

 RNETIS
Train Information System

TAF/TAP workshop
Bucharest, March 2018



TAF TSI Business Process & Train Information System

TAF TSI Functions Grouped

Joint IM-RU Functions

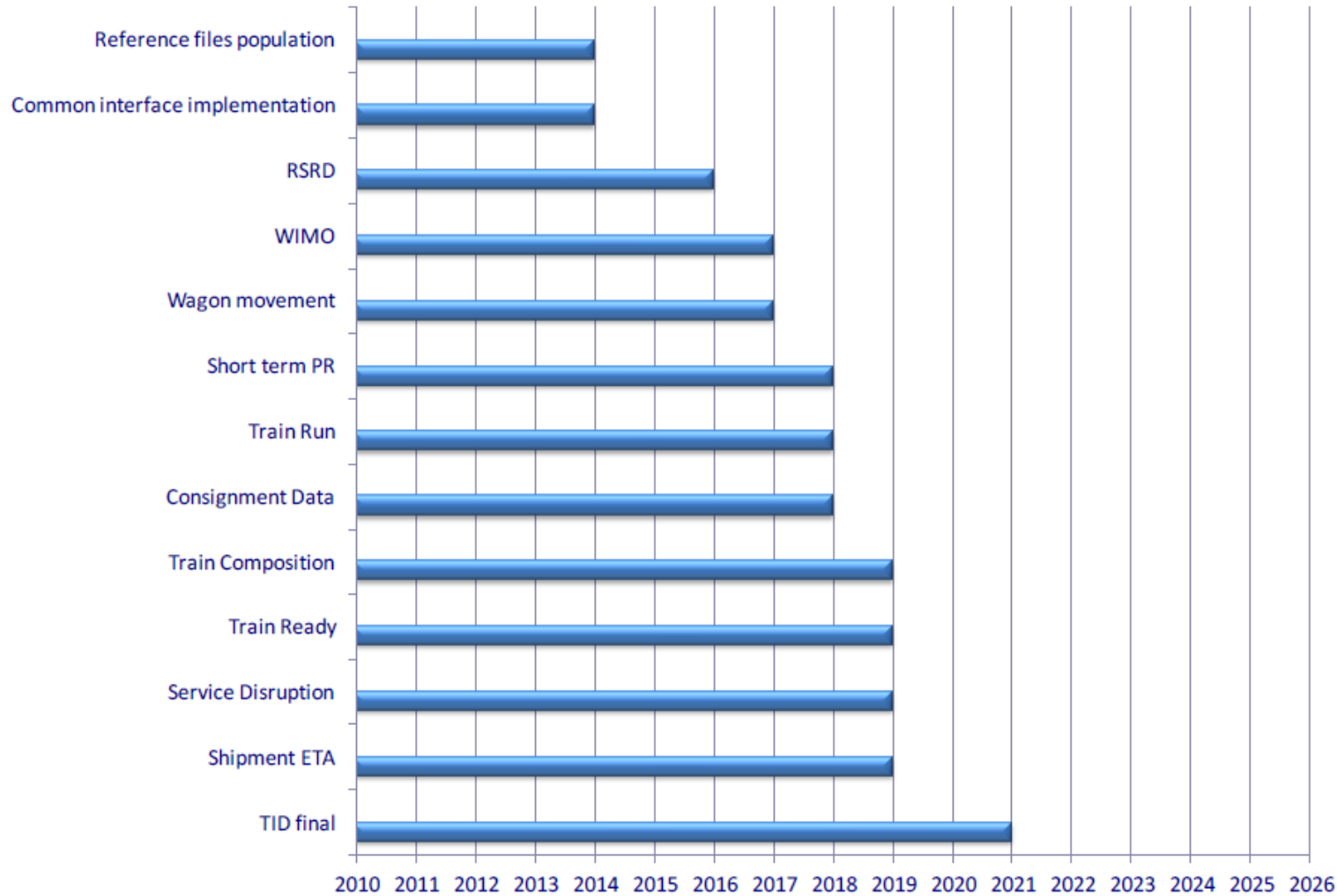
- Reference Files
- Common Interface
- Short Term Path Request
- Train Preparation
- Train Running Information
- Train Forecast
- Service Disruption
- Deviations from plan (TAP)
- (Train Identifiers)

RU (freight) Only Functions *

- Consignment Note Data
- WIMO
- Wagon Movement
- Shipment ETA

** Commercial part of TAP is not considered in the table*

TAF TSI Business Process & RNE Applications



Reference Files and Common Interface



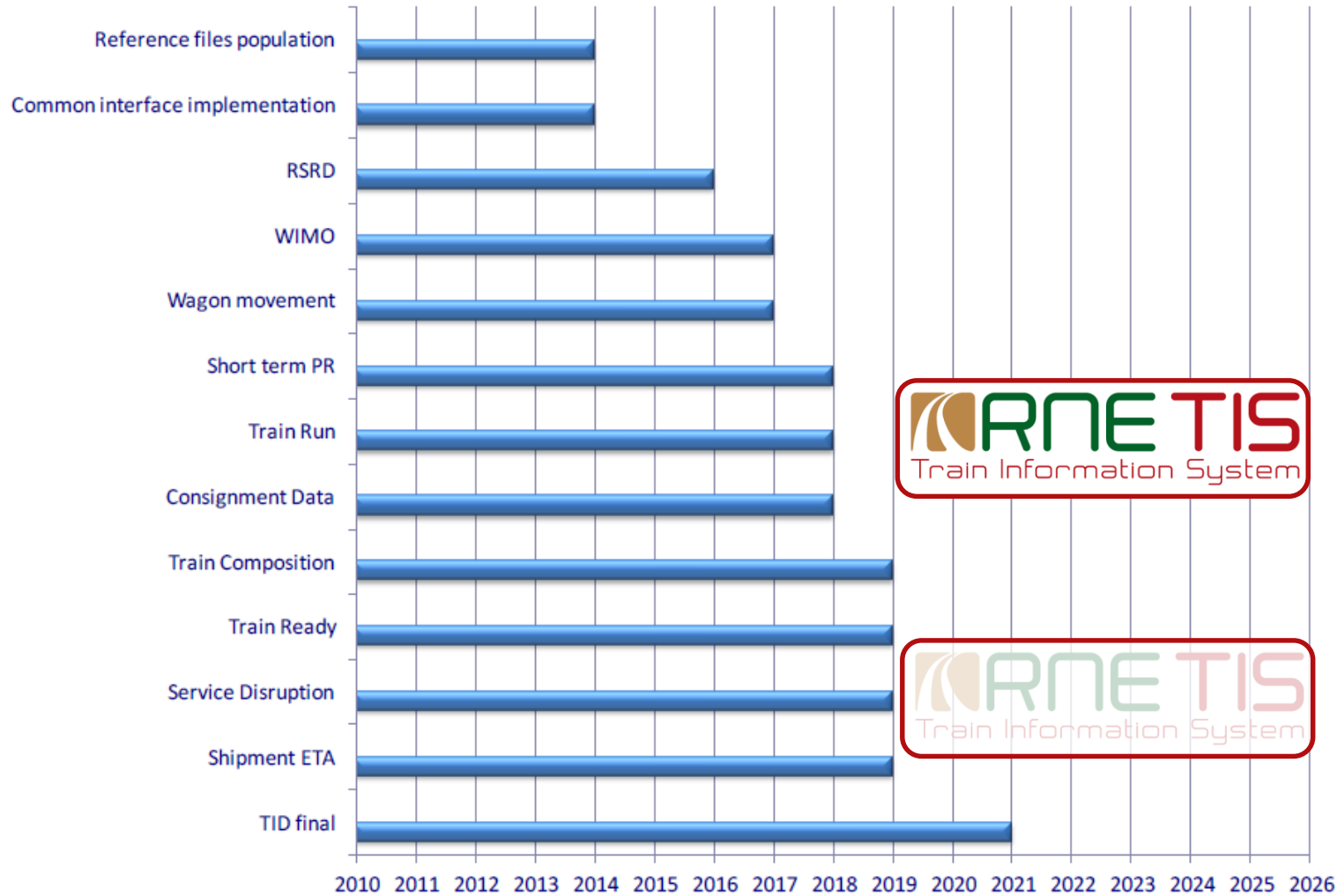
Short Term Path Request



Train Run & Service disruption?



TAF TSI Business Process & RNE Applications



TAF TSI Business Process & Train Information System

TIS data exchange function is available for the following TAFTSI messages

- Train Running Information
- Train Running Forecast
- Delay Reason

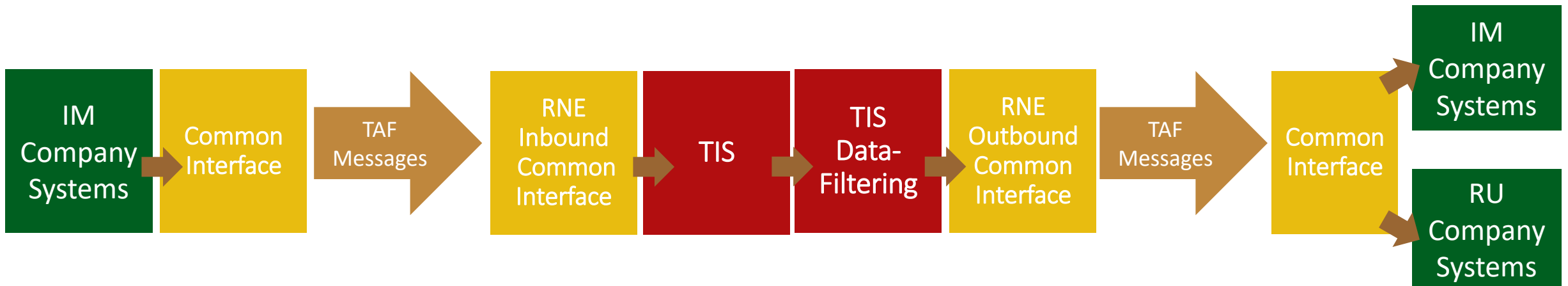
Beside Data Exchange TIS real-time information is available for desktops and tablets

- Real-time rail traffic data – e.g., forecast, running advice, delays
- Real-time information is visualised in the TIS graphical interface
- Accessible through standard web browsers

TAF TSI TIS data exchange function

TIS data exchange function features

- Raw data exchange based on TAF/TAP messages between IMs and RUs already in place
- Large and internationally-oriented RUs (such as SBB Cargo International, BLS Cargo, DB Cargo, Mercitalia, ...) have adopted the TIS interface
- Filtering function to select required information based on
 - company (IM, RU), mutual agreements between companies involved in the train run
 - functional criteria (points, incoming trains, outgoing trains, delayed trains, etc.)

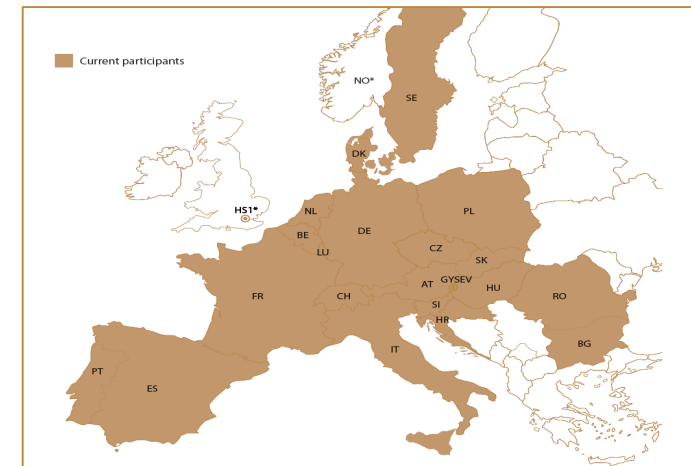
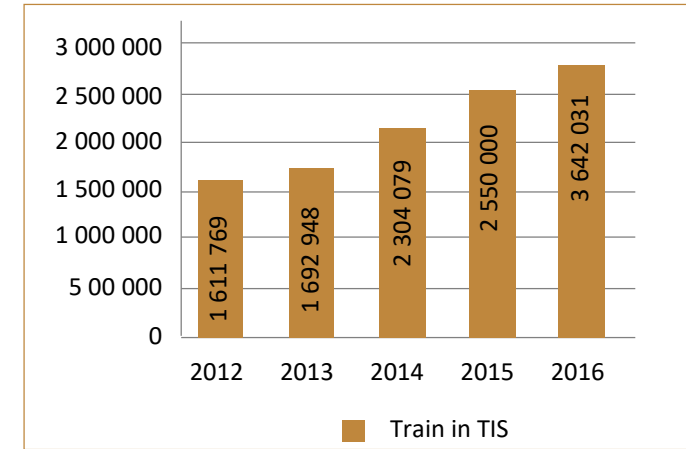


What is TIS?

What is TIS?

The Train Information System (TIS) monitors international trains from origin to destination on the involved IMs' networks. It serves as information source for international performance reports and quality analysis and standardises the exchange of data between different players.

TIS also allows the identification of problems due to different national processes (for international trains) and triggers appropriate corrective actions. The relevant data is obtained directly from the Infrastructure Managers' systems.



What is TIS?

TIS achievements

- 260 000 trains per month, 23 000 reporting points
- 25 IMs have joined TIS
- Processing/distribution of TAF TSI messages
 - Round about 500 Million Train Information Messages IN and OUT in 2018
- Reporting function for Train Performance Management (TPM) has been extended to the Rail Freight Corridors (RFCs)
- System performance and data quality have considerably improved
- Data quality has been significantly enhanced
- Access for terminal operators



What is TIS?

Technical Conditions

- Internet access
- Web browser
 - Chrome, Firefox, Internet Explorer or Safari

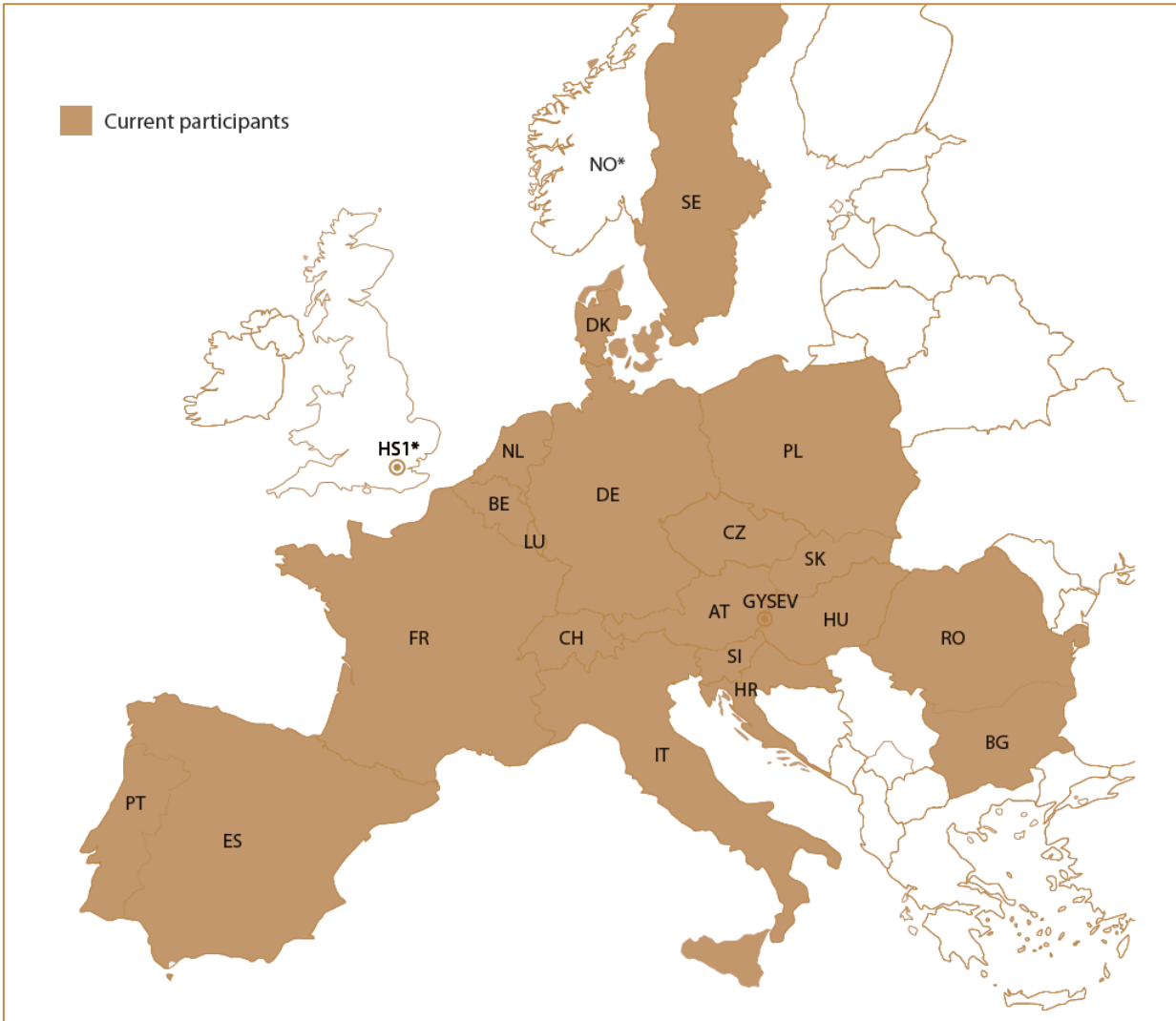
Contractual Conditions

- TIS user agreement
- Applicants are Infrastructure Managers (IM), Railway Undertakings (RU), Terminal Operators, Corridor Managers

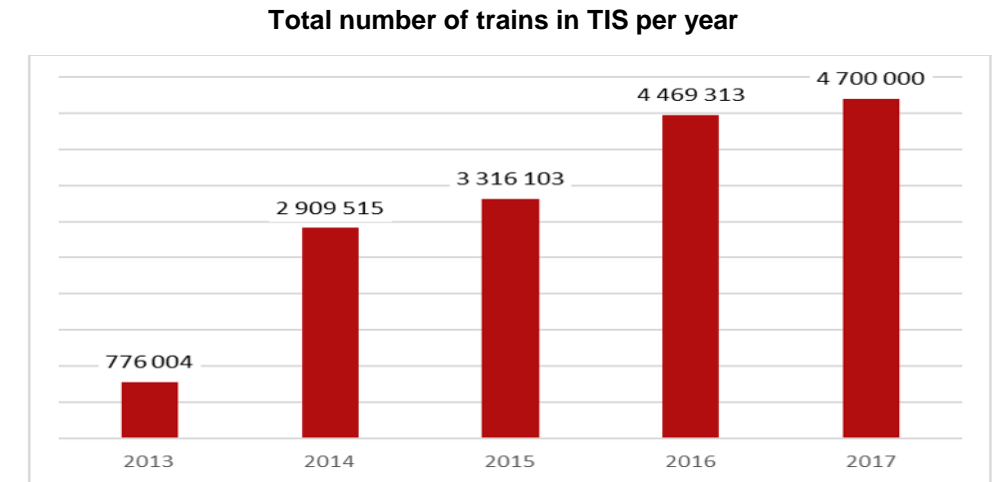


TIS Roll-out

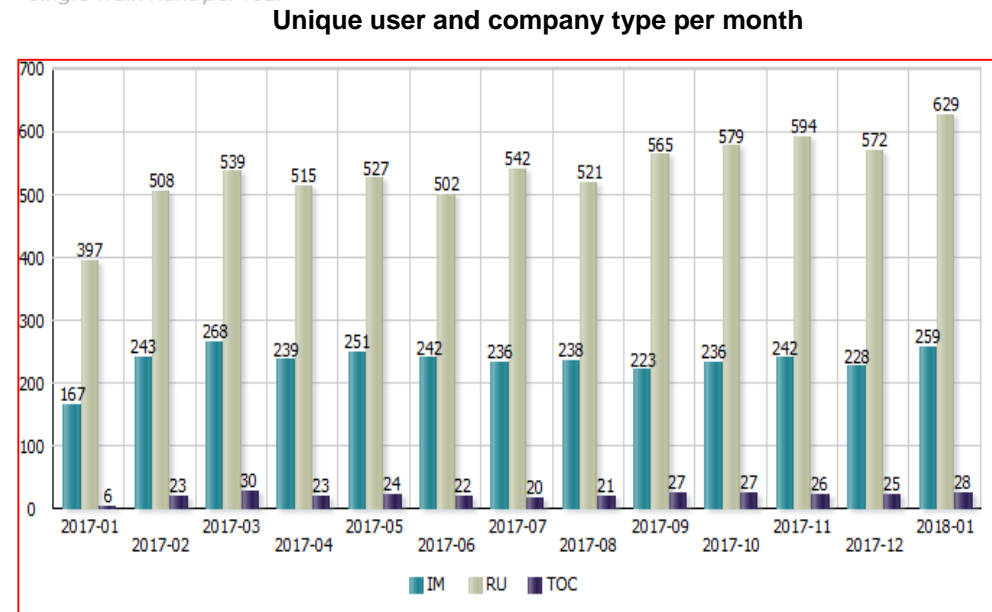
TIS roll-out, trains and users



* implementation in progress



Single Train Runs per Year



Overview of TIS functions

Overview of TIS functions

The main goals of TIS are to help RUs and Terminals with their own production systems and to support IMs in the field of train run management. Additionally, TIS serves as a message broker for incoming trains.

RUs have unlimited access to their own trains and to those operated in cooperation through a data exchange agreement.

Terminals only have access to trains running to/from the Terminal if they have a data exchange agreement.

Overview of TIS functions

TIS real-time information is available for desktops and tablets

- Real-time rail traffic data – e.g., forecast, running advice, delays
- Real-time information is visualised in the TIS graphical interface
- Accessible through standard web browsers



TIS reporting function based on Oracle Business Intelligence (BI)

- Predefined reports and graphs (punctuality, delay causes, etc.)
- Customisable reports and graphs
- Information source for international Train Performance Management (TPM)



TIS data exchange function

- Raw data exchange based on TAF/TAP TSI messages and since 2012 TAF TSI messages
- Filtering function to select the required information
- TAF TSI pilot for the Common Interface (message exchange via CI)



Overview of TIS functions

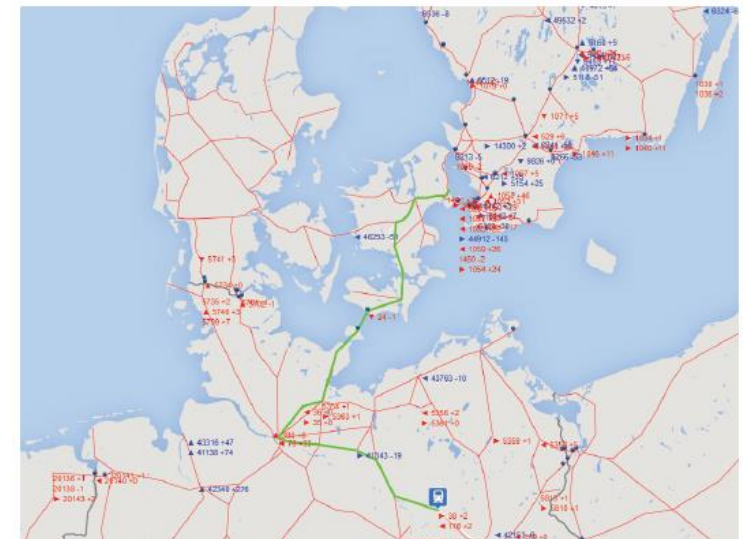
TIS real-time information function features

Real-time train traffic data via Internet (forecast, running advice, delays)

- Real-time train information in the TIS graphical interface shows real-time visualisation of International Trains (network overview, space-time diagrams, train run reports, etc.)
- Collection and exchange of railway traffic data from/with European traffic management systems
- TrainLink Feature for international Trains without unique Reference but same Cargo

International Train Number	Last Position	Status	Delta	From Point	GALLARATE 21/07/2015 20:44:00
40008	Prattein 22/07/2015 04:11:18	Run-through	+59	To Point	Maschen Rbf 22/07/2015 18:10:42

Point Name	Contracted TT	CTT PS	RTFC	Delta	Service Number	IM
GALLARATE	21/07/2015 20:44:00	▼	21/07/2015 20:52:00	+8	40008	83
Laveno Mombello	21/07/2015 21:22:00	▲	21/07/2015 21:38:30	+16	40008	83
LUINO	21/07/2015 22:22:00	▲	21/07/2015 22:23:00	+61	40008	83
Laveno Mombello	21/07/2015 21:27:00	▲	21/07/2015 22:28:30	+61	40008	83
Porto Valtravaglia	21/07/2015 21:37:00	▲	21/07/2015 23:05:00	+88	40008	83
LUINO	21/07/2015 21:43:00	▲	21/07/2015 23:13:00	+90	40008	83
*Colmegna	21/07/2015 22:27:52	▲	21/07/2015 23:24:08	+56	40008	85
*Maccagno	21/07/2015 22:30:11	▲	21/07/2015 23:26:02	+56	40008	85
Pino-Tronzano	21/07/2015 22:36:03	▲	21/07/2015 23:30:06	+53	40008	85



Overview of TIS functions

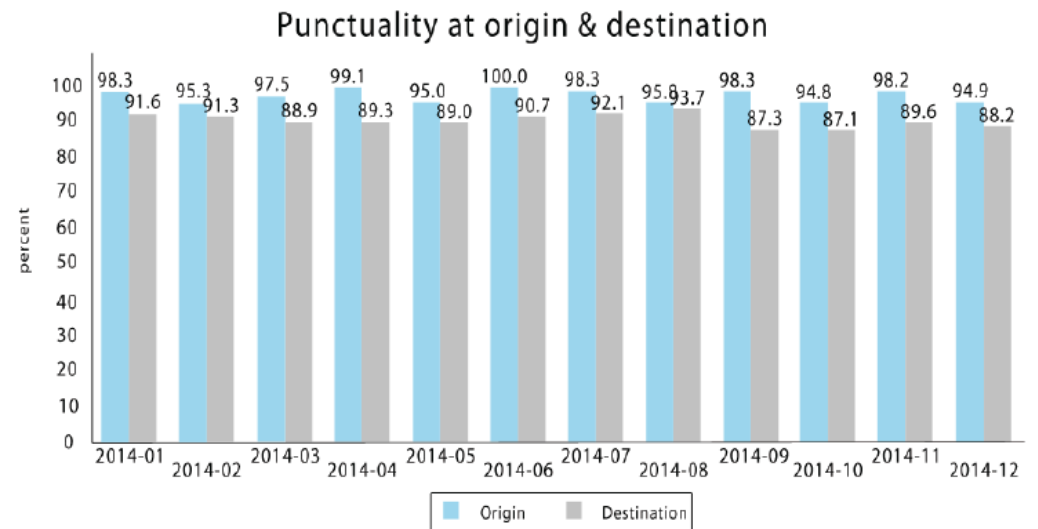
Benefits of TIS real-time information

- Optimisation of train disposition
- Optimisation of resource allocation (time, financial means, rolling stock and staff)
- Steering of the logistical chain
- Strong sales argument towards RU's customers: 'The RU knows the position of the train'

Overview of TIS functions

TIS reporting function features

- Serves as a source of information for international quality analysis for corridor-oriented Train Performance Management (TPM), including Performance Regimes
- Provides both pre-defined and customisable reports and graphs
- Enables scheduling of reports and graphs execution
- Accessible online to defined users
- Flexible and user-friendly application (based on Oracle Business Intelligence)



Overview of TIS functions

Benefits of TIS reporting function

- Analysis of performance
- Identification of areas with bottlenecks (capacity problems or technical problems on networks)
- Identification of appropriate corrective actions and feedback on their effectiveness
- Provision of statistical information about international traffic (for management decisions)

Overview of TIS functions

Benefits of TIS data exchange function

TIS is already compliant with TAF and TAP TSIs. It is viewed as a front-runner system for TAF and TAP: TAF standard has been in use in TIS production environment for every new data exchange since summer 2013.

For instance, average number of TAF/TSI messages in TIS per day in 2017:

- outbound: over one Million Messages
- Inbound from 24 IM: over one and a half Million Messages

Thus the Rail Sector is already exchanging several million messages within the TAF/TAP TSI framework every month.

How can you become a TIS user?

Free user accounts are offered by RNE to interested Railway Undertakings. The use of TIS is limited to RUs, Terminal Operators and IMs with international and national traffic.

In order to become a TIS User, please provide the following information to support.tis@rne.eu:

- Name, company and department
- Contact details (phone, e-mail, postal address)

More information about TIS can be found on our website at:

<http://tis.rne.eu>



Price Model

Adapted Price Model proposed from 1st March 2016 on

- RNE Member: One time initial set up fee - € 6.500
 - Not applicable for NON RNE Member at the time being
- TIS usage of the Web Application
 - The usage of TIS is free – € 0
 - RNE GA agreed that the usage is free in minimum until beginning of 2018
- Data Exchange 7/24 support
 - One time Set Up Fee – € 6.500
 - Monthly Maintenance Fee general – € 900