

Sharing of train tracking and Estimated Time of Arrival (ETA) information

CEF Action nr 2016-EU-TA-0185-S



Electronic exchange of **E**stimated **T**ime of **A**rrival information



Co-financed by the European Union

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A. Making rail freight a more attractive option

2. In order to improve operational efficiency of the logistics chain, the sector representatives commit themselves to implementing the TAF TSI functions according to the Masterplan and working toward a common ICT architecture wherever possible. IMs will integrate **international traffic management information (e.g. via TIS)** with national systems. Under the protection of confidentiality clauses, **IMs and RUs agree to make information on estimated time of arrival available (for handover points and final destination) to their contract partners, including terminals and intermodal operators** for optimizing the use of resources such as rolling stock and terminal capacity, and to provide freight forwarders and shippers with up-to-date information about the status of their freight and an estimated time of arrival.

Vienna RFD Dec.2016: How the CEF ELETA project links to the RFC programme

CORRIDOR ScanMed RFC ATLANTIC RFCS 6 RFC7 Rail Freight Corridor 8 CSCORRIDOR

Opening RFC Strategy Sessions

Guillaume Confais-Morieux,
Rail Freight Day 9 December 2016

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Opening RFC Strategy Sessions

Shared priorities / Operations



5. Improving harmonization of processes at the borders, with support from executive boards
6. Following Estimated Time Arrival implementation for all stakeholders, including estimated time of handover, implementation of telematics applications for freight service (TAF-TSI) & information of Train Information System (TIS) included in national systems.



What is the current status?

Limited access to information

- The partners involved in a train run do not have guaranteed access to train (wagon) tracking and forecast information
- Contractual agreement between all involved partners are required (high administrative burden, legal uncertainty)
- No standardised technical interfaces between all partners

Low quality of information

- Forecast information does not involve all partners
- Forecast information is often just based on a time-shifting
- Quality of data and calculation algorithm is poor
- Forecast information from previous partner is not considered by the next IM
- Some international trains are not linked always (estimated above 25%)

Project aims



1. Enable sharing of tracking information between all partners involved in a single train run, via TIS Train Information System (“Where is the train?”)
2. Offer estimated time of arrival data to all partners involved in a single train run, via TIS Train Information System (“When will the train arrive?”)
3. Achieve high quality output: Reliable ETA communicated to the following partner of the train run
 1. All partners calculate their own part of the ETA
 2. TIS shall be the common platform and measuring the quality of the ETA at defined points and directions
4. Step-by step introduction with volunteering RFCs, IMs, RUs, terminals, contractors for defined connections, and subsequent spreading to the network

Organisational set-up – Overview



ETA Task Force (Coordination)
 CER (Maier), ERFA (Tonndorf), KNV (Toet), RFCs (de Mol, Sellnick, Geubelle), RNE (Reisinger), UIRR (Schultze), DG Move, Ministries

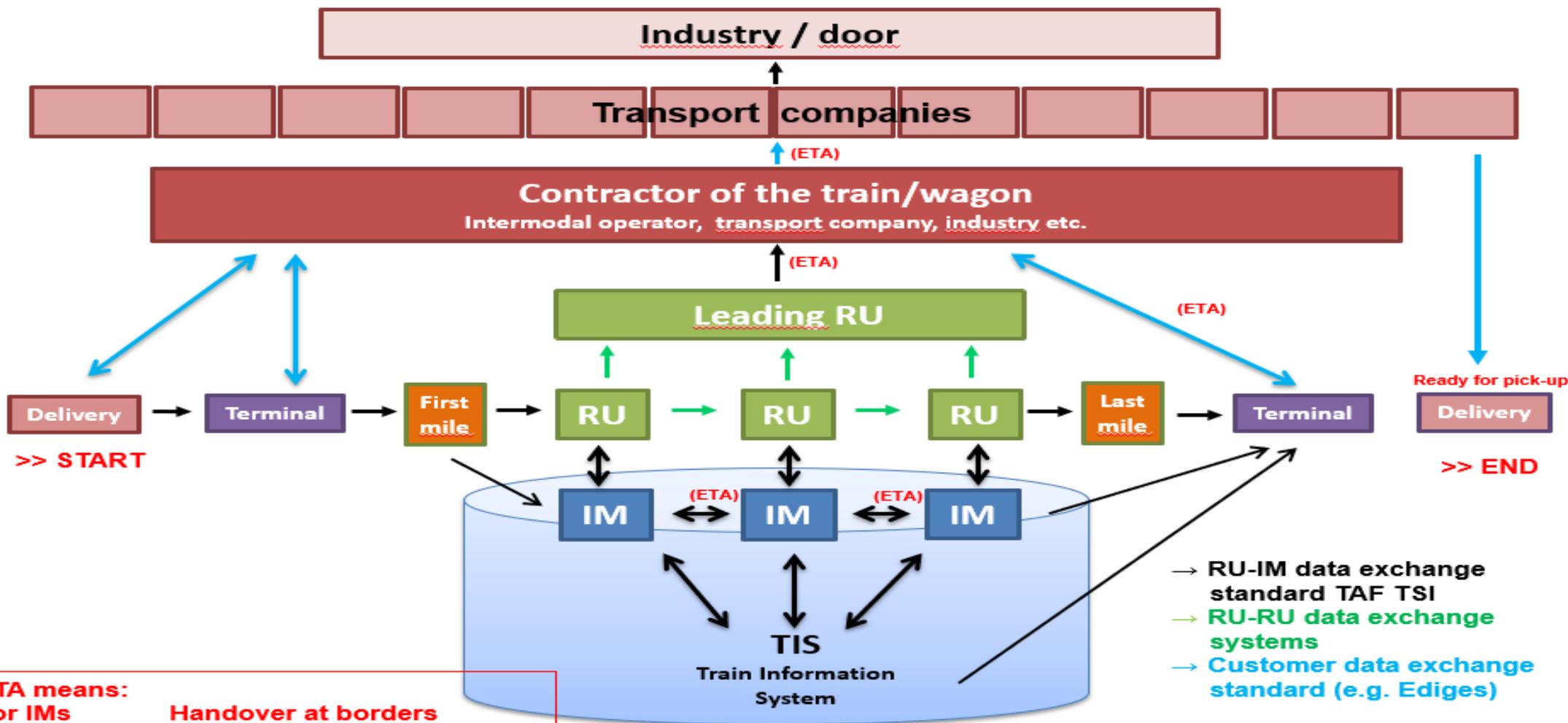
<p>«ELETA» Project (CEF application)</p> <p>Project coordinator: Ad Toet Project partners: Cemat, Hupac, IFB, Kombiverkehr, RCA, UIRR, Involved RUs: Lineas, BLS Cargo, DB Cargo, RCA, Mercitalia, SBB Cargo int., SNCF FRET Involved terminals: ca. 20 Technical partner: RNE</p> <p align="center">Advisory Board to assist the project partners RUs, terminals, IMs</p>	<p>RNE Project (CEF application)</p> <p>Project coordinator: RNE Harald Reisinger Project partners: IMs, Members of the TIS Advisory Board</p> <p>System provider for TIS</p> <ul style="list-style-type: none"> • Including Terminals to TIS • Measuring the quality of ETA • Using TAF TSI Standards like <ul style="list-style-type: none"> • Reference Files • Defined Messages • Common Interface 	<p>Legal Unit</p> <p>ERA, DG Move (Buy, Padoy), Ministries (Groot, Haller, Ilik, Nagel, Swartenbroekx)</p> <p>Short Term: TIS Advisor Board Long Term: to be defined</p> <p align="center">RFC1 project «ETA Terminal/Shunting RUs» Duisport, others</p>
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Situation TODAY



1. IMs provide ETA data based on simple time shifting.
2. RUs do not feed data into TIS.
3. Data sharing is fragmented and non-standardised.
4. Some RUs do not disclose tracking data with other RUs and the contractor of the train.
5. The contractors of the train/wagon do not have access to TIS. Only some terminals have (based on voluntary contracts).
6. TAF-TSI defines data exchange between RUs, IMs and wagon keepers. Terminals and Contractors of the train are excluded.
7. TIS uses a reference number linked to a path; link to train gets lost in case of rescheduling. Project “Train Identifier”: 2021

Situation TODAY



ETA means:
 For IMs Handover at borders
 For RUs Handover at delivery point
 For terminal Arrival of train
 For shippers Ready for pick-up

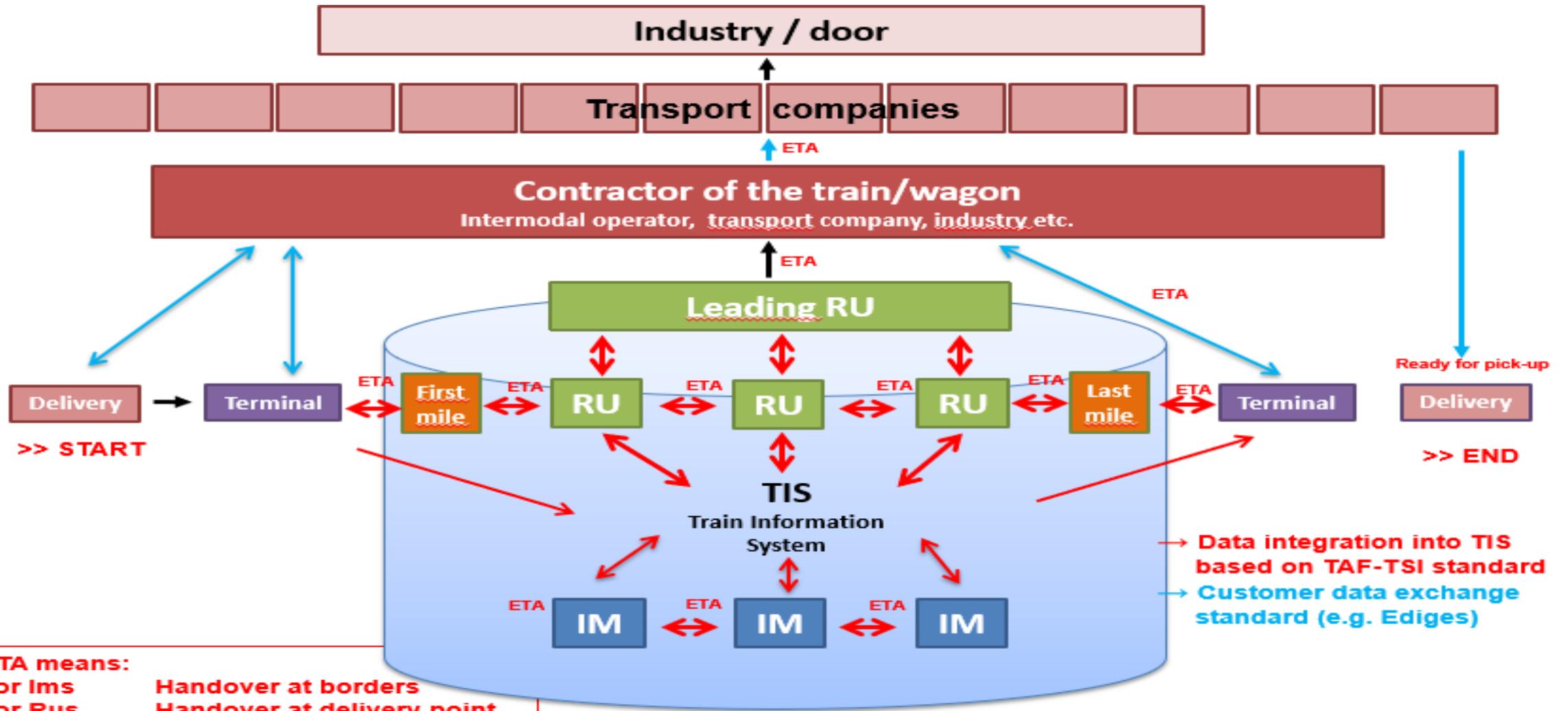
→ RU-IM data exchange standard TAF TSI
 → RU-RU data exchange systems
 → Customer data exchange standard (e.g. Ediges)

Situation TOMORROW



1. All partners involved in a train run have access to tracking and ETA data.
2. All involved partners share train tracking data and ETA data.
3. All partners involved in a train run feed their ETAs into TIS.
4. All partners plan ahead and share their ETA with the following partners, who can plan ahead as well.
5. The leading RU communicates tracking and ETA data to the Contractor of the train.
6. The Contractor exchanges information with the terminal and communicates “ready for pick-up” to the transport company/industry

Situation TOMORROW



ETA means:
 For Ims Handover at borders
 For Rus Handover at delivery point
 For terminal Arrival of train
 For logistics Ready for pick-up

First-Last Mile: Messages and Facilities Terminal Trip



TIS - Messages along the whole Train Journey

First Mile Traction Type (Shunting Trip or Train Loco)		Train Journey		Last Mile Traction Type (Train/Shunting Trip or Train Momentum Energy)	
Terminal	Terminal Trip	Network IM		Terminal Trip	Terminal
					
Loading completed	Forecast Running advice	Path Details – Forecast - Running advice – Delay Codes – Path Section Modification - Interruption		Forecast Running advice	Ready for Unloading

ELEETA 

6. Following Estimated Time Arrival implementation for all stakeholders, including estimated time of handover, implementation of telematics applications for freight service (TAF-TSI) & information of Train Information System (TIS) included in national systems.

4-5 years

Sharing of train tracking and ETA information
ELETA

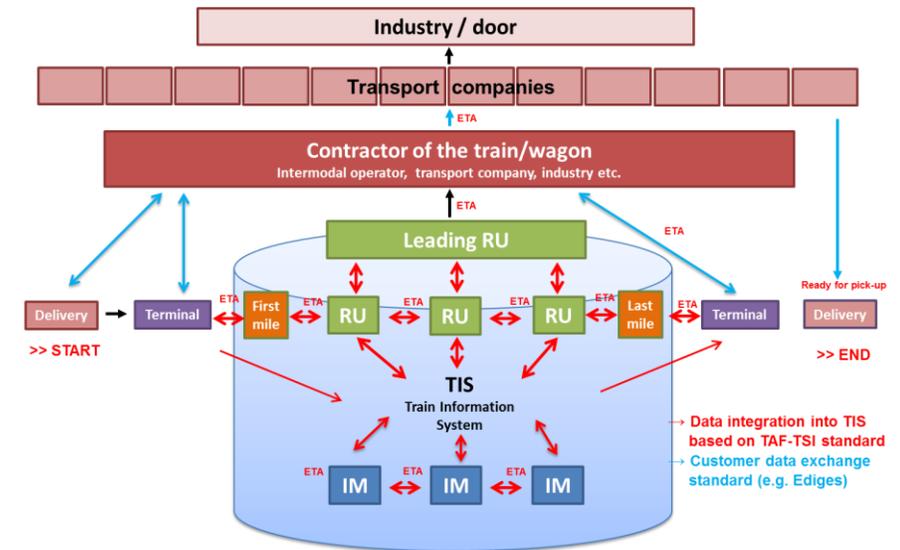
2 years

ELETA objective

1. to demonstrate the practical value of streamlining exchange of ETA data on the basis of existing intermodal freight trains.
2. to encourage and facilitate the work done by the sector, member states and the European institutions for eliminating legal, operational and technical obstacles in the electronic exchange of ETA information.

ELETA approach

- Intermodal operators in leading role; IM's, RU's and RNE actively involved
- Selection of already running intermodal shuttle trains
- No new big new database, but interfaces to already existing TAF-TSI/TIS information



ELETA core tasks

1. Establishing the Electronic data exchange link between all stakeholders in the chosen intermodal logistic chains.
2. Feeding into the link valid data on Estimated Time of Arrival.

ELETA partners



ELETA intermodal trains



Route	Train service
7	Antwerp (BE) – Busto Arsizio (IT) <ul style="list-style-type: none">- Route via <u>Chiasso</u>- Route via Domodossola- Route via <u>Spiez</u>
8	Rotterdam (NL) – Busto Arsizio (IT)



ELETA intermodal trains



Route	Train service
9	Ludwigshafen (DE) – Busto Arsizio (IT) - via Domodossola - via <u>Chiasso</u>
10	Rotterdam (NL) – Novara (IT) - Via Domodossola



ELETA intermodal trains



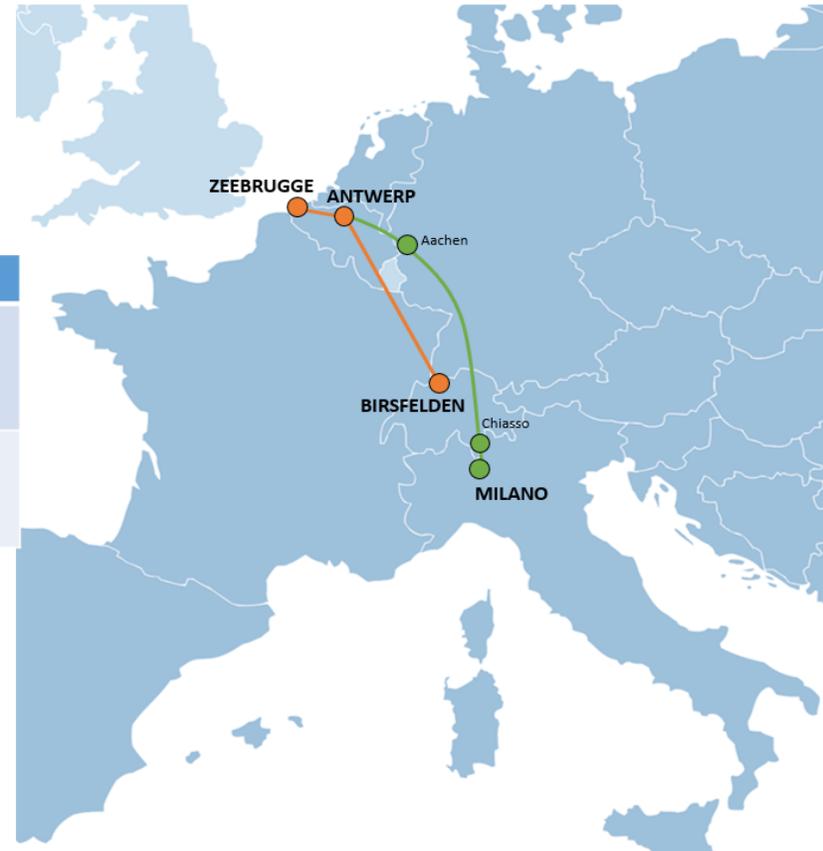
Route	Train service
1	Ludwigshafen (DE) – Barcelona (ES)
2	Köln (DE) – Verona (IT)



ELETA intermodal trains



Route	Train service
5	Antwerp (BE) – Milano <u>Segrate</u> (IT)
6	<u>Zeebrugge/Antwerp</u> (BE) – Basel <u>Birsfelden</u> (CH)



ELETA intermodal trains



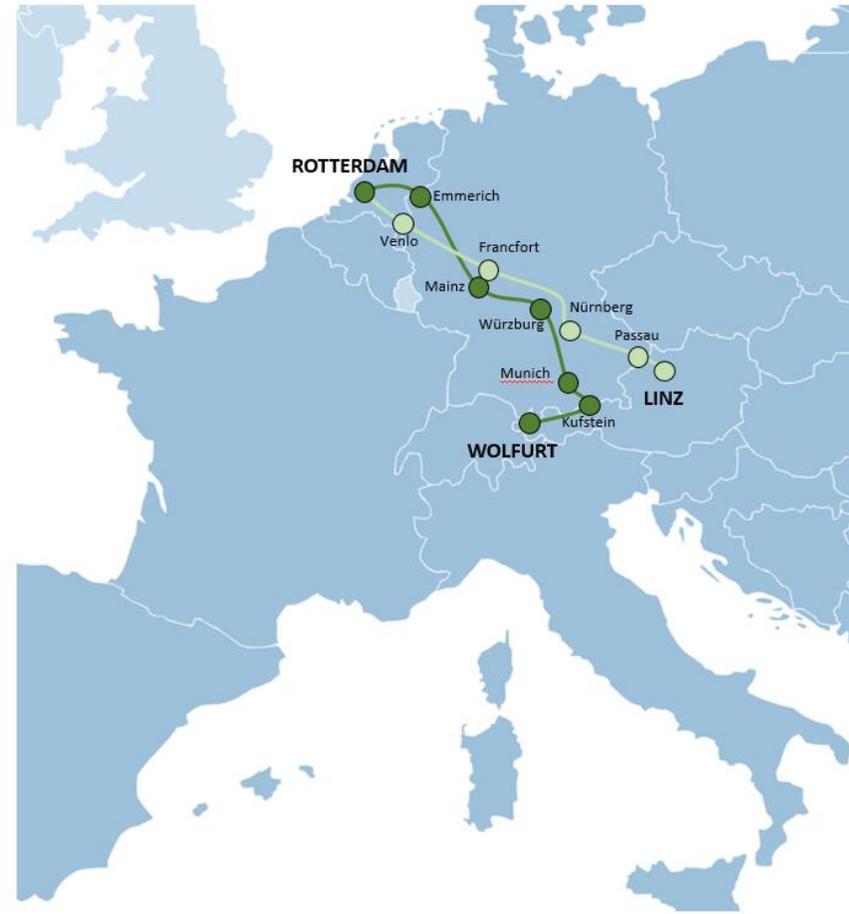
Route	Train service
3	Charleroi (BE) – Torino (IT)
4	Duisburg (DE) – <u>Pomezia</u> (IT)



ELETA intermodal trains



Route	Train service
11	Rotterdam (NL) – <u>Wolfurt</u> (AT)
12	Rotterdam (NL) – Linz (AT)



ELETA activities



N°	Title	Start date	End Date
1	Survey and system analysis of current situation in tracking data exchange in Road-Rail Combined Transport	01-09-2017	28-02-2018
2	Survey of legal conditions in tracking data exchange	01-10-2017	28-02-2018
3	Inventory of stakeholders' requirements for an ETA eco-system	01-09-2017	31-03-2018
4	Assessment of ICT systems and standards to be linked	01-09-2017	31-03-2018
5	Elaboration of functional requirements and architecture for the ETA ecosystem	01-02-2018	30-09-2018
6	Conceptual design of smart ETA algorithms	01-02-2018	30-09-2018
7	Programming and testing of software applications and user interfaces	01-09-2018	30-06-2019
8	Impact assessment of the ETA ecosystem	01-04-2019	31-07-2019
9	Project Management and Communication	01-09-2017	31-08-2019

ELETA state of affairs



1. No legal obstacles; TIS User Agreement provides adequate basis for exchange of information.
2. Intermodal operators and some terminals are not linked to TIS. Some terminals invested in systems for connecting to RU's.
3. System for unique train numbering is badly needed (foreseen in TAF-TSI for 2022).
4. Great diversity in level of digitalisation of terminals. Electronic interface between terminal management ICT systems and TIS is needed.
5. The whole train journey must be in TIS (not only the IM-network).
6. Various definitions for ETA's are used by different stakeholders. The data exchange between RU's/IM's and terminals needs to be defined in more detail in the TAF-TSI. Use-case's must be elaborated with data flow to/from the terminals in two directions. Distinguish between ETA's calculated on the basis of (1) historic data/past events and (2) projected operations (prognosis).
7. There exists not yet a tested, integrated RU/IM algorithm for generating ETA's.

Thank you for your attention and support



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