

FIT FOR

REICHT

Spring Days

DISCLAIMER

- **the webinar is being recorded for internal purposes**
- **the Q & A will start after each presentation**
- **please raise your hand, the host will invite you to speak**

Agenda for today

Introduction to the Fit for Freight

Martin Polák, UIC

CT as an integral part of railway operations

Philip Van den bosch, UIC

Regulatory framework

Lukasz Wyrowski, UNECE

Guillaume Murawa, CIT

Patrizio Grillo, UIC

UIC hands on approach

Philip Van den bosch, UIC

Knowledge building at UIC

Eric Lambert, UIC

Philip Van den bosch, UIC

FIT FOR

REICHT

Combined transport

UIC Freight – competence centres

**LOAD
SAFETY**

**WAGON
UTILISATION**

**DANGEROUS
GOODS**

**TRAIN
OPERATION**

**COMBINED
TRANSPORT**

**DATA
EXCHANGE**

**CORRIDOR
DEVELOPMENT**

**RAIL FREIGHT
FORWARD**

UIC Freight – new website



ABOUT ▾

ACTIVITIES ▾

REGIONS ▾

PRODUCTS & SERVICES ▾



Home / Freight

FREIGHT

Let's MODAL SHIFT to an environmentally sustainable future where rail plays a central role in mobility and, asserts itself as its unwavering backbone. To support this ambition, UIC is a key partner working with its members to drive modal shift. This is achieved by harmonising business, operational and information processes which are at the heart of rail freight's daily business activities.

WAGON UTILISATION

Wagons are a key asset in rail freight transport. UIC works in this area to ensure the interoperability, availability, and easy and safe hand over of wagons, which has a direct impact on operational capacity and overall cost. [Read more...](#)

ATTI Claim Settlement

Corrective Maintenance / Restoring fitness to run GCU

Technical Inspection Wagon Utilisation

COMBINED TRANSPORT

Combined transport (CT) is key to achieve a carbon neutral transport sector in the context of the European Green Deal. Combined Transport, presenting a range of benefits, contributes towards a better quality of life and proposes a seamless transport solution in order to improve the productivity of the entire chain. [Read more...](#)

CORRIDOR DEVELOPMENT

The development of intercontinental rail freight corridors opens extremely promising perspectives to the growth of rail transportation over long distance, as an alternative to other modes - maritime or road transport - or as an effective partner in the global logistic chain. [Read more...](#)

ECCO Freight Forwarders

DANGEROUS GOODS

The transport of dangerous goods is subject to specific regulatory measures stipulated by the competent international, European, or national authorities, as well as certain measures taken by companies themselves. Dangerous goods safety on the railways is based on general railway operations safety. This area is managed by UIC in close consultation with its members and in cooperation with other stakeholders. [Read more...](#)

TRAIN OPERATION

Harmonisation is the basis for a seamless international and border crossing freight traffic. UIC facilitates best practice sharing to ensure interoperability as well as increase commercial speed of train traffic. Key part of this competence centre is corridor development, ensuring that significant traffic flows are being prioritised and investments being put in place. [Read more...](#)

Exceptional Consignments Operations Quality

XBorder

DATA EXCHANGE

Digitalisation is key tool to facilitate business growth, reduce future costs and mitigate errors. UIC manages and develops a broad portfolio of transversal digital solutions, enabling efficient data exchange between supply chain partners. At utmost importance it is the development of DP-RAIL, an RFF initiative to create an open European Digital Ecosystem to facilitate seamless interoperable information flows between all rail freight entities. [Read more...](#)

Border Points Coding DIUM DIUM/NHM GRU

IT working group NHM RailData

LOAD SAFETY

The safety of goods is pivotal in rail freight transport. Hence, UIC has produced Loading Guidelines to clearly outline the key principles and technical recommendations for loading methods, which will ensure that goods reach the intended destination unscathed. [Read more...](#)

Loading guidelines Loading Guidelines - Working group

UIC Pallets

RAIL FREIGHT FORWARD

Rail Freight Forward is a coalition of European rail freight companies that are committed to drastically reduce the negative impact of freight transport on the planet and mobility, through innovation and a more intelligent transport mix. UIC Freight acts as the overall coordinator of the RFF program and related technical projects. [Read more...](#)



INTERNATIONAL UNION
OF RAILWAYS

DEEP DIVE INTO COMBINED TRANSPORT



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LET'S GET TO KNOW YOU BETTER - POLL



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PHILIP VAN DEN BOSCH, UIC

CT as an integral part of railway operations

Small differences between commonly used terms



(1) 2001, UNECE, “*Terminology on Combined Transport*”, ISBN 92-1-002113-4

True synchromodality is yet to be materialised



	Ad-hoc intermodal Level 1	Structural intermodal Level 2	Synchromodal transport Level 3	Real-time synchromodal Level 4	Extension synchromodal Level 5
Execution of transport	Truck => 80%	Train or barge => 40%	Train or barge => 60%	Train or barge => 80%	Train or barge =100%
Transport planning	Ad-hoc, no forecast	0-40% planned based on forecast	41-100% planned based on forecast	Real time orders in supply chain	Real time orders and stock levels
Data exchange	Per container	Forecast per customer	Forecast per customer	Control tower to share data with more parties	Control tower + real time stock levels
Key performance indicators	Price and time	Price and time per modality	Price, time, reliability	Price, time, reliability and utilization degree	Price, time, reliability, utilization degree and service level
Decision making power	Shipper 81-100% of orders	More than 20% a-modal booking by other party	Orders shared in supply chain	Real time orders in supply chain	Real time stock level in supply chain
Type of relationship	Transactional	Limited vertical	Intensive vertical, limited horizontal	Intensive vertical and horizontal	Intensive vertical and horizontal + real time stock levels
Pricing	Spot market	Alignment on tariff (tender)	Tariff per modality and a-modal booking	A-modal booking and a modal pricing	A-modal booking, a modal pricing and real time stock levels

Synchromodal Transport

Source: (2019), Tijdschrift voor toegepaste logistiek (6), "The current state of Synchromodality: an application of a synchromodal maturity model on case studies", p117-131

How does the EU define combined transport

According Council directive 92/106/EEU

“The transport of goods between Member States where the lorry, trailer, semi-trailer, with or without tractor unit, swap body or container of 20 feet or more uses the road on the initial or final leg of the journey and, on the other leg, rail or inland waterway or maritime services where this section exceeds 100 km as the crow flies and make the initial or final road transport leg of the journey;

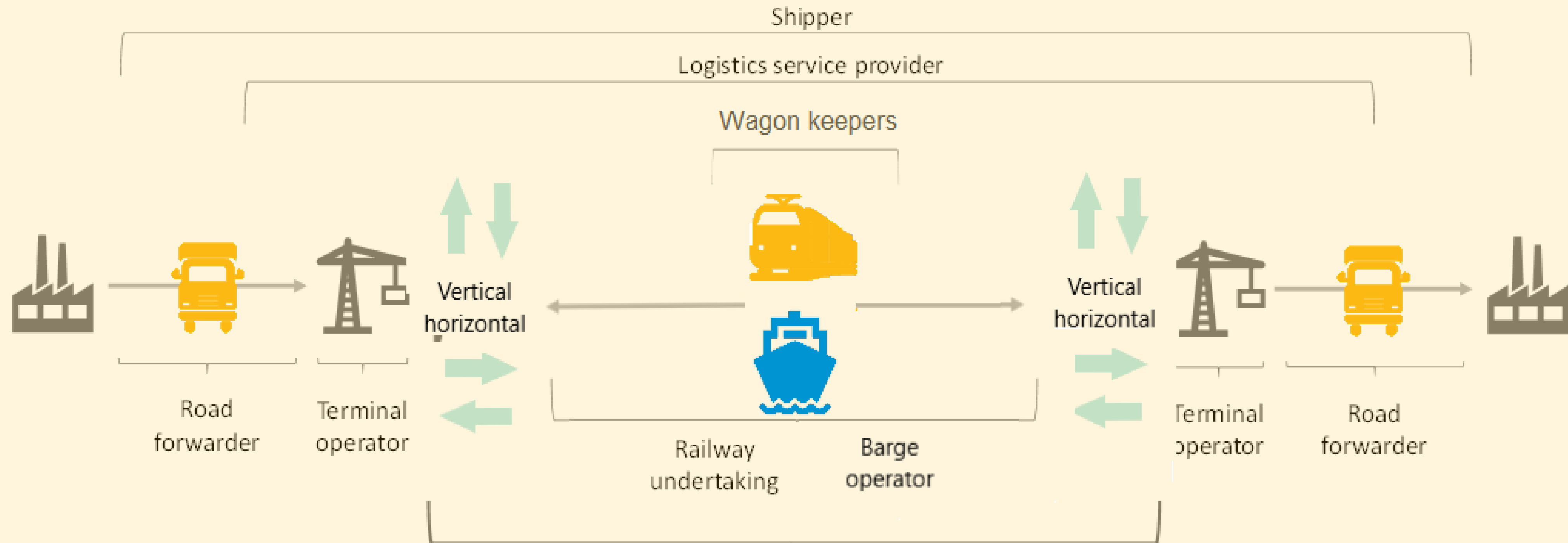
- *between the point where the goods are loaded and the nearest suitable rail loading station for the initial leg, and between the nearest suitable rail unloading station and the point where the goods are unloaded for the final leg, or;*
- *within a radius not exceeding 150 km as the crow flies from the inland waterway port or seaport of loading or unloading.”*

→ **Important elements in the definition:** between states, at least 100km and not exclusively applicable to rail

The intermodal & combined transport chain

Intermodal Transport

- freight transportation in intermodal container or vehicle, using multiple modes of transportation



Combined Transport

Combined transport viewed from different dimensions

Combined Transport

Form of transport

accompanied



unaccompanied



- Intermodal transport with longest leg by rail or IWW

- Lorries are carried on purpose-built low-floor wagons, while drivers travel in seated accommodation or couchettes
- Transshipment between road and rail takes place at terminals, using mobile ramps

- Intermodal loading units are transported without a truck driver on the train
- Transshipment between road and rail takes place at terminals, usually by gantry cranes or reach stackers

Geographical scope

domestic



international



intercontinental



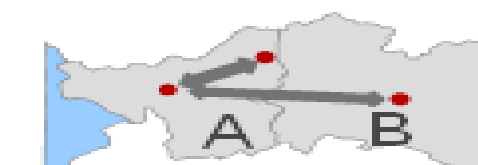
- National service between two terminals located in one country
- Independent from whether the final origin and/or destination of cargo is in this country

- International service between two locations in separate countries ("cross-border CT")

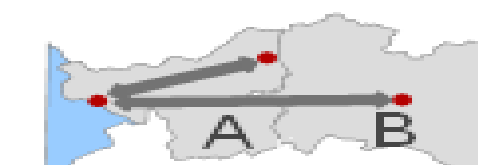
- Intercontinental service between two locations in separate continents

Focus of transport chain

continental



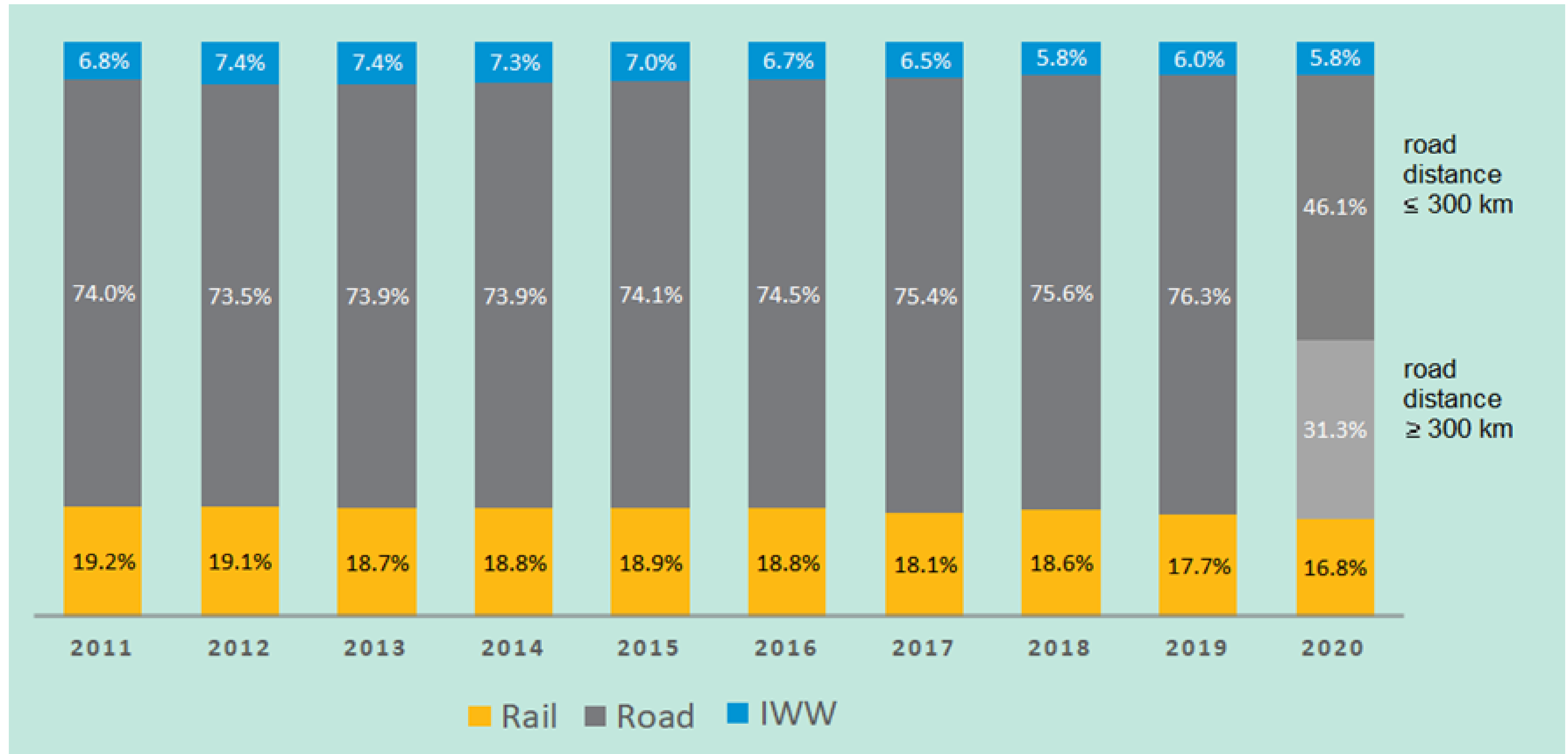
maritime



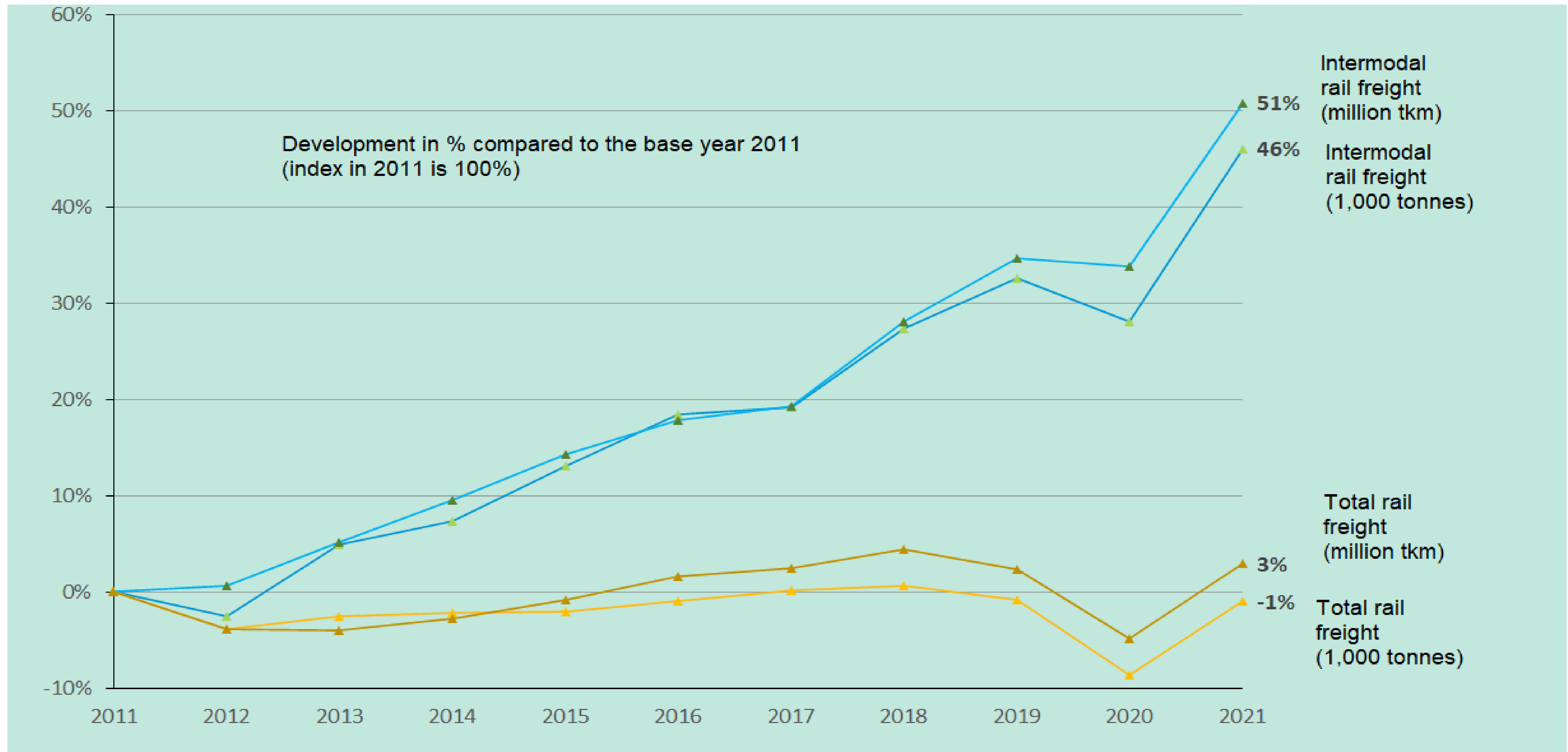
- Movement of cargo which is sourced in/ bound for a location within Europe
- Incl. short-sea transport European mainland – UK and Ireland

- Movement of goods between European seaports and inland destinations (mainly trans-continental cargo with origin or destination overseas)

Facts & figures – modal split of freight transport (% tkm)

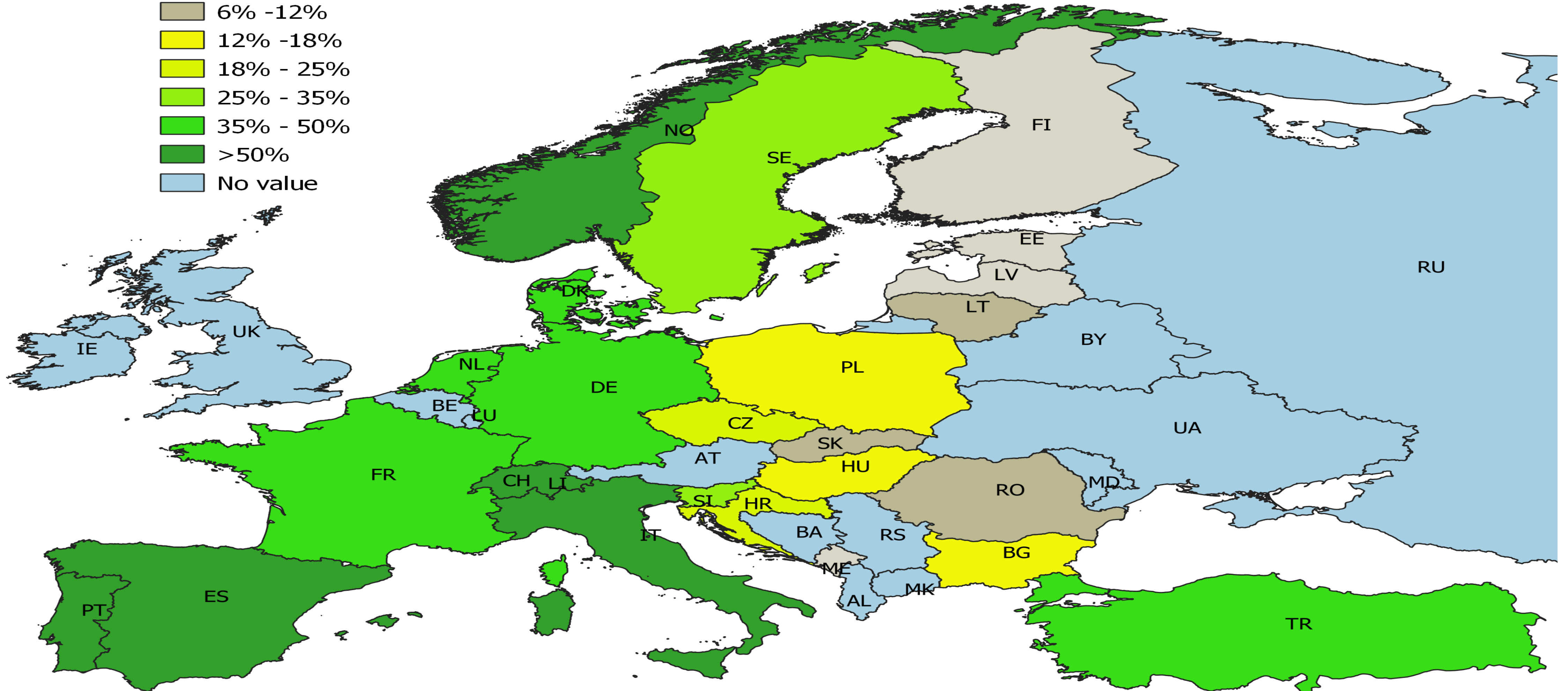
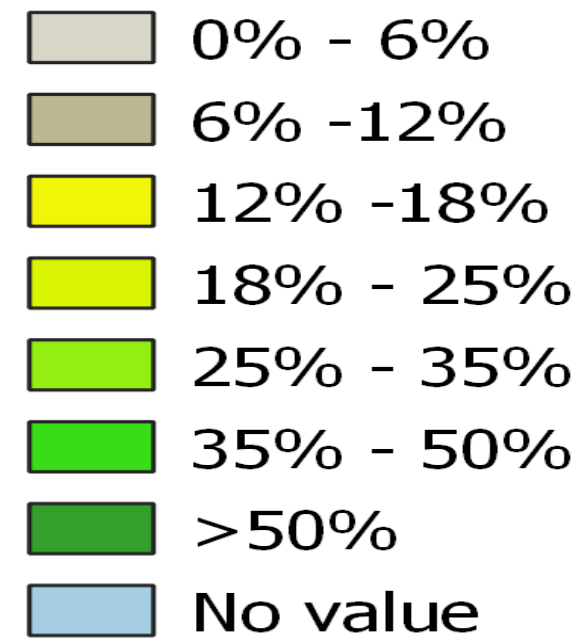


Facts & figures – rail freight ↔ intermodal rail freight

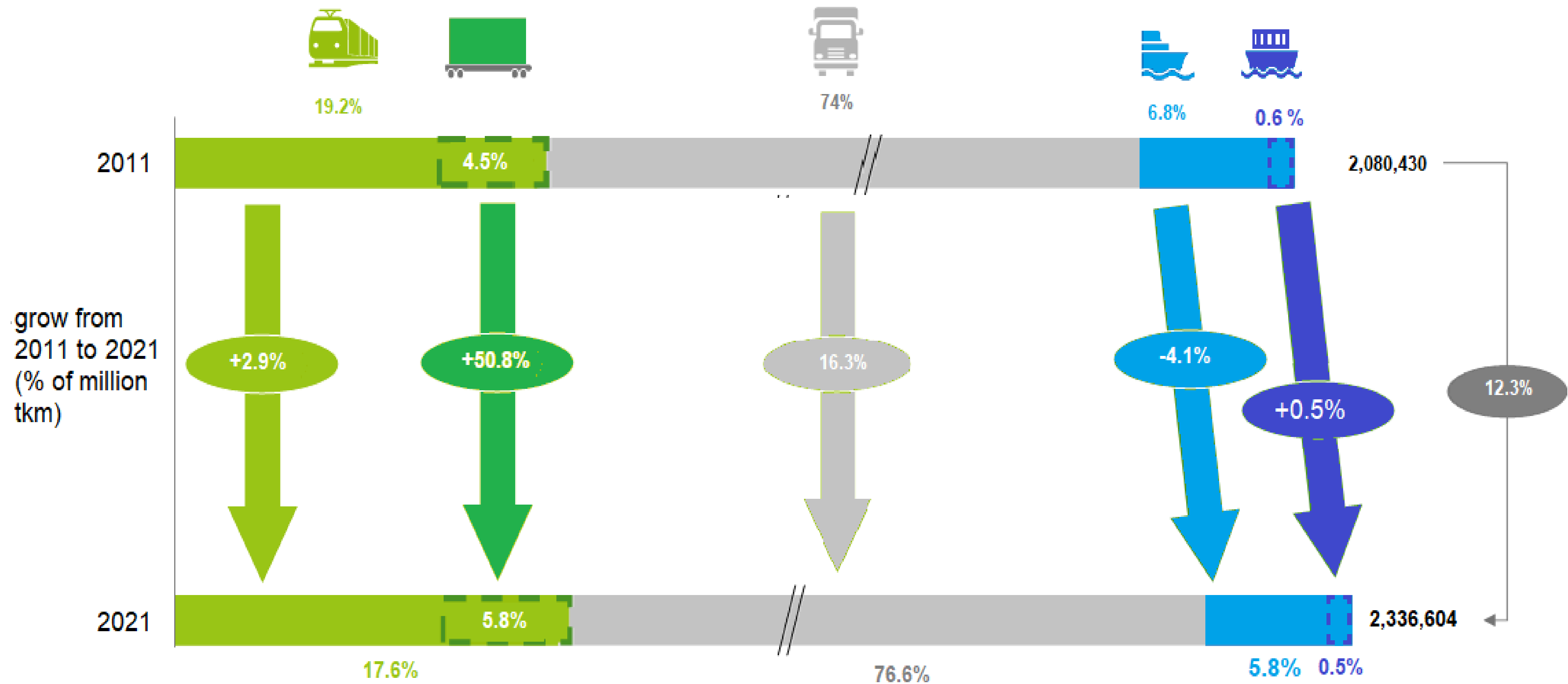


Facts & figures – intermodal rail freight (% total tkm)

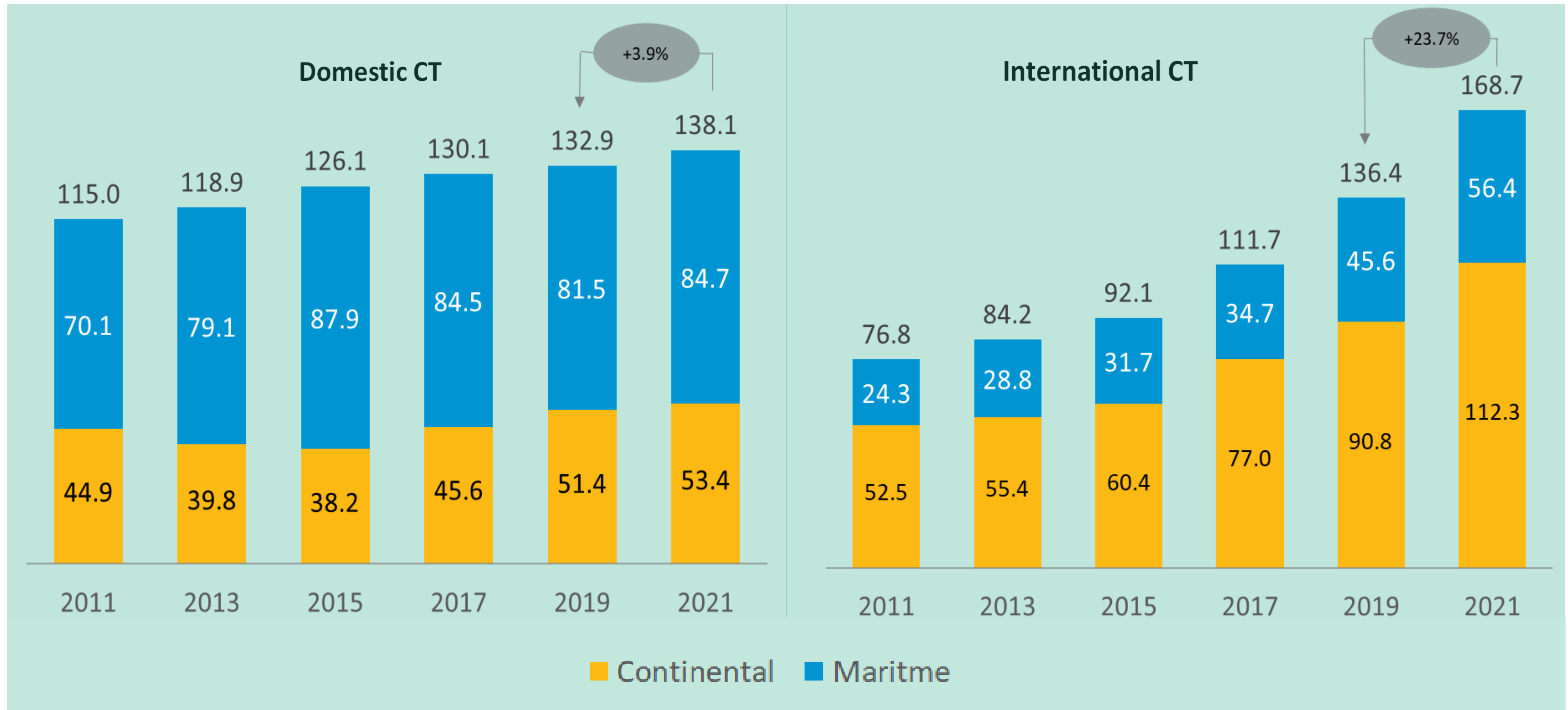
Intermodal share in total rail freight transport (2021)



Facts & figures – share of intermodal in total freight 2011-2021

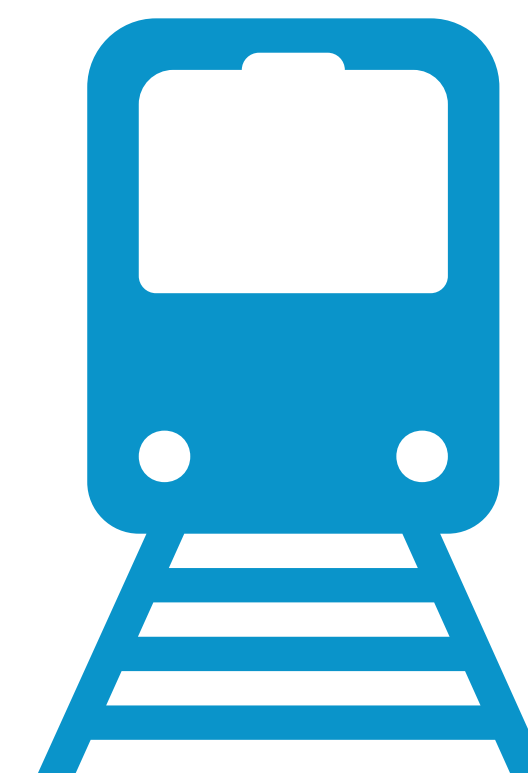


Facts & figures – development of unaccompanied combined transport 2011-2021 (million tonnes)



Facts & figures – combined transport

Origin	Destination	Tonnes-kilometres (1000 tkm)
Germany	Italy	9 067
Italy	Germany	7 413
Belgium	Italy	3 934
Italy	Belgium	3 245
Netherlands	Italy	2 542
Italy	Netherlands	2 137
Luxembourg	France	1 451
France	Italy	901
Germany	Netherlands	726
Netherlands	Germany	565



Origin	Destination	TEU-kilometres
Germany	Belgium	212 867
Netherlands	Germany	204 896
Germany	Netherlands	174 061
Belgium	Germany	105 819
Netherlands	Belgium	77 654
France	Belgium	39 158
Belgium	Netherlands	41 345
France	Netherlands	31 734
Netherlands	France	30 343
Netherlands	Switzerland	10 635



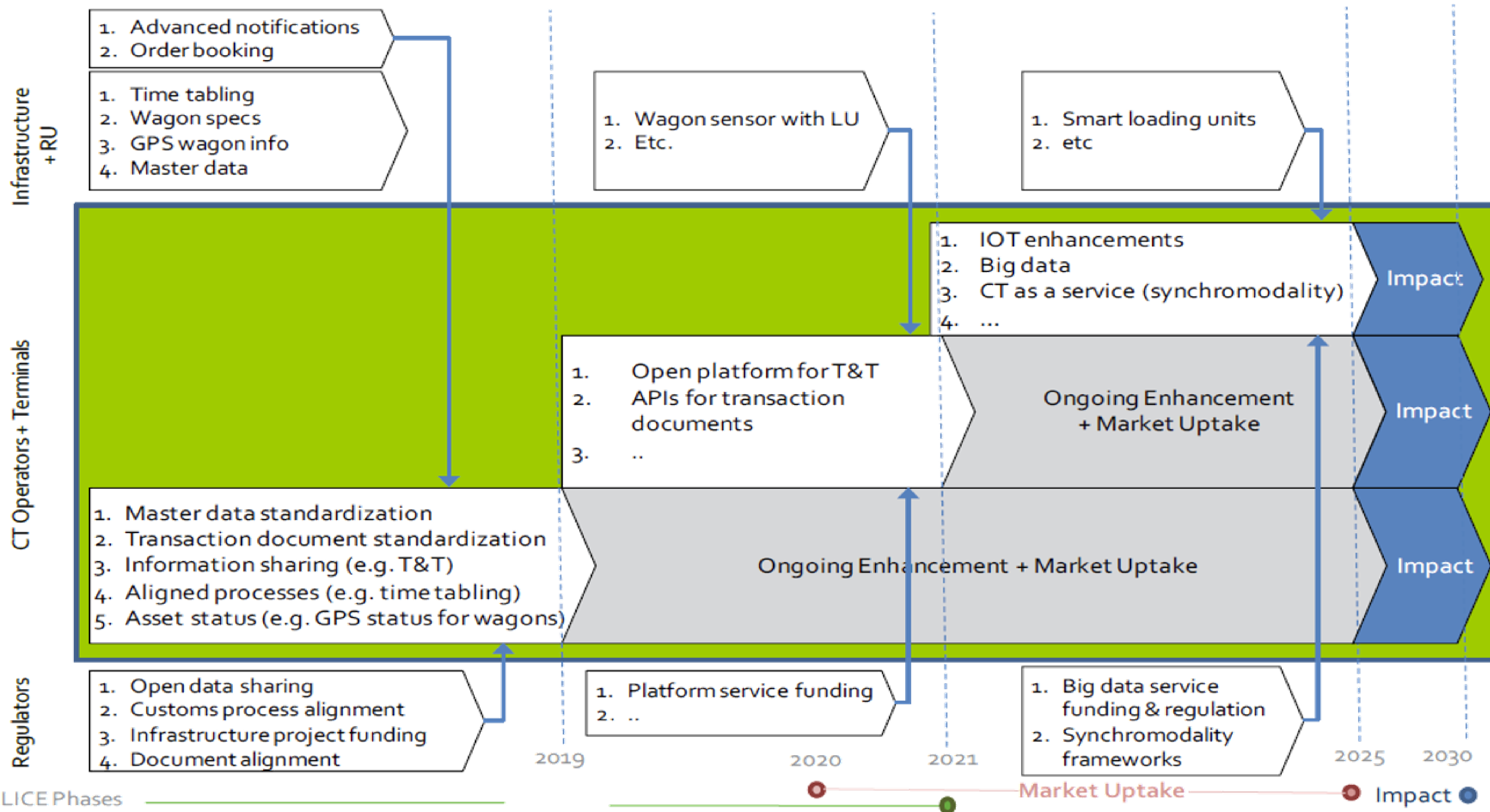
Trends in combined transport

- More complex relationships
- Vertical integration
- Digit(al)isation

Digitalisation in combined transport

- Applications
 - Digital capacity management
 - Tracking & tracing
 - E-administration
 - Digital Automatic Coupling/Autonomous Train Operation
- Challenges
 - Cybersecurity
 - Harmonised standards and databases
 - Digital transformation of all participants

Digitalisation in combined transport





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LUKASZ WYROWSKI, UNECE
GUILLAUME MURAWA, CIT
PATRIZIO GRILLO, UIC

Regulatory framework

United Nations Economic Commission for Europe (UNECE)

Sustainable Transport Division



Where solutions are shaped for governments and through them to other stakeholders for inland transport

TRANSPORT SYSTEM

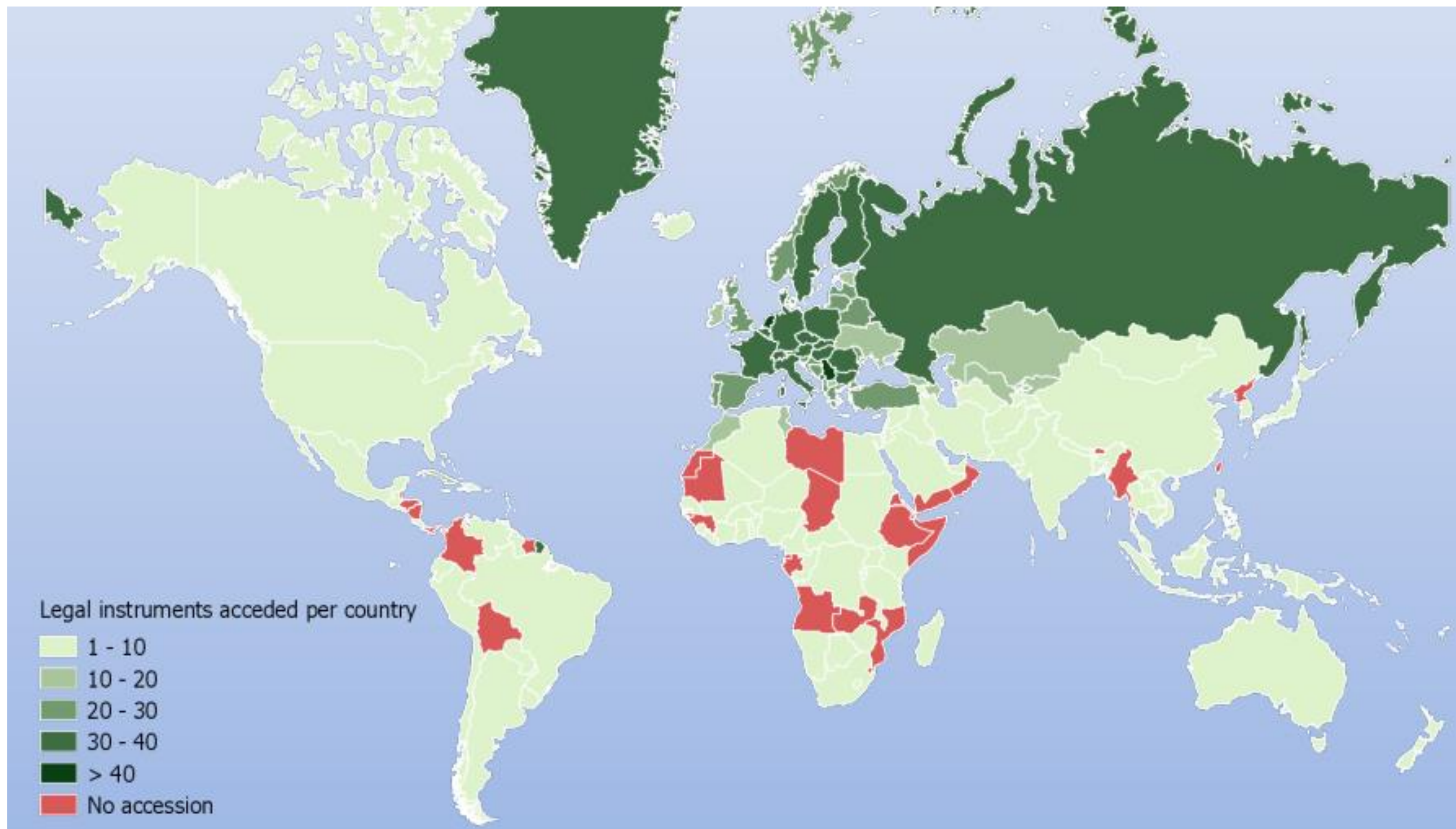


- **Support the development of global and regional conventions and agreements**
- Facilitate policy dialogue
- Conduct analytical work and support development of new technologies
- Provide capacity-building and technical assistance

TIR

 Global Customs
facilitation tool

 Contract for the
international Carriage
of Goods by Road

 Convention on
Road Traffic

 World Forum for
Harmonization of Vehicle
Regulations (WP 29)

 International Carriage
of Dangerous Goods by
Inland Waterways

 Carriage of
Perishable Foodstuffs

 International
Carriage of
Dangerous Goods
by Road

 Infrastructure Agreements
for roads (AGR), Rail (AGC),
Inland Water Transport
(AGN), Intermodal
Transport (AGTC)



This map contains information on the Trans-European Rail Network, as defined by the AGC and AGTC agreements. It is divided into two separate datasets, each focusing the contained parameters to either Freight or Passenger aspects of the rail lines.

Available networks

Currently displayed is the **freight** view of the network.

[The Freight Network](#)

[The Passenger Network](#)

[The Freight Network \(All source data\)](#)

[The Passenger Network \(All source data\)](#)

Disclaimer

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

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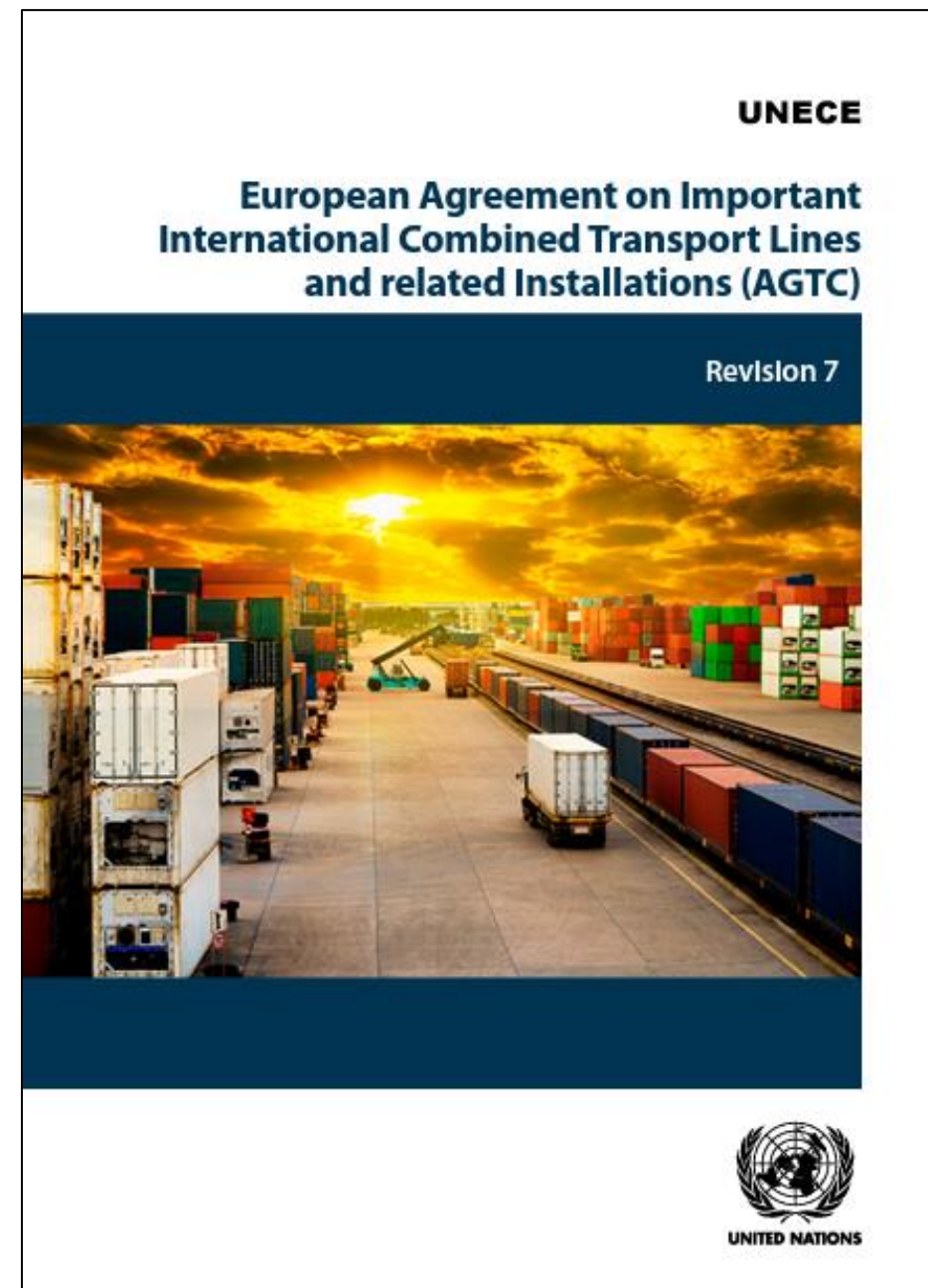


UNECE

European Agreement on Important International Combined Transport Lines and related Installations (AGTC)

Revision 7





Role of the Agreement:

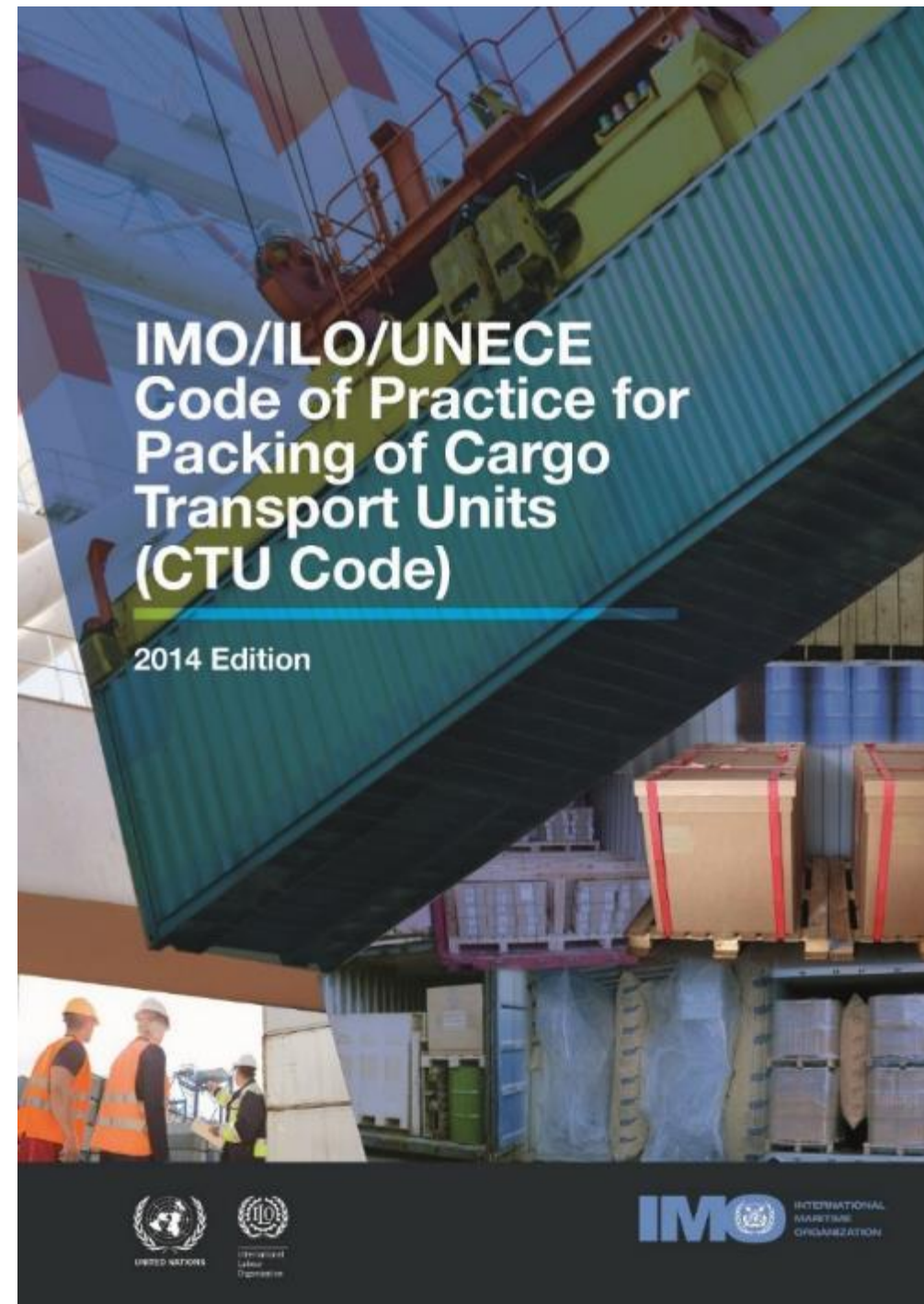
Establish and maintain the AGTC network spanning the territory of the UNECE region (from the Atlantic to the Pacific Ocean and transalpine) (infrastructure parameters)

	A		B		
	Existing lines which meet the infrastructure requirements and lines to be improved or reconstructed		New lines		
	at present	target values			
1. Number of tracks	(not specified)	(not specified)		2	
2. Vehicle loading gauge		UIC B ²		UIC C ²	
3. Minimum distance between track centres ¹		4,0 m		4,2 m	
4. Nominal minimum speed ³	100 km/h	Line category	Speed	Line category	Speed
		F1	120	F1	120
		F2	120	F2	120
		F3	100	F3	100
		F4	n.a.	F4	n.a.
		F1520	120	F1520	120
		F1600	100	F1600	100
5. Authorized mass per axle:					
Wagons ≤ 100 km/h	20 t	22,5 t		22,5 t	
≤ 120 km/h	20 t	20 t		20 t	
6. Maximum gradient ¹	(not specified)	(not specified)		12.5 mm/m	
7. Minimum useful siding length	600 m	750 m		750 m	

Improve operationalization on the AGTC network
=> operational targets (performance parameters)

- A. Requirements for efficient international combined transport services (*requirements listed and measures provided*)
- B. Performance parameters of trains (*min speed, length, weight, axle load*)
- C. Minimum standards for railway lines (*adequate train capacity*)
- D. Minimum standards for terminals (*waiting time for trains <1hour, for trucks <20min*)
- E. Minimum standards for intermediate stations

Future updates of standards: possibly related to climate change mitigation and adaptation



Applies to transport operations throughout the entire intermodal transport chain and provides guidance to those responsible for cargo packing and securing as well as to all parties involved in the supply chain

Ongoing work:

- Supplement/update the Code with new clauses
 - Developments in carriage of bulk in CTUs
 - Package stability
 - Bedding arrangements
 - Prevention of pest contamination
 -
- Make the Code more accessible and use friendly => consideration on the development of CTU Code mobile APP

European legislation & initiatives

- Commission Sustainable and Smart Mobility Strategy, 2020
- Greening Freight Package expected in July 2023
- Combined Transport Directive
- Weights & Dimensions Directive
- CT and interoperability

- Commission Communication on **Sustainable and Smart Mobility Strategy** putting European transport on track for the future - published on 9.12.2020
→ FLAGSHIP 4 – GREENING FREIGHT TRANSPORT
- the European Green Deal calls for a **substantial part of the 75% of inland freight** carried today by road to shift to rail and inland waterways
- **Rail freight traffic will increase by 50% by 2030 and double by 2050**
- the existing framework for intermodal transport **needs a substantial revamp** and must be turned into an effective tool
- Options to revise the regulatory framework such as the Combined Transport Directive as well as introducing economic incentives for both operations and infrastructure should be considered

- The **scarcity of transshipment infrastructure** and of **inland multimodal terminals** is pronounced in certain parts of Europe, and should be given the highest priority.
- **Missing links** in multimodal infrastructure should be closed. Moreover, the transport system should work more efficiently overall with **improved transshipment technologies**.
- The EU needs the **multimodal exchange of data**, plus **smart traffic management systems** in all modes.
- The **review of the State aid rules for railways**, which already provide for a flexible framework to publicly fund multimodality, will further support that objective
- Rail freight needs serious boosting through **increased capacity, strengthened cross-border coordination and cooperation between rail infrastructure managers**, better overall management of the rail network, and the deployment of new technologies such as **digital coupling and automation**.

- The Commission will propose the **revision of regulations governing Rail Freight Corridors and the TEN-T core network corridors**.
- Integration of these corridors into ‘European transport corridors’, focusing on **‘quick wins’ like train length, loading gauge and improved operational rules**, alongside the completion of key missing links and the adaptation of the core network so that it is **fully freight capable**, to promote intermodal transport.
- The Commission will propose to improve rules on **rail capacity allocation** in line with the ongoing project on the **timetable redesign**, to provide additional, flexible train paths.
- The implementation of European rules on rail noise will help alleviate related concerns

Greening Freight Package 2023

- The package is an important deliverable of the Sustainable and Smart Mobility Strategy and part of the Commission Work Programme 2023.
- It will seek to advance the **decarbonisation of freight transport, promote intermodal transport and to complement the single European railway area.**
- The Package comprises **five initiatives**:
 - CountEmissionsEU
 - revision of the Combined Transport Directive,
 - Revision of the Weights and Dimensions Directive
 - Revision of the Train Drivers Directives and
 - an initiative to improve international freight and passenger rail transport capacity.
- The adoption of the package is planned for July 2023.

Combined Transport Directive

- **The Combined Transport Directive (CTD) is the only dedicated instrument to support intermodal transport, dating back to 1992.** Its revision will aim to increase the ambition and scope and will incorporate new ideas and technologies.
- The objective is to **incentivise the uptake of intermodal transport**
- In this revision, EC wants to ensure that the **intermodal operations that save external costs** compared to road-only alternatives, **would benefit from a support.**
- **It would be up to Member States** to establish, based on the performance of their national transport system, what are the main reasons for shippers for not choosing intermodal transport and **address these problems with adequate support.**
- One of the main obstacles is **insufficient density and capacity of transshipment terminals.** The infrastructure elements are dealt with in the ambitious proposal for the revision of the **TEN-T Guidelines.**
- Mode-specific problems, such as reliability or rail services or road standards, are dealt in mode-specific instruments like **capacity regulations and the Weight and Dimensions Directive.**
- EC will continue to support intermodal infrastructure **from the EU funds.**

According to informal sources the new proposal will:

- Aim at saving externalities, not only GHG, on intermodal transport
- **Limit eligibility to activities saving at least 40% of the external costs**, this should ensure that non road leg is not less than 50%,
- **Extend the scope** to maritime and inland navigation
- **Make compulsory the use of eFTI regulation** to benefit of the Directive,
- Limit the type of vehicles and fuels to benefit,
- **Set obligations to freight terminals** to publish access information for operators,
- **Oblige Members States to support:**
 - operations to the extent of 10% of the door to door costs
 - technology improvements, such as retrofitting cranable trailers, ...
 - startup initiatives to connect freight terminals.

(Source CER)

- The Commission **might also** offer exemptions to CT from limitations to cabotage activities and exemption to notify some aids to CT.
- The Commission expects that CT will be competitive without support beyond 740 km.
- At this stage energy consumption would not be considered as a criterium for the selection of transport chains eligible for support.

(Source CER)

Weights & Dimensions Directive

- Directive 96/53/EC – authorised dimensions and weights for trucks, buses and coaches involved in international traffic
- **Aim:** to improve the functioning of the European Union's (EU) internal market and to ensure **the free movement of goods** in the EU by setting **maximum limits for heavy goods vehicles, buses and coaches** carrying out international transport within the EU.
- It fixes maximum limits on the weights and dimensions
- The directive was amended by Directive (EU) 2015/719, which seeks to make heavy goods vehicles and buses **greener and safer** by authorising weights and dimensions that exceed the limits laid down in Directive 96/53/EC, in certain cases and under specific conditions.
- Vehicles from one Member State that fall within the set limits **must be allowed to use the roads of another Member State, with the possible exception** of some limited stretches of road or structures like small villages, places of special interest or ancient bridges where lower limits can be set by the administration.
- **National governments decide** how the rules are enforced and what penalties are imposed for exceeding the maximum authorised weights.

Derogations foreseen by the W&D Directive

Commission clarified on 15.06.2012 rules on cross-border use of longer trucks:

The WD directive provides for three circumstances where derogations to the maximum dimensions of the trucks can be granted. Adjacent Member States who wish to use these derogations to authorise longer trucks to cross the border between them can only do so if specific conditions are met:

- The first derogation concerns a transport operation of an **indivisible load**. In such a case the Member States concerned can authorise it on the basis of **special permits**;
- The second derogation concerns vehicles using **the modular concept** crossing a border, **where the existing infrastructure requirements allow it**. The directive is not opposed to such transport operations insofar as the international competition is not significantly affected and the **transport remains within two Member States**.
- Finally, the third derogation concerns a **journey which is part of a trial**. That trial must remain local and limited in time.

In addition there must be **no discrimination between hauliers** from the Member State concerned and those from other Member States. Moreover, these derogations should not lead to exceptional practices becoming the norm.

The Commission published on 24.03.2023 a Report on the implementation of the amendments to Directive 96/53/EC introduced by Directive (EU) 2015/719.

Derogations foreseen by the W&D Directive

According to informal sources, the new Commission proposal will :

- Clarify the content of the current Directive
- Enforce the Directive provisions as some Member States do not do
- Offer incentives to Zero Emission Vehicles, such as offsetting the weight of batteries and accruing any reduction of battery weight to transport of goods
- Concur to incentivize Combined Transport
- Legalize cross-border traffic of MegaTrucks if the Members States have authorised it internally
- Introduce special provisions for car transporters' empty trucks
- Promote Zero Emission Vehicles as defined by the Alternative Fuel Regulation

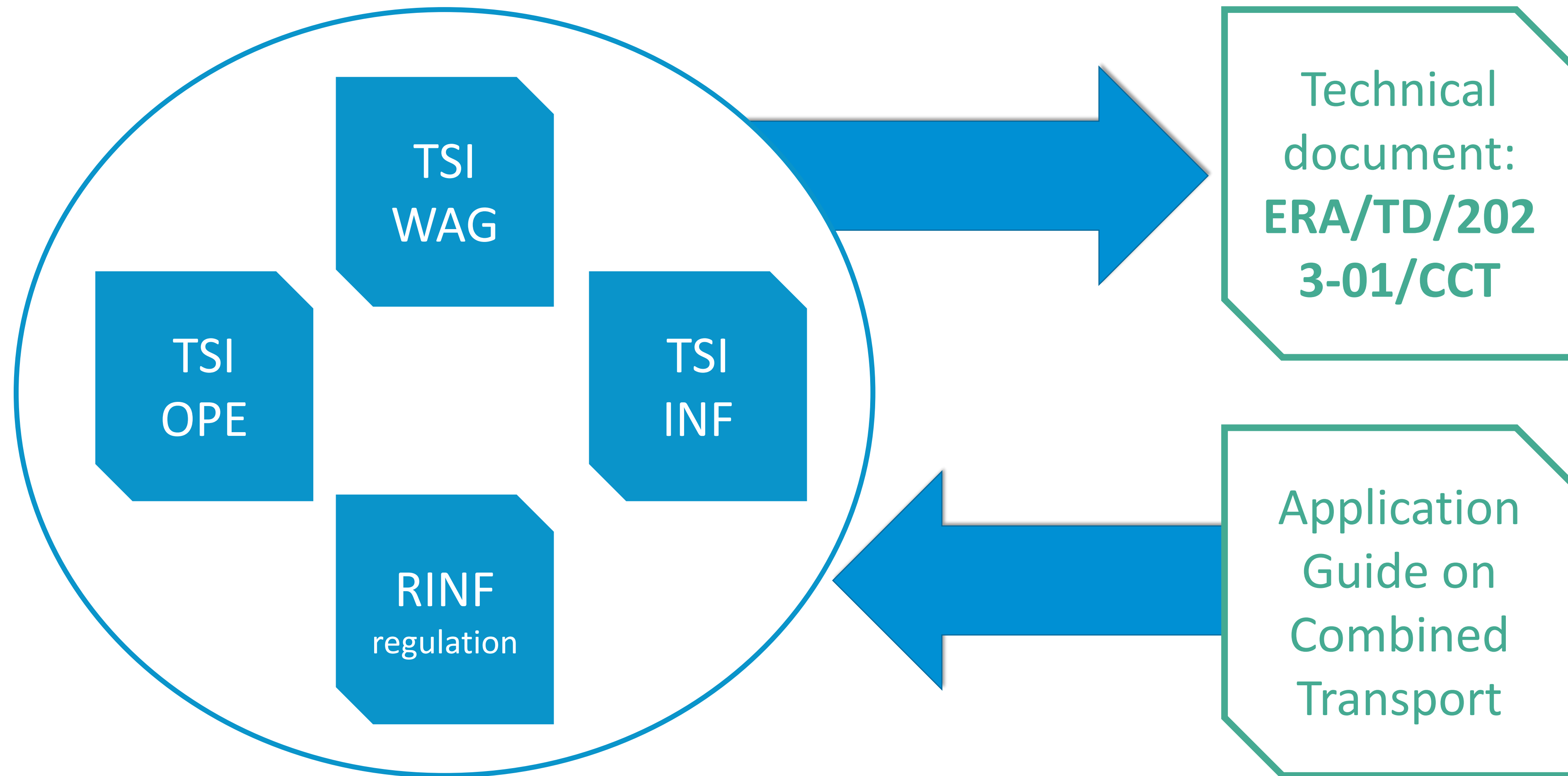
(Source: CER)

Weights & Dimensions – what is at stake?

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Rail Interoperability Directive and Combined Transport

Codification of lines and wagons for CT and associated operational procedures





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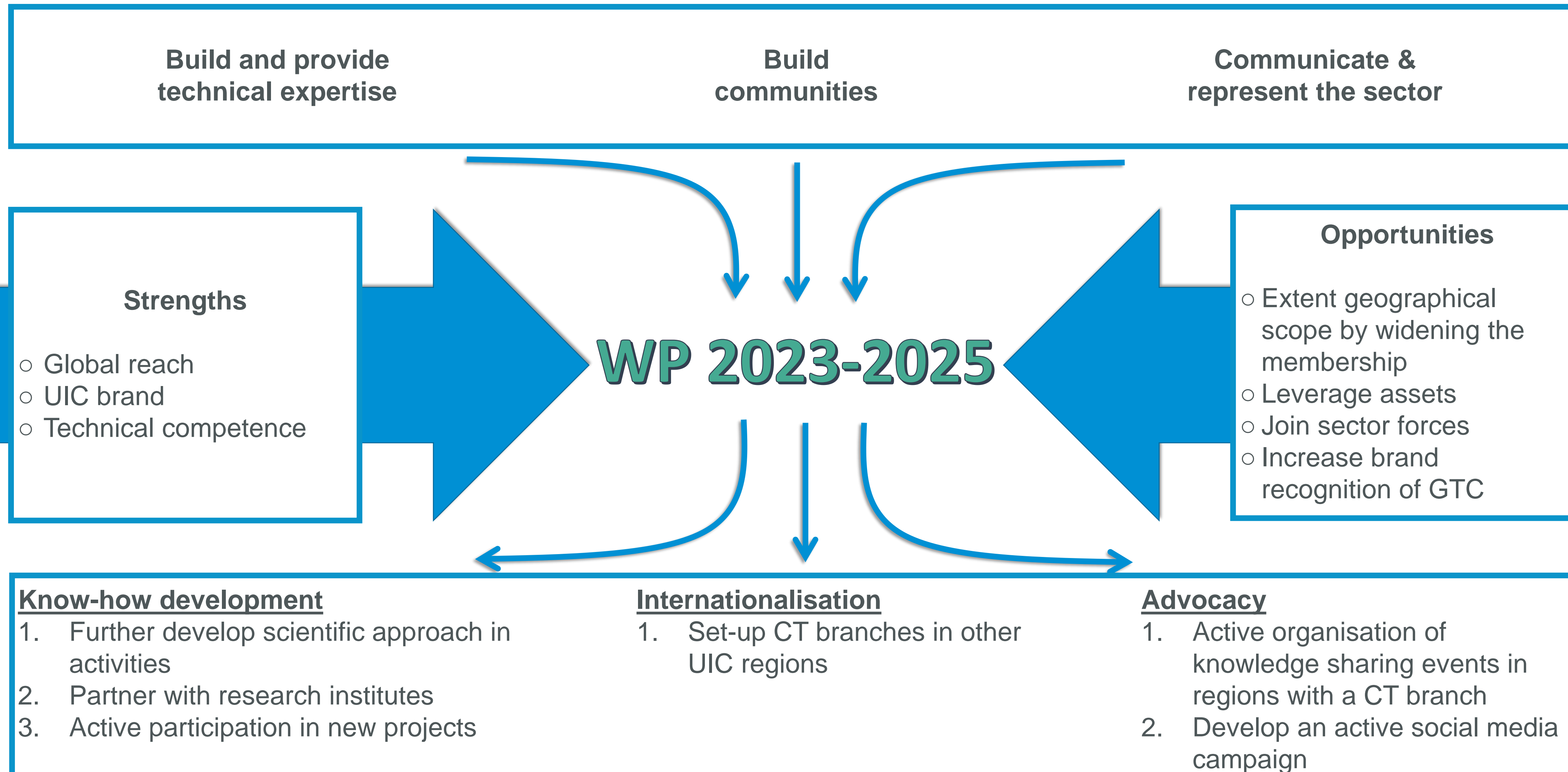
UIC hands on approach

Combined transport at UIC

- GCT – special group within UIC
 - own governance
 - own budget
- The members are combined transport commercial entities of the UIC members and affiliated partners
- Meeting frequency 2/3 times per year in a combination of virtual and life sessions at UIC or at a member's site

GCT work programme aligned with UIC DNA

UIC Strategic Pillars



GCT work programme aligned with UIC DNA

Advocacy

- Assure CT sector interests by close follow up of legislative initiatives on European (Greening Freight Package with a.o. CT directive, W&D directive...)
- Assure CT presence on the international forum and representation with sister organisations like UNECE, CIT, BIC...
- Continue knowledge spreading by organisation of regular CT Freight Days
- Explore partnerships with organisations from other modes of transport

Internationalisation

- Explore interests of other regions in CT activities as growing market
- Implement recommendations from road show(s)
- Explore feasibility of CT branches in regions under development

Know-how development

- Redesign existing CT knowledge available in different leaflets/IRSs into one CT manual
- Do research projects and present results like the study on direct shipment contemporary practices and technologies
- Move to next level on data collection and reliability in the future CT reports 2024 and 2026 by intensifying collaboration with sister organisations and knowledge institutes
- Explore partnerships with academia

UIC solutions for the members

- Technical documentation → IRSs / leaflets
- Technical support → eg. new business opportunities → cabotage
- Reference documentation → CT report
- Best practice sharing
- Representation at policy level & international projects



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ERIC LAMBERT, UIC
PHILIP VAN DEN BOSCH, UIC

Knowledge building at UIC

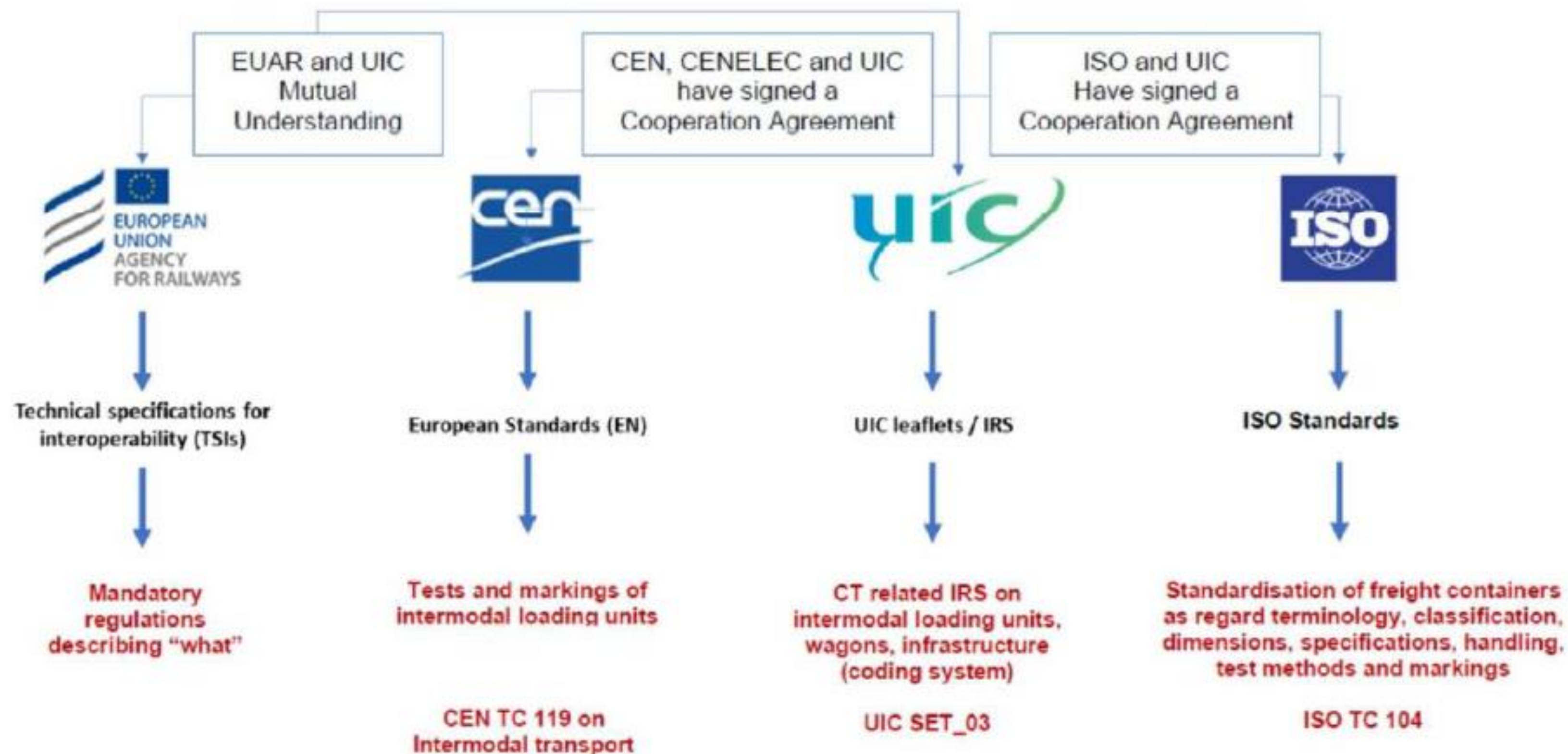
Concrete cases

- AEROFLEX
- CACTUS
- ZEFES
- Sneak preview of ongoing research: Direct Transhipment technologies Waterborne - Rail

CACTUS – Comparative analysis of the combined transport usages and standards

According to the latest study by UIC-UIRR, road-rail combined transport represents about 50% of all current rail freight volumes (<https://uic.org/special-groups/combined-transport-group/#documents>).

To ensure the safe transport of ILUs, UIC has established a coding system for lines, ILUs and wagons in collaboration with UIRR.



Project introduction



In the ZEFES project, 4 truck OEMs, 2 trailer OEMs, suppliers, logistic operators, and research partners will work together towards the overall goal of accelerating the integration of zero-emission vehicles for long distance heavy transport, by focusing on efficiency improvements, mass production capabilities and demonstrating the use of the technologies in daily operations.

In 2025, **nine different vehicle concepts (6 BEV and 3 FCEV)** will run over 1 million kilometres across EU corridors in real daily operations (use cases), guided and validated by a digital platform (developed within the project) bringing zero-emission vehicles adoption in the freight transport ecosystem a big step further.

The project will execute real-world demonstrations of long-haul BEVs and FCEVs across Europe to demonstrate the vehicles' affordability and reliability, their efficiency, and their longer range per single charge and reduced charging times.

NEED: charging and hydrogen refuelling nearby the selected corridors

Priorities and call to action



📍 Enroute charging locations expected as

📍 Minimum CCS 8, MCS 12, RHS 8

📍 Ideal CCS 13, MCS 21, RHS 13

📍 Call to action, invest in charging (CCS/MCS) and fuelling (RHS) is needed now, as from 2025 - 2030 over 150.000 ZE-HDVs and over 1.000.000 units by 2040 will be running on European corridors!

📍 https://www.eca.europa.eu/Lists/ECADocuments/SR21_05/SR_Electrical_charging_infrastructure_EN.pdf

Demonstrations 1 - 4

Use case 1 Demonstration of FCEV-1 innovations



- A Swedish shipper will contract a carrier to operate the vehicle (R+ST 24m @ 64 GCW) for 12 months on an existing flow to carry steel scrap from Gothenburg-SE to Hofors-SE and in the opposite direction carry steel collies. The truck is to complete up to five return trips per week resulting in a total distance of ca. 4800 km/week. Several operators are to be chosen to run the vehicle. Decision to be taken by end 2023. A separate meeting will be set up to get confidence and decide the right operator. USP, FCEV as HDV standard Swedish EMS1 configuration @64t GCW in a Long-Haul VECTO profile.

Use case 2 Demonstration of BEV-1 innovations



- The Swedish shipper will operate the vehicle (T+ST @ 44 GCW) or (T+ST+D+ST @ 64t GCW) for 12 months serving the existing automotive parts supply chain between 2 factories in Gothenburg-SE and Gent-BE. The cargo is volume limited. Scandlines operates the ferry connection Puttgarden to Rodby, giving the opportunity of charging of the vehicle during ferry operation or at the terminal. The route length is 1250km. USP, a complete electrified cross border multimodal single driver logistics operation.

Use case 3 Demonstration of BEV-2 innovations



- An global shipper will contract carriers to operate the vehicle (T+ST @ 44 GCW) for 6 months, as tractor + duo container-trailer (T+ST+D+ST @ 64t GCW), to transport 45ft containers with hazardous goods between a factory in Amiens-FR via the multimodal terminal Dourges-FR to the multimodal terminal Zeebrugge-BE, a roundtrip of 550km daily. The Vehicle drives (T+ST+D+ST) from Amiens to Dourges. At the terminal Dourges, the dolly will decouple from the vehicle. The T+ST will continue to Zeebrugge (cross border). The D+ST will operate at terminal and D will be charged. When the T+ST comes back from Zeebrugge, it will continue again as T+ST+D+ST back to Amiens. USP, Operation of duo trailer with a BEV hub to hub, remote dolly operation at the terminal Dourges.
- A Spanish shipper will operate the vehicle (T+ST @ 44 GCW) for 6 months on an existing route of temperature-controlled goods from the CFL Multimodal Terminal in Dudelange-LU to Lidl Halmstad-SE, taking the ferry from Travermünde-DE to Malmö-SE, 1200km, a 2 driver operation. Drivers and e-reefers are owned by the shipper. The e-reefer is equipped with an e-axle, a battery, and an e-cooling for the cargo. UIC/CFL Intermodal take care of the transport by rail (Le Boulou (FR) to Dudelange (LU)) and the charging of the trailer batteries during the train operation. USP, Daily operation of a BEV truck / semi-trailer with 2 drivers, 1200km daily.

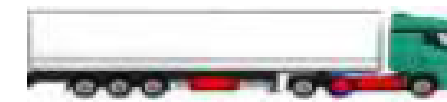
Use case 4 Demonstration of BEV-3 innovations



- A Dutch shipper will operate the vehicle (R+eD+eT @ 48 GCW) for 6 months on a daily Rhine-Alpine corridor to transport parcels from Munich area-DE to Eindhoven area-NL, a round trip with a length of 675km demonstrating the vehicles capability of 750km. The vehicle configuration is a BEV with an e-dolly and an e-trailer equipped with a BDF frame to transport swap bodies. USP, 3 swap bodies and the e-powertrain within each vehicle unit.

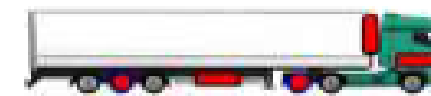
Demonstrations 5-7

Use case 5 Demonstration of BEV-4 innovations



- A Swedish shipper will operate the vehicle (T+ST @ 44 GCW) for 6 months on an existing transport flow of automotive components from Sodertalje to Zwolle and back. The return flow to Sodertalje is limited amount of goods. The round trip is a forward and return trips of 1325km single. The e-trailer operates as a range extender. Scandlines will ensure charging on the ferry Puttgarden / Rodby or in the terminal.
USP, Battery in semi-trailer as “range extender”

Use case 6 Demonstration of FCEV-2 innovations



- An Italian shipper will run the vehicle (T+ST @ 44 GCW) for 6-month-period across the Brenner Pass complying temperature-controlled goods to evaluate the performance of the vehicle into a real-life environment. The round trip covers a daily distance of about 680 km using a hydrogen stations (certified green hydrogen) along the Brenner corridor. Origins and destinations are shown in the picture as blue areas. The fixed route links approximately Brixen to the road intersection between the Brenner Corridor (Highway A22) and the Highway A4. The operator has the possibility to choose different destination different days to probe the performance of the vehicle.
USP, in partnership with a local customer, we want to build up the first 100% “green transport”.

Use case 7 Demonstration of a BEV & a FCEV comparison



- A Spanish shipper will operate both vehicles BEV and FCEV vehicles (T+ST @ 44 GCW) for 6 months on the existing route of temperature-controlled goods from Huelva to the multimodal terminal, Le Boulou France. Drivers and e-reefers are owned by the shipper. The e-reefer is equipped with an e-axle, a battery, and an e-cooling for the cargo. UIC/CFL Intermodal take care of the transport by rail (Le Boulou (FR) to Dudelange (LU)) and the charging of the trailer batteries during the train operation. The final destination for the e-reefers is Halmstad, Sweden. (See also demonstration 3). IDIADA-PLUSIDI will make a back-to-back comparison between the PWT technologies installed on both vehicles under controlled conditions in test track and standardized driving routes used in a previous EU project AEROFLEX.
USP, a direct comparison of both vehicles under identical conditions in a roundtrip of 1300km (2 driver operation).

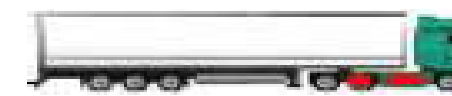
Demonstrations 8 - 9

Use case 8 Demonstration of BEV-5 Low Liner innovations



- A Spanish shipper and Carrier will operate the vehicle (T+ST @44 GCW) for 3 months in Germany on an existing transport flow of automotive goods between Heilbronn-DE to Dudelange-LU, a round trip of 600km. Next the shipper will operate the vehicle for 3 months in Spain on this existing transport flow of automotive goods from Le Boulou-FR to SEAT Martorell-ES as tractor and duo semi-trailer combination (T+ST+D+ST @ 64t GCW), a round trip of 550km. USP, BEV low liner with limited space for batteries for the automotive sector.

Use case 9 Demonstration of BEV-6 and Michelin Tire innovations



- Use case 9.1** - A French shipper will start to operate the vehicle (T+ST @ 44t GCW) for 3 to 6 months on an existing plant-to-plant flow, a 500km daily shuttle of semi-finished products on hilly national roads (Blanzky (71)– Blavozy (43)). MICHELIN evaluate the impact of electrification on tires performances (wear, Rolling Resistance) for a Drive prototype tires (315/70R22.5 XM901 - market maturity 2027) improved in wear resistance vs rolling resistance compromise in comparison to current market tyres reference 315/70R22.5 XMD. The assessment of electrification impact on tyre wear performance will be made.
- Use case 9.2** - A second French shipper will operate the vehicle for 3-6 months on an existing automotive logistic flow, delivering cabs (Blainville sur Orne – 14) to assembly plant warehouse (Bourg en Bresse – 01), a daily distance of 700 km mainly on French highways. Pending on the logistic operator, goods are going through warehouse closed to each plant before sequenced deliveries. USP, New tires for ZE-HDV vehicles demonstrated in a real logistics operation for 6 months.



- Use case 9.3** – A Dutch shipper will contract a carrier to operate the vehicle for 6 months in 2 different configurations as tractor and semi-trailer (T+ST @ 44t GCW) and as tractor and semi-trailer and trailer (T+ST+TR EMS @ 44t GCW) on an existing parcel logistic flow from Veenendaal (NL) to Rotterdam area and Brussels area. A daily distance of 575+100 km, a combination of highway and express roads. USP, one vehicle in 2 configurations in a traditional full round trip cross border logistics parcel route, equipped with the new designed Michelin tires for ZE-HDV. Charging aligned with drive / rest time schedule and critical time slots at depots.

Demonstrations 10 - 13



Use case 10 Demonstration of FCEV-3 innovations



- A turkeys shipper will start the operation for 2 months with the vehicle (T+ST @ 44 GCW) on a regional-national long-haul route between a factory in Kocaeli Plant and the Istanbul Pendik Ports, daily 3 round trips ca. 500km transporting vehicle production parts.
USP, FCEV vehicle operating in a non-EU country.

Use case 11 Demonstration of FCEV-3 innovations



- An Austrian shipper will contract carriers for 3 Months to operate the vehicle (T+ST @ 44 GCW) in a logistics network of a daily regional-national long-haul profile for parcel distribution, daily ca. 600km.
USP, FCEV vehicle operating in a regional / national long-haul mission profile.

Use case 12 Demonstration of FCEV-3 innovations



- A global shipper will contract carriers to operate the vehicle, (T+ST @ 44 GCW, ST is a 45ft container-trailer) in a national multimodal flow long-haul profile of partly dangerous goods on mountainous terrain and with the use of tunnels, daily ca. 660km for 3 months.
USP, FCEV vehicle operating in a hilly national long-haul VECTO mission profile.

Direct Transshipment technologies Waterborne - Rail

Context

- New supply chain models are being researched, including in the field of Combined Transport
- Research question received from one of the members

“What about direct transshipment from waterborne to rail transport”

- How can it be defined?
- Is it applied? What best practices exist around the world?
- What are the economics behind this type of transshipment?
- Master study commissioned to Department of Transport and Regional Economics (TPR) - University of Antwerp
- Full results available Autumn 2023

Direct Transshipment technologies Waterborne - Rail

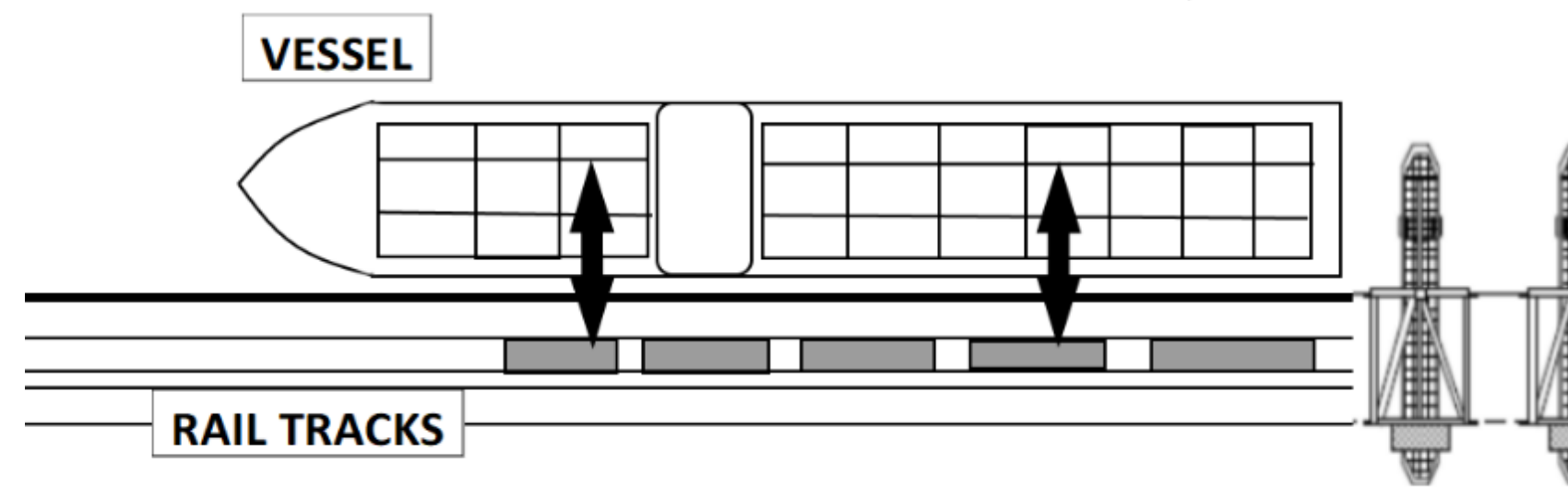
Research steps

- Typology of direct versus indirect shipment
- Literature review and interviews with different ports in different continents
- Evaluation of the economic value of direct versus indirect shipment
- Conclusions and next steps for further research

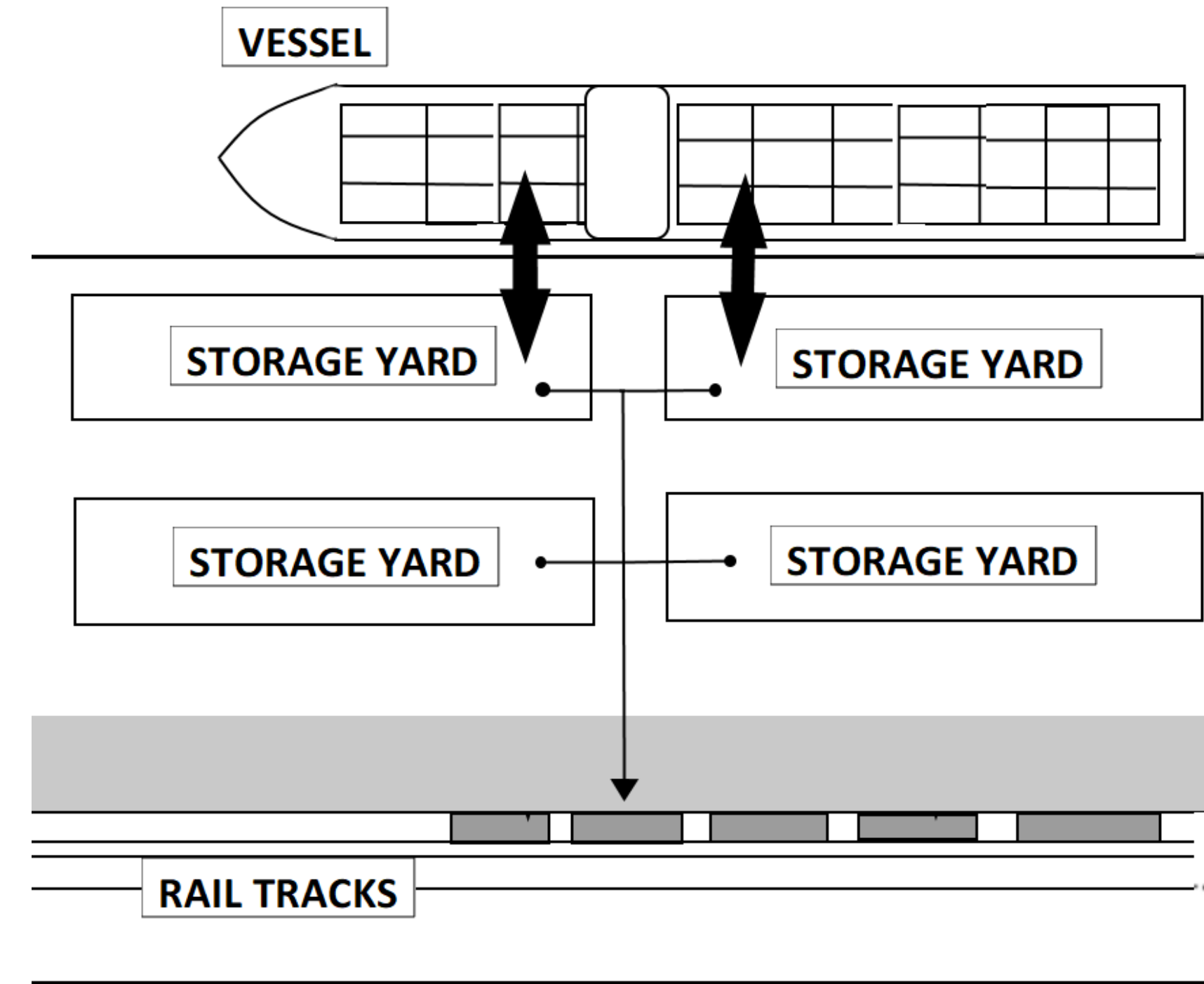
Direct Transshipment technologies Waterborne - Rail

Typology of transshipment

Direct Transshipment



Indirect Transshipment



Closing words

These were examples of international cooperation in combined transport promoted within UIC. They have the potential for long-lasting success and increased significance as we continue to advocate these experiences in other locations over the network.

For questions after the webinar:

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Fit for Freight – Combined Transport podcast



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