JSG | RU/IM Telematics Joint Sector Group

Key Performance Indicators for the Deployment of TAF/TAP Functions for 2024

RU/IM Telematics Joint Sector Group (JSG)

Date:	05 February 2025
Owner:	Implementation Reporting Group (IRG)
Doc Reference:	RU/IM IRG KPI Report 2024

1 DOCUMENT HISTORY

Version	Name	Changes	Date
0.1	Jan-Christian Arms	Initial version	28.01.2025
0.2	Jan-Christian Arms	Review	04.02.2025
0.3	Jan-Christian Arms Filippo Massari	Document approved at IRG	05.02.2025
1.0	Jan-Christian Arms Filippo Massari	Approved by JSG	27.02.2025

2 TABLE OF CONTENTS

LIST OF TABLES

LIST OF DIAGRAMS

3 EXECUTIVE SUMMARY

Based on previous discussions and decisions taken by the TAF TSI Implementation Reporting Group (IRG) in close cooperation with the European Union Agency for Railways (ERA), the TAF TSI Joint Sector Group (JSG) and the Common Sector Group (CSG) adopted this third report on Key Performance Indicators (KPI) related to TSI TAF an TAP operational functions.

ERA aims to replace the traditional “Degree of Implementation (DI)” reporting based on company feedbacks with a new “KPI” reporting based on data coming from TAF TAP TSI (TTT) compliant sector tools. This shall give a better overview of the real implementation and concentrate on the usage and the quality of the implemented functions.

A set of 12 KPI from 7 different TTT functions were chosen for this report:

- Primary and Subsidiary Location Codes (PLC/SLC)
- Common Interface Implementation (CI)
- Train Running Information (TRI)
- Train Running Interruption Message (TRIM)
- Consignment Order Message (COM)
- Wagon Movement (WM)
- Rolling Stock Reference Database (RSRD)

The data in this report is provided by RNE for PLC/SLC, CI, TRI, TRIM and by Raildata for COM, WM and UIP for RSRD. This KPI Reporting was carried out in parallel with the original DI reporting.

Like in all previous reports, the data published in this report by the IRG are shown as delivered by the IT provider tool. No correction is done for missing or illogical data. Any analyse or interpretation or comparison shall be done in a later stage by other entities.

4 BACKGROUND TO THE ASSIGNMENT

According to Commission Regulation (EU) No 1305/2014[1] relating to the Telematics Applications for Freight subsystem (TAF TSI) and to Commission Regulation (EU) No 454/2011[2] relating to the Telematics Applications for Passenger subsystem (TAP TSI), the European Union Agency for Railways (ERA) shall assess and oversee its implementations.

The Agency has established the 'TAF TSI Implementation Cooperation Group' and the 'TAP TSI Implementation Cooperation Group' to evaluate the reports of the sector. The remit of this group is monitoring the parameters for RU/IM communication of both TAF and TAP TSIs. Members of the European railway sector are encouraged to submit their reports through the JSG to the Agency.

Since 2013 the implementation of the TAF and TAP TSI (TTT) functions in the Rail sector were reported against the TAF and TAP TSI Masterplans as published on the ERA website. The target implementation dates for all TTT functions expired by end of 2021 – making the current TTT Implementation Reporting (DI reporting) outdated.

ERA therefore suggested establishing a TTT Deployment Reporting. Key Performance Indicators (KPIs) should give a better overview of the real deployment and concentrate on the usage and quality of the TTT functions.

The IRG developed first ideas of specific KPI's, taking into consideration the main objectives of the rail sector:

- include KPIs to indicate the quality of the data
- show the actual use of TAF TAP functions
- use automatic data coming directly from IT-Tools
- create a benefit for companies
- not create double work and check existing KPIs
- keep TAP Retail and TAF/TAP RU-IM reports separate

The data is provided by IT-Suppliers operating TTT compliant service tools for the Rail sector. The IRG drafts an annual report with this information and hands it over to ERA.

The aim is to gradually replace the Implementation Reporting (DI) by the Deployment Reporting (KPI). Because of major differences between TAP Retail and TAF/TAP RU-IM Communication in terms of reporting, the present report focuses on TTT RU-IM functions only. It is not intended to replace or conflict with any other quality report from the Rail sector, such as PRIME KPI.

The separate TTT KPI Reporting Handbook is a general guideline for NCP's, NAE's, sector organizations, implementers, and data providers.

The organization and administration of the new KPI Reporting are integral part of the JSG governance and processes. It has been adopted by the JSG and ICG. The IRG leads the process and exchanges information regularly with all involved stakeholders. Roles and responsibilities of the IRG are set out in the Telematics Governance Terms of Reference (JSG Governance Document) in force.

[1] Consolidated text: Commission Regulation (EU) No 1305/2014 of 11 December 2014 on the technical specification for interoperability relating to the telematics applications for freight subsystem of the rail system in the European Union and repealing the Regulation (EC) No 62/2006, published 18th April 2021
[2] Consolidated text: Commission Regulation (EU) No 454/2011 of 5 May 2011 on the technical specification for interoperability relating to the subsystem 'telematics applications for passenger services' of the trans-European rail system, published 16th June 2019

5 COMMON REFERENCE FILES – LOCATION CODES

5.1 Introduction

Section 4.2.10.1 of the TAF TSI[3] sets out the following mandatory requirements related to Coding of Locations, namely Primary Location Codes (PLC) and Subsidiary Location Codes (SLC).

> 4.2.10.1. Reference Files
>
> For the operation of freight trains on the European network, the following reference files must be available and accessible to all service providers (IMs, RUs, logistic providers and fleet managers). The data must always represent the actual status. Where a reference file is in common use with the TAP TSI, the development and changes must be in line with TAP TSI, to achieve optimum synergies.
>
> The European Union Agency for Railways will centrally store and maintain unique codes for the following reference data:
>
> — Reference File of the Coding for all IMs, RUs, Service provider companies.
>
> — Reference File of the Coding of Locations (Primary and subsidiary),
>
> The Agency will save a copy of the Reference File for the Primary Locations Codes and Company Codes. On individual request and without prejudice to intellectual property rights, this data shall be available for public consultation.

The RU/IM Telematics Sector Handbook[4] in section 9.3.3 'Location Description' further defines PLCs and SLCs.

> Definition of Primary Location
>
> Primary Location is a place used by IM to define a path for a train in TAF/TAP TSI framework/messages. This location is a rail point inside the rail network where train starts, ends, stops, or runs through or change line. This location must be managed by an Infrastructure Manager (IM) identified by company code.
>
> Primary locations are for example: stations, yards, halts, handover points, border points, open access terminals.
>
> Primary locations are identified by single and unique Primary Location codes. Primary location code is allocated based on processes defined by national entity. Primary location codes are used in any kind of TAF/TAP communication.
>
> Definition of Subsidiary Location
>
> Subsidiary location must be linked to a Primary Location and specifies in more detailed way part, attributes, or usage of Primary location. It may be also a non-rail point or a rail point that is not managed by an Infrastructure Manager (IM). It may be defined by entity having company code according to their needs. The Subsidiary location is optional and dependent upon business needs.

[3] Consolidated text: Commission Regulation (EU) No 1305/2014 of 11 December 2014 on the technical specification for interoperability relating to the telematics applications for freight subsystem of the rail system in the European Union and repealing the Regulation (EC) No 62/2006, published 18th April 2021

[4] Sector Handbook for the Communication between Railway Undertakings and Infrastructure Managers (RU/IM Telematics Sector Handbook), submitted on 21st October 2021

The Central Reference File Database (CRD) is the European Reference Database for locations used for RU/IM communication and therefore serves as the source for input data of the respective KPIs.

IMs deliver the PLCs to CRD, and RUs provide SLCs to CRD. PLCs and SLCs are allocated by NAEs. The correctness of allocation or properties of PLCs/SLCs or is not subject of reporting.

5.2 Primary location data maintenance

Regular maintenance of PLCs in CRD is important and mandated by legislation.

IMs are regarded to maintain their PLCs in CRD when updating them at least once a year. An update means either adding a new PLC or updating/deleting an existing PLC.

KPI Definition

The number of IMs maintaining PLCs in the CRD in relation to the total number of IMs having PLCs in the CRD indicates the level of maintenance.

$$\frac{number\ of\ IMs\ maintaining\ PLCs}{number\ of\ IMs\ having\ PLCs} \times 100 \leq 100\ \%$$

2024	Q1	Q2	Q3	Q4
Number of PLCs changed	12.535	4.222	274	1.406
Total number of PLCs in CRD	61.011	58.730	58.774	59.079
Changing ratio [% of PLCs]	**21**	**7**	**0,5**	**2**
Number of IMs maintaining PLCs	14	17	13	44
Number of IMs having PLCs	48	47	49	77
Maintenance ratio [% of IMs]	**29**	**36**	**27**	**57**

Table 1: Primary location data maintenance changing ratio

Compared to the figures of the year 2023, the following conclusions can be drawn:

- The total number of PLCs in CRD has decreased on average by about 1.300. There has been a cleaning up of CRD, whereby PLCs in the database for historic reasons were made inactive.
- The changing ratio of PLCs in Q1 2024 was high compared to the rest of the year.
- The maintenance ratio of IMs is outstanding in Q4 2024. The growth of the number of IMs is due to many small IMs joining the CRD in Germany.

For countries with data from more than one IM, PLCs are regarded to be maintained, if the dominating IM did.

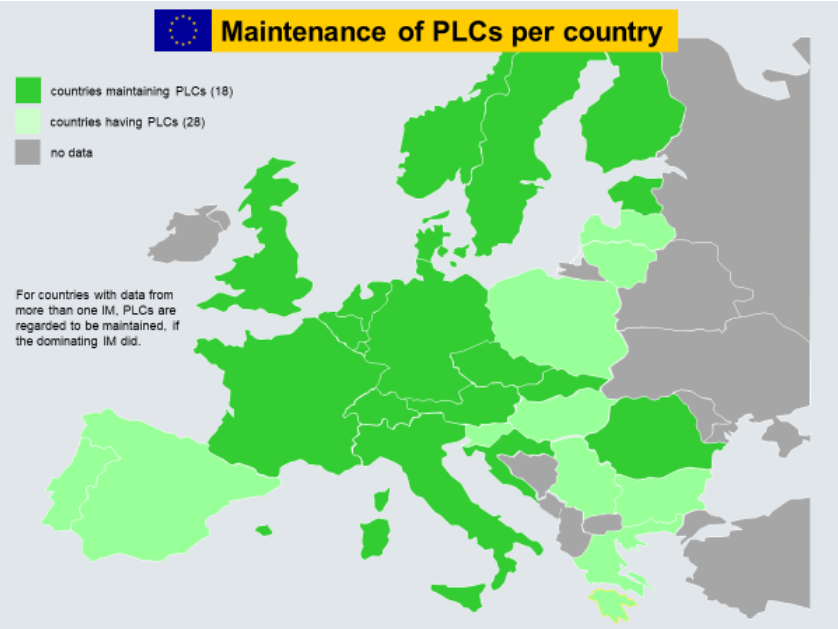

Diagram 1: Maintenance of PLCs per country

5.3 Primary location data completeness

PLCs are classified by important, voluntary properties (flags), such as GPS location data (geo coordinates) or possible commercial activity (freight and/or passenger station).

KPI Definition

This KPI is defined as the degree of recording of voluntary properties of PLCs.

$$\frac{number\ of\ PLCs\ having\ particular\ property}{total\ number\ of\ PLCs\ in\ CRD} \times 100 \leq 100\ \%$$

Definition of properties to be reported:

- GPS location data (longitude and latitude)
  - Longitude of point representing Position of Location. It is strongly recommended to populate this element. It is possible to use up to 6 decimals.
  - Latitude of point representing Position of Location. It is strongly recommended to populate this element. It is possible to use up to 6 decimals.
- Freight possible (Freight start date, Freight end date) and/or Passenger possible (Passenger start date, Passenger end date)
  - Information, that Freight and/or Passenger train can make freight and/or passenger commercial activity at primary location.
  - Start date of use Location for Freight and/or Passenger train. StartDate is mandatory if Freight and/or Passenger possible is selected.
  - End date of use Location for Freight and/or Passenger train.

2024	Q1	Q2	Q3	Q4
PLCs with GPS location data	51.732	50.573	50.626	50.873
PLCs with commercial activity	35.992	33.826	33.826	34.163
Total number of PLCs in CRD	61.011	58.730	58.774	59.079
GPS location data ratio [% of PLCs]	**85 %**	**86 %**	**86 %**	**86 %**
Commercial activity ratio [% of PLCs]	**59 %**	**58 %**	**58 %**	**58 %**

Table 2: Primary location data completeness

For countries with data from more than one IM, completeness however calculates always like the dominating IM.

The completeness of PLCs regarding voluntary properties as displayed in the following European maps reflects the latest data of Q4 2024.

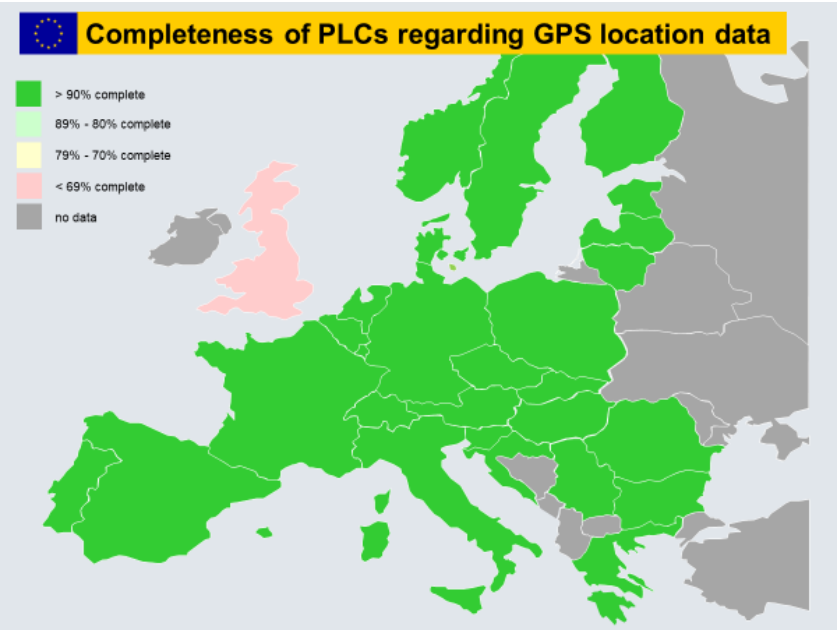

Diagram 2: Completeness of PLCs regarding GPS location data

5.4 Number of SLCs provided in CRD

KPI Definition

This KPI provides the number of specific types of SLCs stored in CRD showing their development over time. SLCs are defined by type codes.

Absolute number per SLC Type Code

The total number of SLCs stored in CRD at the end of 2023 was 55.114 for 22 different types. At the end of 2024 this total number was with 51.304 slightly lower.

The following most important SLC Type Codes as defined in the TAF/TAP-xsd are selected for this KPI:

- Location Subsidiary Type Code 1 – Track
- Location Subsidiary Type Code 3 – Border point
- Location Subsidiary Type Code 15 – Platform
- Location Subsidiary Type Code 36 – Freight Yard
- Location Subsidiary Type Code 37 - Loading point
- Location Subsidiary Type Code 42 - DIUM stations
- Location Subsidiary Type Code 57 - Intermodal Terminal
- Location Subsidiary Type Code 66 - Location ENEE Code

SLC Type Code	Description	# SLC Q1/2024	# SLC Q2/2024	# SLC Q3/2024	# SLC Q4/2024
1	Track	19.084	19.084	19.094	19.083
3	Border point	246	280	282	283
15	Platform	600	600	600	600
36	Freight yard	1.433	1.420	1.420	1.400
37	Loading point	10.374	10.257	10.347	10.226
42	DIUM station	5.941	5.763	5.929	5.884
57	Intermodal terminal	563	519	518	516
66	Location ENEE code	2.683	2.683	2.683	2.682
Total		40.924	40.606	40.873	40.674

Table 3: Number of Subsidiary Location Codes per type

In general, there are only little changes between the 3-month periods.

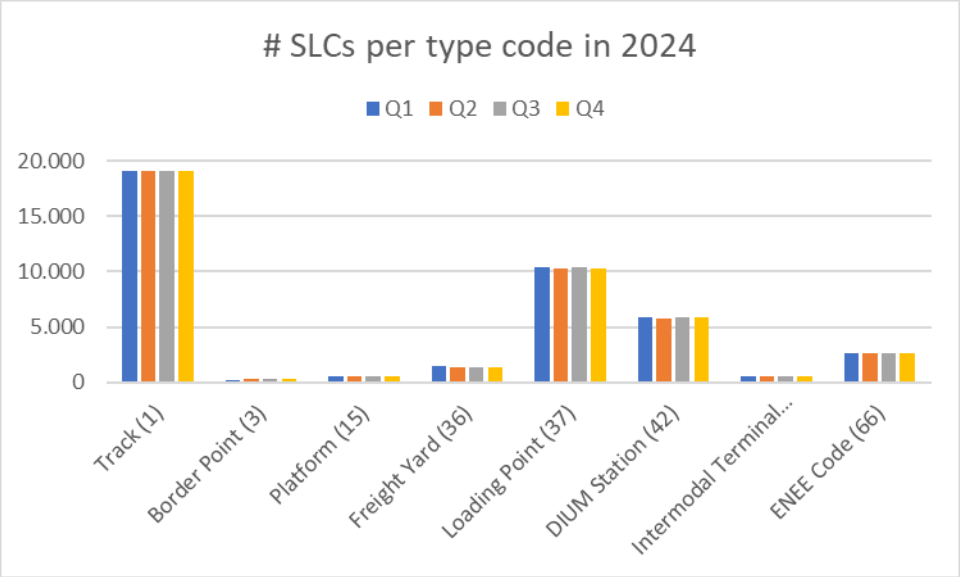

Diagram 3: Number of SLCs per type code

6 COMMON INTERFACE (CI)

KPI Definition

This KPI displays the development in terms of number of certificates provided by RNE, operating as the Single Certification Authority. RNE is the only certificate provider for TAF/TAP compliant actors.

Absolute number of certificates

Diagram 5 displays the development of the absolute number of CI certificates since the beginning of KPI reporting.

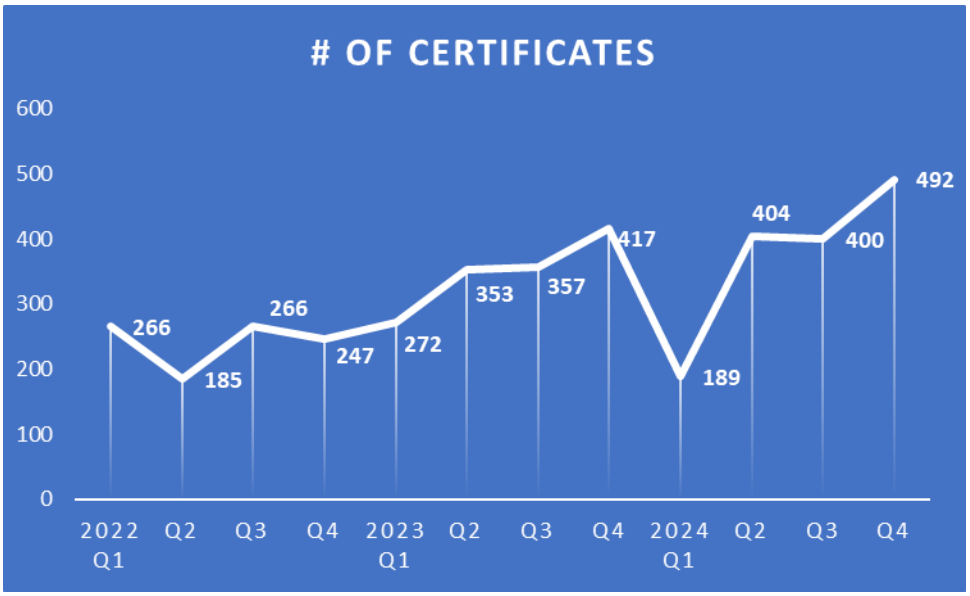

Diagram 4: Evolution of number of CI certificates

The number of certificates varies because certificates automatically expire at a specific date and will have to be provided again.

Apart from Q1 2024, a clear upward trend is again visible in 2024. The highest absolute number of certificates in 2024 is nearly 18 % above the respective number in 2023.

7 TRAIN RUNNING INFORMATION (TRI)

7.1 Introduction

Section 4.2.4.3 of the TAF TSI sets out the following mandatory requirements related to Train Running Information (TRI).

> **4.2.4.3. Train Running Information message and Train Delay Cause message**
>
> The 'Train Running Information message' must be issued by the IM to the Responsible RU upon:
>
> — Departure from departure point, arrival at destination,
>
> — Arrival and departure at handover points, interchange points and at agreed reporting points based on contract (e.g., handling points).

The RU/IM Telematics Sector Handbook in section 15.1 'Process triggering the Train Running Information message' further defines the TRI.

> The IM has to provide train reporting at appropriate reporting points indicating actual time and the delta-time value (as described in OPE TSI § 4.2.3.4.2.1). This message is sent to the ResponsibleRU to inform RU controllers.
>
> …
>
> The time limit to send the message after the train has reached the reporting point is defined by national rules or contractual agreement. In practice, the sending is done in "real time" in case of electronic tracking and tracing systems.

The data collection focusses on international trains to demonstrate interoperability. According to an agreement between RNE and IMs, TRI messages for all international trains are being communicated with standardized messages in different versions to TIS. Additional bilateral exchanges between IMs sometimes exist. International trains are flagged as international touching a border station (more than one IM is involved).

7.2 Degree of usage of Train Running Information (TRI) messages

KPI Definition

This KPI indicates the degree of TRI messages provided by IMs. For this purpose, the number of TRI messages sent from TIS (TRI from TIS) is related to the number of locations, where a TIS message is expected to be sent. (Path Details).

$$\frac{number\ of\ TRI\ messages}{number\ of\ expected\ TRI\ messages} \times 100 \leq 100\ \%$$

This KPI demonstrates message exchange between IMs and the TIS system of RNE. Bilateral communication between IMs is not reflected by these figures.

For the input data to the calculation the following conditions apply:

Number of TRI messages (running advice from TIS)

- Predefined locations for which IMs cannot provide TRI messages will be excluded from the reporting.

Number of expected TRI messages (path details are provided by IMs on daily basis to TIS)

- For Path Details where no single TRI running advice is available, the train will not be considered.
- Results where path details are not available (e.g., in case of re-routing) are not considered.

The KPI calculation only considers TAF compliant messages, which the same 13 countries are providing in 2024 as the year before. The total number of TAF/TAP compliant messages exchanged for international freight trains has grown by about 6 % and for international passenger trains by about 10 % from the year 2023 to 2024.

According to the path details provided per country, TIS expected nearly 47 million TRI messages for international freight and passenger trains in 2023. More than 41 million TRI messages (running advice) have been sent. The overall average degree of TRI messages for international trains calculates to 87 %. Quarterly values are given in the tables below.

International Freight Trains 2024	**Q1**	**Q2**	**Q3**	**Q4**	**Total (2024)**	**Total (2023)**
Timetable information (PD)	5.084.484	5.250.678	4.880.085	4.881.199	20.096.446	18.567.315
Running information (TRI)	4.134.025	4.389.241	4.078.647	4.198.208	16.800.121	15.873.735
Degree of usage TRI [%]	**81**	**84**	**84**	**86**	**84**	**85**

Table 4: Degree of usage of TRI messages for international freight trains

International Passenger Trains 2024	**Q1**	**Q2**	**Q3**	**Q4**	**Total (2024)**	**Total (2023)**
Timetable information (PD)	6.747.873	6.638.748	6.517.032	6.791.716	26.695.369	24.584.223
Running information (TRI)	5.934.958	5.961.030	5.930.695	6.225.803	24.052.486	21.811.286
Degree of usage TRI [%]	88	90	91	92	90	**89**

Table 5: Degree of usage of TRI messages for international passenger trains

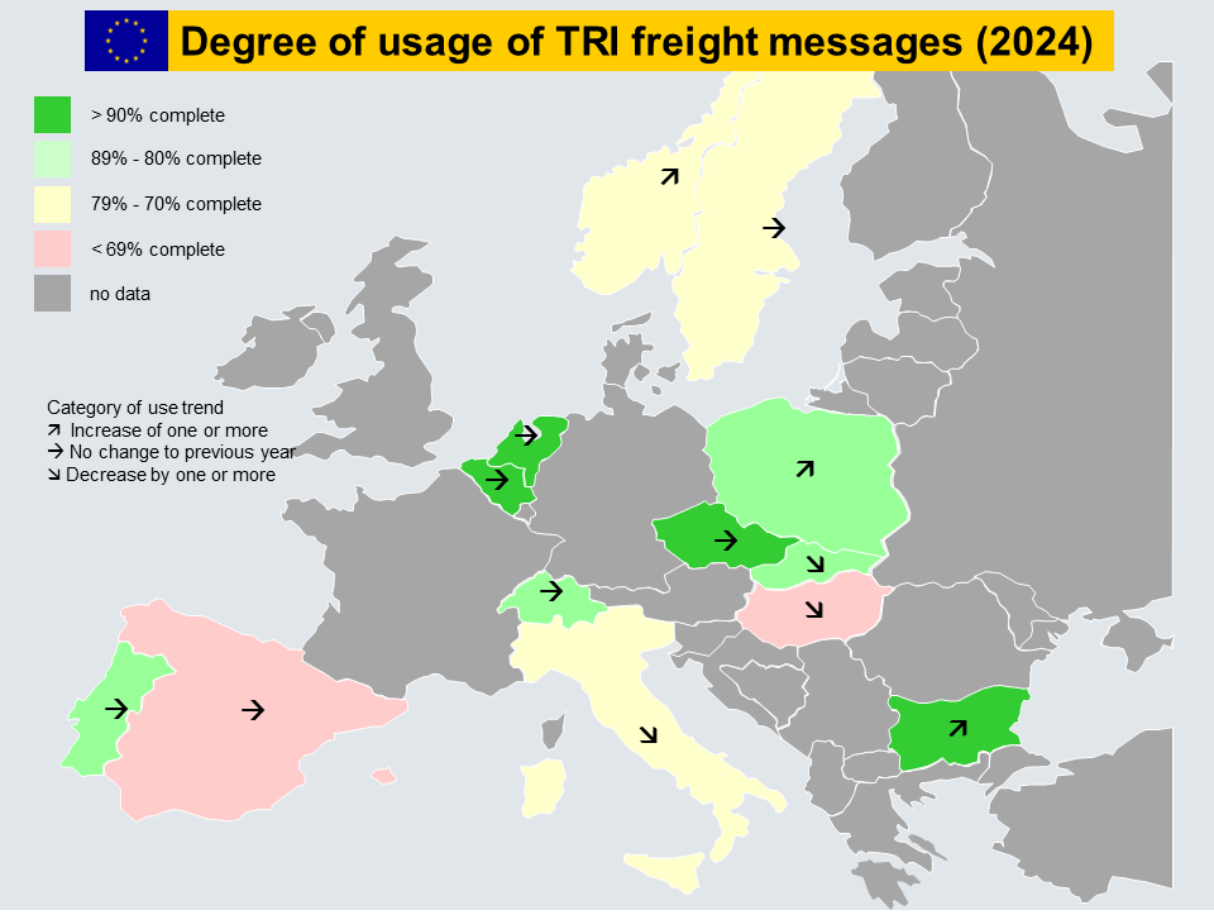

Diagram 5: Degree of usage of TRI freight messages per country

Country	Number of PD messages (Freight trains)	Number of TRI messages (Freight trains)	Degree of usage [%]	[%] 2023
BE	2.775.533	2.694.552	97	97
BG	6.245	7.736	124	81
CH	3.290.787	2.714.364	82	84
CZ	2.883.980	2.796.995	97	99
ES	431.629	200.076	46	48
HU	2.353.174	1.617.368	69	74
IT	2.509.095	1.777.777	71	84
NL	1.625.077	1.592.739	98	97
NO	307.837	226.730	74	54
PL	1.515.181	1.282.676	85	52
PT	158.670	137.945	87	85
SE	1.177.896	866.991	74	71
SK	1.061.342	884.172	83	92
Total	20.096.446	16.800.121	84	85

Table 6: Degree of usage of TRI messages for international freight trains per country

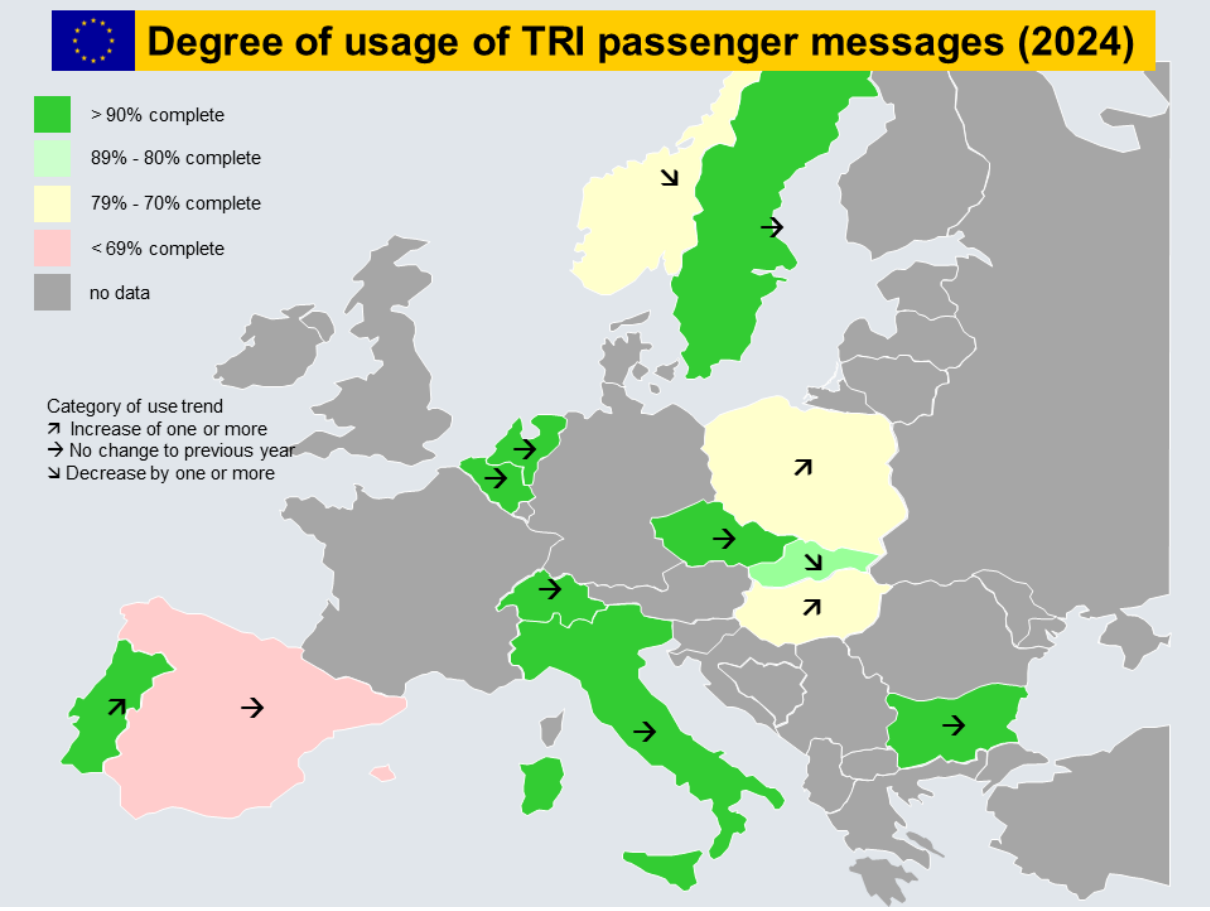

Diagram 6: Degree of usage of TRI passenger messages per country

Country	Number of PD messages (Passenger trains)	Number of TRI messages (Passenger trains)	Degree of usage [%]	[%] 2023
BE	4.174.092	4.115.214	99	99
BG	509	2.345	461	94
CH	5.750.668	5.569.900	97	96
CZ	4.458.153	4.376.884	98	99
ES	471.590	308.499	65	61
HU	3.229.263	2.352.667	73	68
IT	1.414.843	1.345.326	95	95
NL	1.824.372	1.771.195	97	98
NO	128.608	101.974	79	80
PL	3.057.419	2.186.450	72	49
PT	80.421	79.292	99	89
SE	1.140.103	1.046.028	92	94
SK	965.328	796.712	83	91
Total	26.695.369	24.052.486	90	89

Table 7: Degree of usage of TRI messages for international passenger trains per country

8 TRAIN RUNNING INTERRUPTION MESSAGE (TRIM)

8.1 Introduction

Section 4.2.5.2 of the TAF TSI sets out the following mandatory requirements related to Train Running Interruption Message (TRIM).

> **4.2.5.2. Train Running Interruption message**
>
> If the train is interrupted, the IM issues this message to the next neighbouring IM involved in the train run and to the Responsible RU.
>
> In the case of combined transport under contractual agreement, the LRU/RU shall ensure the 'Train Running Interruption' message is provided to the Terminal Operator.

The RU/IM Telematics Sector Handbook in section 15.1 'Process triggering the Train Running Information message' further defines the TRI.

> If the train has been stopped due to a disruption (e.g. line blocked, loco breakdown) and no forecast of its further run is yet available, the Train Running Interrupted messages must be sent from IM to ResponsibleRU. The message is the trigger to inform the ResponsibleRU (and the next IM if relevant). In the case of combined transport under contractual agreement, the LeadRU/ResponsibleRU shall ensure the Train Running Interruption message is provided to the Terminal Operator.
>
> A train could not yet has reached the disruption but is likely to be affected (i.e. forecasts for locations after the disruption point are not possible). In this case, a warning can optionally be issued from the IM to the ResponsibleRU using the Train Running Interruption message with an indication in the TrainNotAtInterruptionPoint element.
>
> …
>
> When the disruption is on the RU-side (e.g. loco breakdown) it has to inform the IM according to § 4.2.3.3.2 of OPE TSI. The ResponsibleRU could use the Train Running Interruption message if this agreed.
>
> After the problem is analysed, ResponsibleRU and IM decide on a way of action (e.g. rerouting, cancellation, delaying the train).

The data collection focusses on international trains to demonstrate interoperability. According to an agreement between RNE and IMs, TRIM messages for all international trains are being communicated with standardized messages in different versions to TIS. Additional bilateral exchanges between IMs sometimes exist. International trains are flagged as international touching a border station (more than one IM is involved).

8.2 Number of TRIM per country

KPI Definition

This KPI displays the development in terms of number of TRIM per country as provided by the TIS of RNE.

Absolute number of TRIM per country

The KPI calculation considers TAF compliant messages only, which the same 7 countries were providing in 2024 as the year before.

According to the TRIM provided per country, TIS processed nearly 70 thousand messages for international freight and passenger trains in 2024. Passenger trains only account for around 10 percent of those messages.

The total number of TRIM messages is 10 % lower than the year before.

Country	Number of TRIM messages (Freight trains)	Number of TRIM messages (Passenger trains)
AT	2.894 (3.270)	1.203 (1.002)
BE	23.383 (33.502)	2.680 (3.546)
CZ	17.981 (12.420)	700 (943)
ES	3.514 (2.028)	854 (511)
HU	4.392 (4.931)	1.750 (1.818)
NL	9.163 (12.264)	528 (506)
PT	50 (44)	2 (10)
Total	61.377 (68.459)	7.717 (8.336)

Table 8: Number of TRIM for freight and passenger trains

9 CONSIGNMENT ORDER MESSAGE (COM)

9.1 Introduction

Section 4.2.1.2 of the TAF TSI sets out the following mandatory requirements related to Consignment Order Messages (COM).

> **4.2.1.2. Consignment orders**
>
> The consignment order is primarily a subset of the Consignment Note information. It must be forwarded to the RUs involved in the transport chain by the LRUs. The content of the Consignment order must show the relevant information which is needed for an RU to effect transportation during its responsibility until handover to next RU.

The RU/RU Telematics Sector Handbook[5] for the communication between Railway Undertakings in section 2.3.1 'Consignment Order Message - regulatory requirements' further defines the COM.

> The LRU determines the other RUs involved in the respective transportation to provide them in advance with Consignment Order Messages ("COM").
>
> …
>
> Depending on the RUs involved, several modes of data exchange can be used for one transport.
>
> Where applicable the LRU creates an internal order for its own production system.
>
> A trip plan must be created when at least one other RU is involved. This action is not part of the COM chapter.
>
> The RUs that have received a COM in advance from the LRU check their availability of resources and paths. In case of non-feasibility, the RU concerned informs the LRU in an appropriate way.

The data collection focusses on COM messages processed by the application "OpenRailFreightEdiUserSystem (ORFEUS)" managed by Raildata and already used by the sector as standard.

[5] TAF TSI Sector Handbook for the communication between Railway Undertakings (RU/RU Telematics Sector Handbook), submitted on 25 October 2023

9.2 Degree of TAF compliant Consignment Order Messages (COM)

KPI Definition

This KPI displays the development in terms of number of COM per month as provided by the ORFEUS of Raildata.

Absolute number of COM per month

The number of TAF compliant messages in relation to the total number of COM indicates the respective ratio.

Ratio of TAF compliant COM per month

Input data is collected at a monthly basis. Messages need to be TAF compliant including TAF locations (at least version 1.5). Older message types (smaller than 1.5) are not TAF compliant.

The total number of COM processed by ORFEUS in 2024 sums up to 748.846 messages. Overall, 64 % of these messages were TAF compliant in the year 2024. One member of Raildata changed to use the TAF compliant message version explaining its higher ratio in 2024.

COM processed by ORFEUS	2023	2024
# COM	336.548	267.794
# TAF compliant COM	472.517	481.052
Total	809.065	748.846
Average Ratio [% TAF compliant]	**58**	**64**

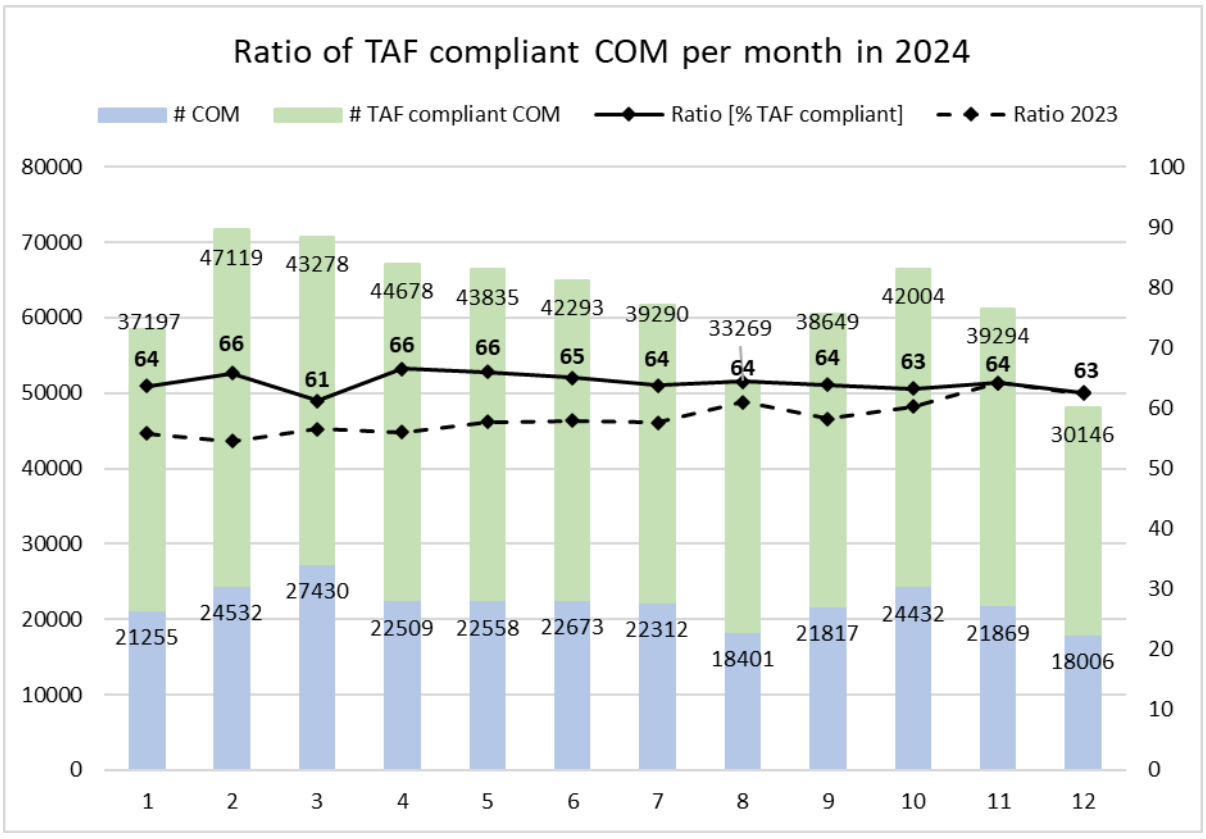

Diagram 7: Ratio of TAF compliant COM per month

10 WAGON MOVEMENT (WM)

10.1 Introduction

Section 4.2.7 of the TAF TSI sets out the following mandatory requirements related to Wagon Movement (WM).

> **4.2.7. Wagon Movement**
>
> For the reporting of the movement of a wagon, data included in these messages must be stored and electronically accessible. They must be also exchanged within message on contractual base to authorised parties.
>
> Under contractual agreement, the LRU must provide to the Customer the wagon movement information using the messages described below.

The RU/RU Telematics Sector Handbook[6] for the communication between Railway Undertakings in section 2.3.1 'Consignment Order Message - regulatory requirements' further defines the COM.

> In order to fulfil the needs of its customers and relevant wagon keepers, each RU needs to have continuously information about actual position and status of wagons which they took over for transport or other purpose.
>
> In case when wagons are transported in collaboration between more RUs, they need to mutually exchange information about actual position and status of the wagons.
>
> This exchange has to be performed with the Wagon Status messages.
>
> …
>
> RUs can exchange the Wagon Status messages either in bilateral way or through a central message broker.

The data collection focusses on WM messages processed by the application "OpenRailFreightEdiUserSystem (ISR)" managed by Raildata and already used by the sector as standard.

For the present KPI report the following Wagon Status messages have been selected:

- Wagon departure
- Wagon arrival
- Wagon delivered

[6] TAF TSI Sector Handbook for the communication between Railway Undertakings (RU/RU Telematics Sector Handbook), submitted on 25 October 2023

10.2 Degree of TAF compliant Wagon Departure messages

One RU informs with this message other involved RU(s) that the wagon has departed from station with a train.

KPI Definition

This KPI displays the development in terms of number of Wagon Departure messages per month as provided by the ISR of Raildata.

Absolute number of WM departure per month

The number of TAF compliant messages in relation to the total number of Wagon Departure messages indicates the respective ratio.

Ratio of TAF compliant WM departure per month

Input data is collected at a monthly basis. Messages need to be TAF compliant including TAF locations (at least WSM 60). Older message types (older than WSM 60) are not TAF compliant.

The total number of Wagon Departure messages processed by ISR in 2024 sums up to 30.619.952 messages. Overall, approximately 3 % of these messages were TAF compliant in the year 2024.

WM Departure processed by ISR	2023	2024
# WM	30.588.072	29.561.439
# TAF compliant WM	731.307	1.058.513
Total	31.319.379	30.619.952
Average Ratio [% TAF compliant]	**2**	**3**

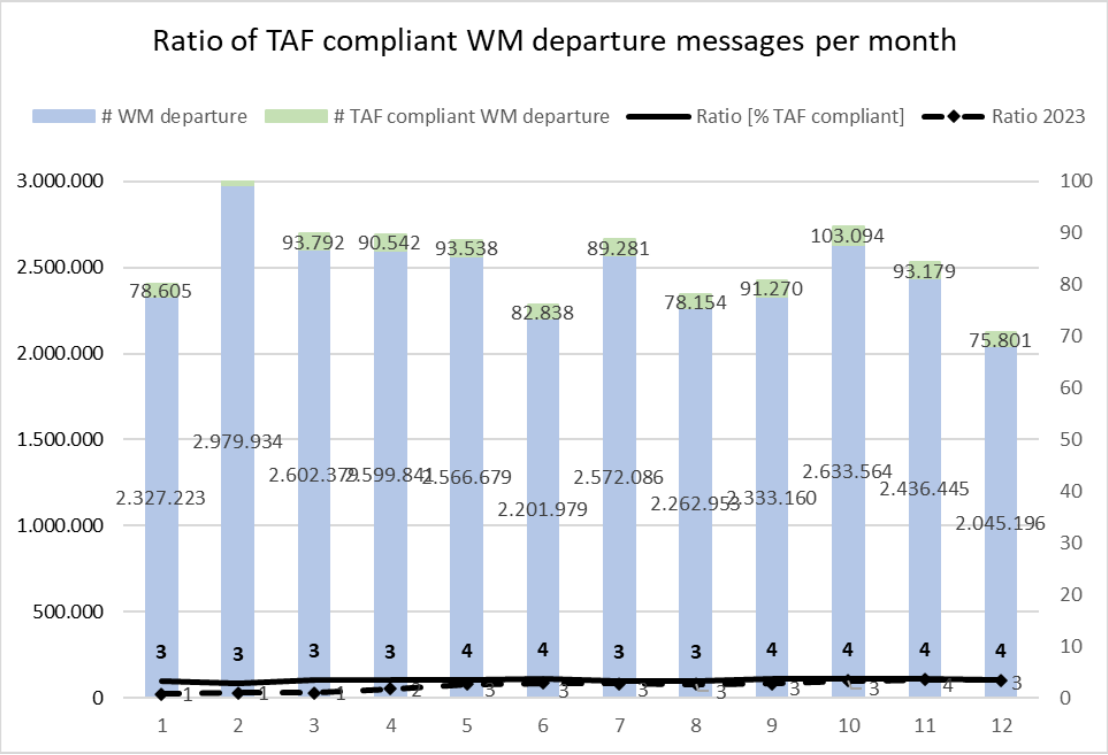

Diagram 8: Ratio of TAF compliant WM departure messages per month

10.3 Degree of TAF compliant Wagon Arrival messages

One RU informs with this message other involved RU(s) that the wagon has arrived at station with a train.

KPI Definition

This KPI displays the development in terms of number of Wagon Arrival messages per month as provided by the ISR of Raildata.

Absolute number of WM arrival per month

The number of TAF compliant messages in relation to the total number of Wagon Arrival messages indicates the respective ratio.

Ratio of TAF compliant WM arrival per month

Input data is collected at a monthly basis. Messages need to be TAF compliant including TAF locations (at least WSM 60). Older message types (older than WSM 60) are not TAF compliant.

The total number of Wagon Arrival messages processed by ISR in 2024 sums up to 30.144.682 messages. Overall, approximately 4 % of these messages were TAF compliant in the year 2024.

WM Arrival processed by ISR	2023	2024
# WM	30.600.818	29.074.017
# TAF compliant WM	924.877	1.070.665
Total	31.525.695	30.144.682
Average Ratio [% TAF compliant]	**3**	**4**

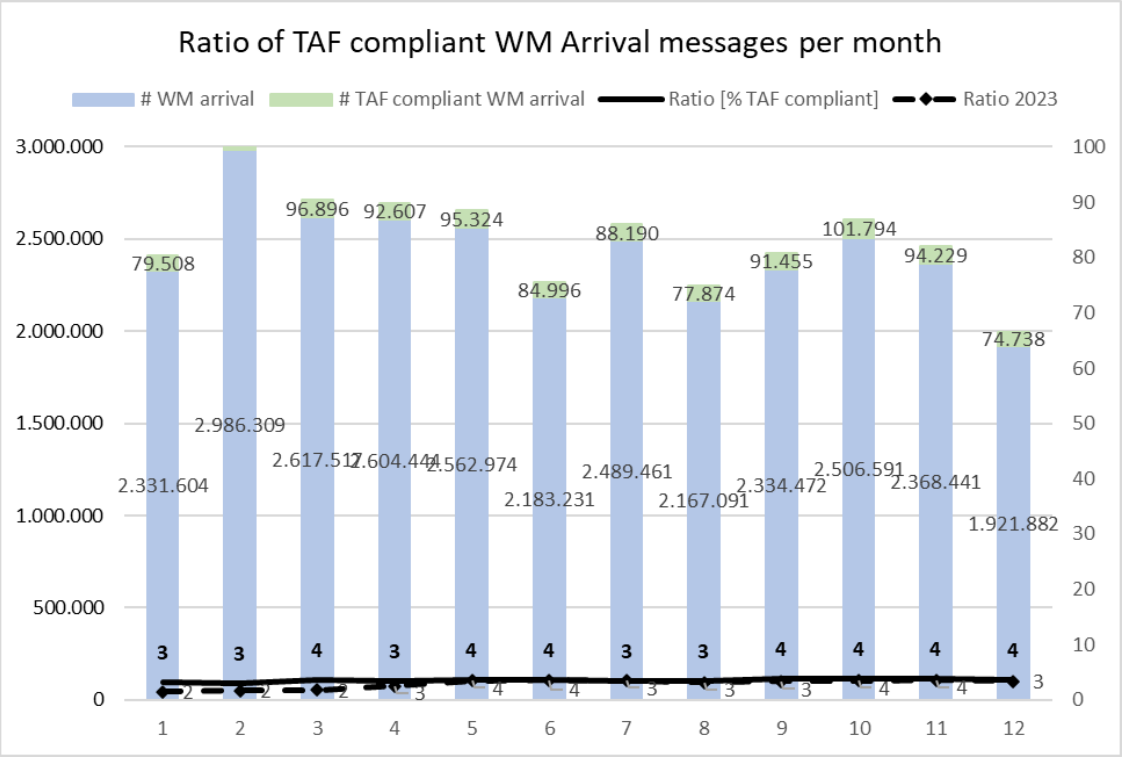

Diagram 9: Ratio of TAF compliant WM Arrival messages per month

10.4 Degree of TAF compliant Wagon Reached Destination messages

The last RU informs other involved RU(s) that the wagon arrived to destination station with a train.

KPI Definition

This KPI displays the development in terms of number of Wagon Reached Destination messages per month as provided by the ISR of Raildata.

Absolute number of WM ReachedDestination per month

The number of TAF compliant messages in relation to the total number of Wagon Reached Destination messages indicates the respective ratio.

Ratio of TAF compliant WM ReachedDestination per month

Input data is collected at a monthly basis. Messages need to be TAF compliant including TAF locations (at least WSM 60). Older message types (older than WSM 60) are not TAF compliant.

The total number of Wagon Reached Destination messages processed by ISR in 2024 sums up to 9.322.342 messages. Overall, approximately 22 % of these messages were TAF compliant in the year 2024.

WM ReachedDestination processed by ISR	2023	2024
# WM	8.233.116	7.228.848
# TAF compliant WM	1.448.567	2.093.494
Total	9.681.683	9.322.342
Average Ratio [% TAF compliant]	**15**	**22**

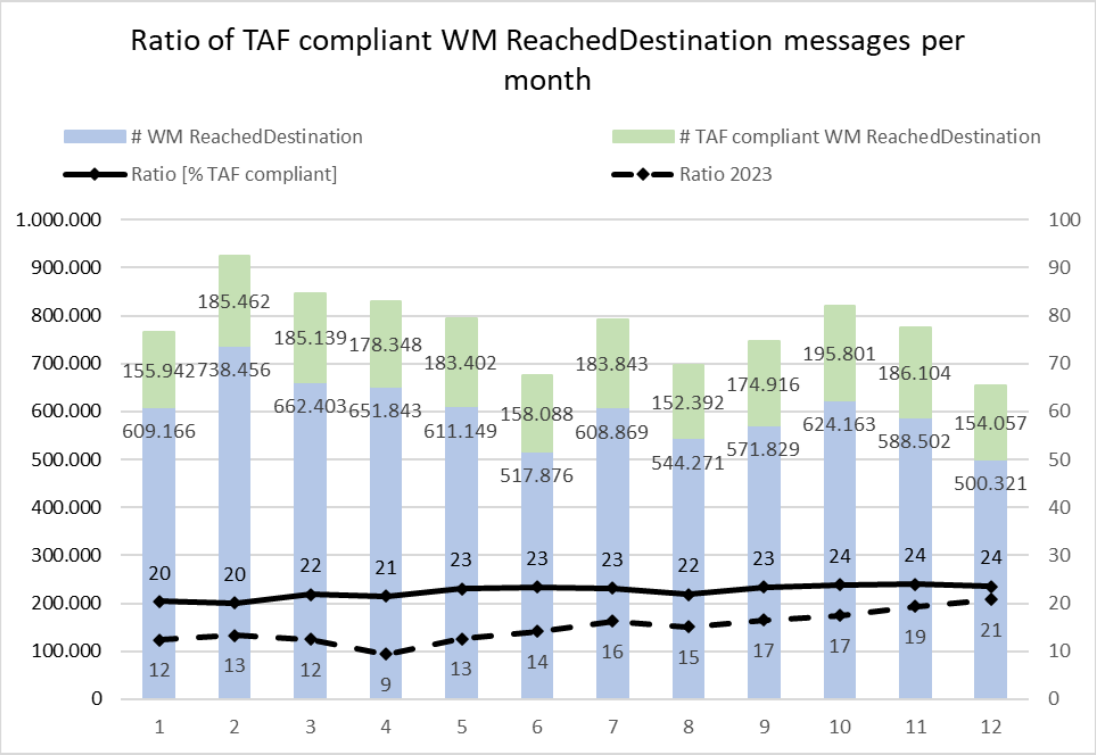

Diagram 10: Ratio of TAF compliant WM ReachedDestination messages per month

11 ROLLING STOCK REFERENCE DATABASE (RSRD)

11.1 Introduction

Section 4.2.9.2 of the TAF TSI sets out the following mandatory requirements related to Rolling Stock Reference Database (RSRD).

> **4.2.9.2. The Rolling Stock Reference Databases**
>
> The keeper of rolling stock is responsible for the storage of rolling stock data within a Rolling Stock Reference Database.
>
> …
>
> The Rolling Stock Reference Databases must allow easy access to the rolling stock reference data to minimize the volume of data transmitted for each operation. Contents of the Databases must be accessible, based on structured access rights depending on privilege to all Service Providers (especially IMs and RUs).
>
> The entries in the Rolling Stock Reference Database can be grouped as follows:
>
> - Administrative data, related to certification and registration items. Additionally, according to Commission Regulation (EU) No 445/2011 (1), article 5, the Wagon Keepers shall store the ECM certification identification number
> - Design data, which shall include all constitutive (physical) elements of the rolling stock, especially information required by RUs for train planning and operation.
>
> The keeper is obliged to ensure that these data are available and the processes behind have been conducted.

The RSRD function has been mirrored in appendix 16 of the GCU. All GCU Keepers (including RUs which are Keepers) have the obligation to provide RSRD data via the GCU broker. The GCU trustee provides the input data to the Implementation Reporting Group (IRG). The GCU Joint Committee (UIC, UIP, ERFA) has agreed and supports the creation of this KPI.

11.2 Use of RSRD function in GCU broker by RUs

All messages exchanged with the GCU Broker are TAF compliant. The number of RUs in the GCU broker represent the status at the end of the reporting period.

KPI Definition

This KPI shows the degree of use of RSRD function by counting the number of RUs which are querying TAF RSRD data via the GCU broker compared to all signatories RU which could potentially query RSRD data.

$$\frac{number\ of\ RUs\ querying\ the\ GCU\ broker}{number\ of RUs\ in\ the\ GCU\ broker} \times 100 \leq 100\ \%$$

The number of different RU that query the GCU broker at least once in the respective year. The degree of use of RSRD calculates to 12% by the end of 2024 as shown in the table below.

Year	**2022**	**2023**	**2024**
Number of RUs querying the GCU broker	59	79	66
Signatories of the GCU broker (number of RUs)	454	527	541
Degree of use of RSRD [% of RUs]	**13**	**15**	**12**

Table 9: Degree of usage of RSRD by RUs

11.3 Implementation of RSRD function in GCU broker by Keepers

All GCU Keepers (including RUs which are Keepers) have the obligation to provide RSRD data via the GCU broker.

KPI Definition

This KPI shows the degree of wagons registered in the GCU broker for which RSRD data are available.

$$\frac{number\ of\ wagons\ linked\ to\ RSRD}{number\ of\ wagons\ in\ the\ GCU\ broker} \times 100 \leq 100\ \%$$

The number of wagons connected to RSRD in the GCU broker by the end of 2024 is 354.067. The degree of wagons linked to RSRD in the GCU broker calculates to 63 %.

Year	2022	2023	2024
Number of wagons connected to RSRD	331.876	343.118	354.067
Number of wagons registered in the GCU broker	553.127	553.416	561.489
Degree of wagons linked to RSRD [% of wagons]	**60**	**62**	**63**

Table 10: Degree of wagons linked to RSRD

12 CONCLUSIONS and RECOMMENDATIONS

After all, and with the thankful support from staff members of RNE, Raildata and UIP this third KPI report could be finished.

For future reports more KPI will be added, and more IT-providers will have to deliver data. For this, the data delivery must be well planned and agreed amongst all partners involved. Maybe an option could be to link the KPI data delivery with the ERA TAF TAP certification process. We recommend ERA to evaluate the possibility to sign such agreements with the TAF and TAP certified IT-providers or applicants.

However, further development of the reporting heavily depends on the new Telematic Regulation with will likely come into force in 2025. Further steps than will be discussed with all relevant parties.

ANNEX: TTT COMPLIANT COMMON SECTOR TOOLS PROVIDING DATA FOR KPIS

Central Reference Data (CRD) - https://rne.eu/it/rne-applications/ccs/crd/

The CRD (formerly known as Central Repository Domain) is a centralised database provided by RailNetEurope (RNE). It stores Location Codes and Company Codes required by European regulation and makes them available to users.

Train Information System (TIS) - https://rne.eu/it/rne-applications/tis/what-is-tis/

The Train Information System (TIS) is a web-based application that supports international train management by delivering real-time train data concerning international (partly national) passenger and freight trains. The relevant data is obtained directly from the Infrastructure Managers' systems.

OpenRailFreightEdiUserSystem (ORFEUS) - https://www.raildata.coop/services/orfeus

ORFEUS stands for Open Railway Freight EDI User System. It is an information system developed and operated by RailData. It ensures the exchange of railway CIM consignment notes and CUV wagon notes data between the co-operating railway undertakings (RU) using a Central Data management System (CDS).

InternationalServiceReliability (ISR) - https://www.raildata.coop/services/isr

ISR aims for International Service Reliability. It is an information system developed and operated by RailData. It is a common tool of ISR railway undertakings for concentration and exchange information about movements of freight wagons in international traffic through a central platform. It makes possible to track both loaded and empty freight wagons and consignments across significant part of Europe.

GCU (General Contract of Use for wagons) Broker - https://gcubureau.org/gcu_broker/

The GCU Bureau and the Joint Committee strongly believe that efficient exchange of information can boost efficiency. With the GCU Broker, GCU presents a free, versatile, low-threshold communication platform, available for all its signatories. GCU Broker will leverage the company's operational software and automate the data exchanges between railway undertakings and wagon keepers by introducing machine-to machine exchange of information via XML.

Disclaimer

The RU/IM Telematics Joint Sector Group (JSG)
The JSG was set up in October 2012 as a voluntary organisation supported by fourteen European Associations involved in the implementation of the rail technical specifications for interoperability of the Telematic Application for Freight (TAF TSI).

http://taf-jsg.info/