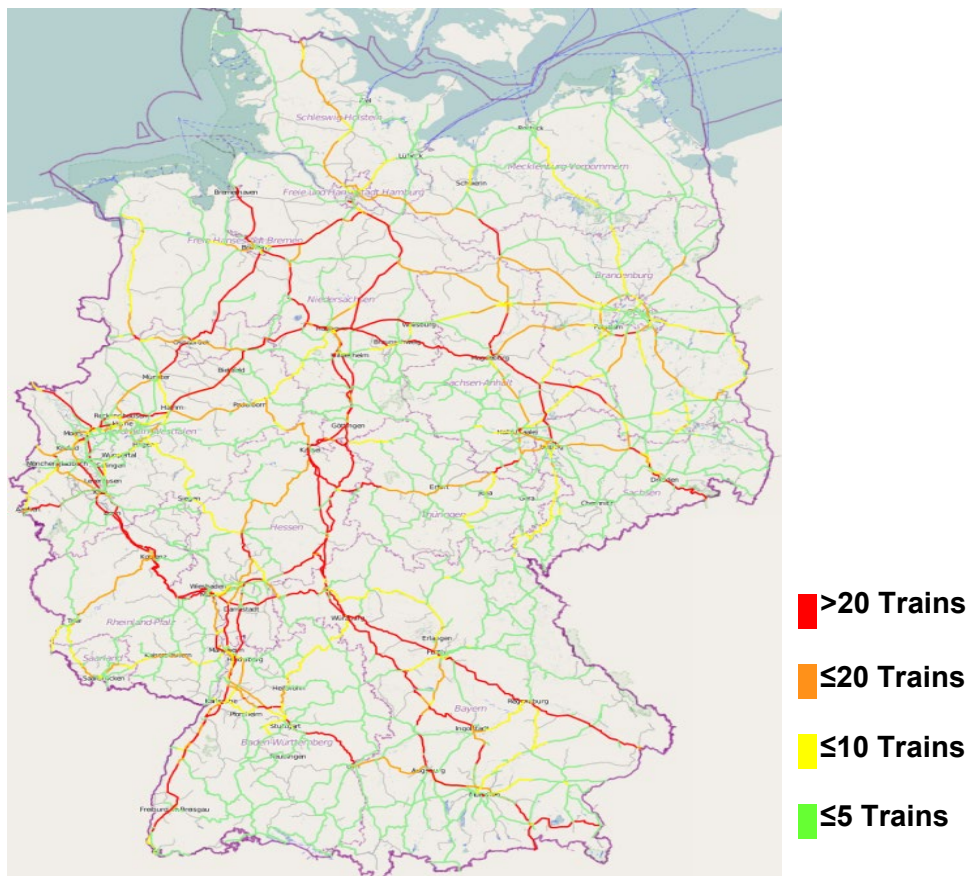
a) Germany

The German implementation of the NDTAC scheme started in December 2012 and will end on the 8th of December 2020:



- The compensation of costs for retrofitting⁶ is limited to €211/axle;
- The direct beneficiary is the Wagon Keeper (WK);
- Challenge: precondition to provide evidence and justification on mileage operated on German infrastructure (to DB Netz). Mileage data should be provided from the RU which operates the wagons in its trains to the WK. In practice, however, such data is not readily available in all cases. When not provided, the bonus cannot be claimed and thus awarded, leaving the WK with the full costs;
- the higher operational/maintenance costs are not considered.

The German “Quiet Rail Strategy”⁷ entails that noisy freight wagons will be banned from the national network after the 13th of December 2020. As of this date, rail operators could be fined up to €50,000 if they fail to meet the TSI NOISE limits.



1 Germany - Average number of freight trains per night (22h00 – 06h00), Monday – Sunday, year 2016

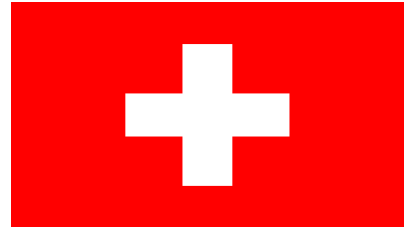
⁶ The costs are estimated by the German Ministry of Transport to be 1’688 € for a 4axle wagon

⁷ German Act Prohibiting the Operation of Noisy Freight Wagons (Railway Noise Mitigation Act), adopted on 20 July 2020, English translation available under https://www.bmvi.de/SharedDocs/DE/Anlage/Gesetze/Gesetze-18/act-prohibiting-the-operation-of-noisy-freight-wagons.pdf?__blob=publicationFile

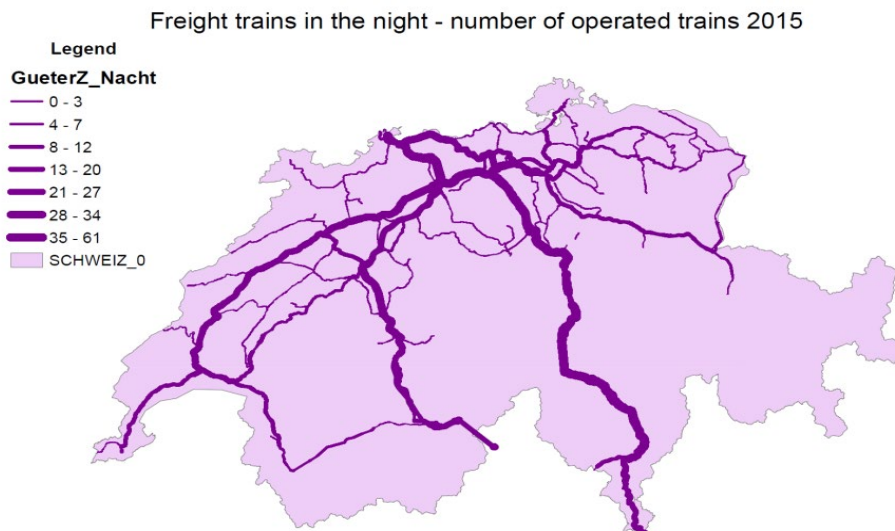
Despite the fact, that the Commission criticised that this approach stands in contradiction to the TSI NOISE timeline of December 2024 and that the Commission could launch an infringement procedure for the breach of EU law, there is no sign that Germany will retract on the legislation.

b) Switzerland

The Swiss NDTAC scheme foresees compensation for higher operational costs for all TSI NOISE compliant wagons⁸:



- approximately €0,019/axle km (€1,9-CENT/axle km) for wagons equipped with K and LL brake blocks;
- approximately €0,028/axle km (€2,8-CENT/axle km) for wagons equipped with disc-brakes;
- This compensation (bonus) may be claimed by the operating RU and a contractual agreement between the RU and the Wagon Keeper must be concluded in order to enable the transfer of the bonus received by the RU.



In summer 2019, the Federal Office of Transport (BAV) informed about the manner in which it plans to deal with the **ban of wagons equipped with cast-iron brake blocks on the Swiss network from the 1st of January 2020 onwards**:

- Railway Undertakings will be made responsible for operating properly composed trains;
- the Swiss NSA (BAV) will use the operational checks it conducts randomly on freight trains to monitor compliance with the noise emission limits;
- The respective error catalogues will be adapted until then;
- In 2020 the BAV will not suspend wagons equipped with cast-iron brake blocks. Nevertheless, the RUs will be prompted in writing to comply with the legal requirements (however, the Swiss Environmental Protection Act provides a basis for Swiss citizens to file lawsuits addressing RUs which do not comply with the legal provisions, i.e. using noise compliant wagons only);
- The BAV will monitor the implementation and decide how to proceed in the future;

⁸ S. Art. 19 b Lärmbonus, Eisenbahn-Netzzugangsverordnung (NZV) vom 25. November 1998, available under <https://www.admin.ch/opc/de/classified-compilation/19983395/index.html>



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- in November 2019 the Federal Council will decide various changes to the track access charging system, which should enter into force in 2021⁹:
 - the noise bonus is expected to be retained with minor modifications;
 - **as from 2021, the use of noisy wagons shall entail the loss of the noise bonus for the entire train;**
 - a direct, tangible penalty shall be introduced, and it shall be up to the RU to determine if and how this amount is passed on to the wagon keepers.

c) Austria

ÖBB Infrastruktur AG (ÖBB INFRA) introduced an NDTAC scheme in its 2018 timetable:

- the noise bonus is paid out to the RUs but unfortunately, a functioning mechanism to pass on the bonuses from the RU to the wagon keeper couldn't be embedded;
- VPI Austria has been able to agree with Rail Cargo Austria and some other RUs on a contractual agreement draft for the passing on of bonuses which can be requested from the RUs (retroactively for the year 2018);
- VPI AT informed other RUs operating on the network of ÖBB INFRA in order to agree on a similar arrangement with the individual wagon keeper.

d) Italy

The Italian “Noise Retrofitting law”¹⁰ entered into force in May 2019:

- the operational handling will be managed by the Italian Infrastructure Manager (RFI) which is expected to extend the functionalities of its IT system PIC-Web to handle the recording of wagons and km data. The new functionalities are supposed to be fully operational as of October 2019;
- period of application: the decree applies to retrofitting works carried out on wagons in the years 2018, 2019 and 2020;
- recipients of the aid are responsible for what will be declared to RFI and the Ministry;
- keepers have to submit the data on retrofitted wagons;
- aid will be granted for a maximum of €506/axle (11'000km * €0,046/axle), a total budget of €5mio for 2019 and €10mio for 2020 has been approved (out of a max of €35mio);
- the maximum grant for each wagon cannot exceed the 50% of all costs for manpower and materials to retrofit the wagon. Additional grants as CEF are excluded to reach 50%;
- this scheme is not limited to wagons registered in Italy and the aid/grant should be paid by RFI directly to the concerned keepers.

⁹ The introduction of derogations from this ban for railway connections near the border as well as for block trains, single-wagon transport or container wagons seems not expedient and therefore unlikely to the FOT.

¹⁰ Italian Decree n° 1 of the 7th of January 2019 on the Granting of aid to finance the retrofitting of wagons, which entered into force with its publication in the Gazzetta Ufficiale on the 14th of May 2019

e) Sweden

While the Swedish and the Finish networks are exempted from the TSI NOISE quieter noise approach until the end of 2032, the Commission is tasked with issuing a report on the use of Composite Brake Blocks (CBBs) in heavy winter conditions until June 2020 in order to:



- assess the size of the reported lack of braking performance and find solutions, which may include technical, legal or operational elements;
- to draft this report the ERA Task Force on the winter performance of CBBs was established to which UIP is participating;
- the Swedish NSA will conduct an impact assessment and carry out brake tests to this end;
- UIC has launched its own project on the topic¹¹ and plans further tests in February 2020;

One of the main reasons for this in Sweden is that currently the export/import traffic by rail is performed predominantly by wagons equipped with cast-iron brake blocks (CIBs) of which a high share is destined to areas in where winter conditions are inexorably present. At this point the aim in Sweden is to prevent a forced increase of wagons equipped with CBBs as it is considered that a certain share of CIBs in the trains is necessary to maintain safe braking power in winter conditions. Should this fleet be forced to retrofit to CBBs already during 2020, trains run in Sweden would face significant operational problems. The situation is further complicated by the German ban of noisy wagons on its network as of the 13th of December 2020, especially since the Swedish hope for a derogation for traffic destined to Nordic countries was precluded in the German law. Against this background, it remains uncertain how the Swedish authorities will react to the operation of CBBs on its network.

f) Belgium

The Belgian government is currently working on the introduction of an NDTAC scheme which is foreseen to run for a period of 4 years. The following features are envisaged:



- budget of around €3.3mio;
- wagon keeper as beneficiary based on mileage run in BE;
- max. 50% of the ERA recommendations on retrofitting costs (about 1500€/ S wagon and 3000€/SS wagon);
- paid out in addition to bonuses received in other countries.

4. The future of noise abatement strategies

In October 2018, the new [WHO Environmental Noise Guidelines for the European Region](#) were published entailing a strong recommendation to reduce railway noise below 54dB Lday and 44 Lnight.¹² In addition, a revision of Annex 3 of the Directive 2002/49¹³ relating to the assessment and

¹¹ UIP project 2018/RSF/570 “COMPOSITE BRAKE BLOCK BEHAVIOUR UNDER WINTER CONDITIONS”, available under <https://uic.org/projects/composite-brake-block-behaviour-under-winter-conditions>

¹² These noise limits are purely based on the empirical studies on the noise impact on health and therefore still require a sound impact assessment of feasibility and costs before they can build the ground for political decisions.

¹³ Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise, available under <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:189:0012:0025:EN:PDF>



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management of environmental noise is planned for 2019. It is to be accompanied by public consultation and the Member States will be asked to quantify the noise effects on public health and develop national action plans accordingly. Against this background, UIP:

- reminds to take the positive developments of wagon retrofitting since 2016 into account;
- reminds that, besides the subsystem wagon, solutions also must be found at the level of locomotives and railway infrastructure;
- underlines that innovation will be the key element of further noise abatement measures;
- fully supports the objective of reducing rail freight noise and understands the need to increase the pace towards having only TSI noise compliant wagons (retrofitted or new builds) running throughout Europe;
- warns about an increased risk of the unbalanced implementation of noise reduction strategies at national level which will further jeopardise rail freight competitiveness and efficient cross border traffic.

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Founded in 1950, the UIP – International Union of Wagon Keepers, with its seat in Brussels, is the umbrella association of national associations from fourteen European countries, thus representing more than 200 freight wagon keepers and ECMs with more than 210'000 freight wagons, performing 50 % of the rail freight tonne-Kilometres throughout Europe. The UIP represents the members' concerns at the international level. By means of research, lobbying and focused cooperation with all stakeholders and organisations interested in rail freight transportation, the UIP wants to secure on the long term the future of rail freight transport.

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