Report

2022 TAF TSI IMPLEMENTATION KEY PERFORMANCE INDICATOR (KPI) WORKING DOCUMENT REPORT OF THE EUROPEAN UNION AGENCY FOR RAILWAYS

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Document History

Version	*Date*	*Comments*
0.1	12/05/2022	1st draft for the TAF TSI Implementation Cooperation Group (ICG) comments
1.0	15/05/2023	Major release

2.0	05/06/2023	Inclusion of ICG members' comments and splitting of the report into two separate documents, namely status report (Degree of implementation) and KPI report.

Contents

Abbreviations

Abbreviation	Definition
CI	Common Interface
DI	Degree of Implementation
EC	European Commission
ERA	European Union Agency for Railways (also referred to as Agency)
ERFA	European Rail Freight Association
GCU	General Contract for Use of Wagons
IM	Infrastructure Manager
IRG	Implementation Reporting Group
JSG	Joint Sector Group
KPI	Key Performance Indicator
NCP	National Contact Point
NAE	National Allocation Entity
PLC	Primary Location Code
RNE	Rail Net Europe
RSRD	Rolling Stock Reference Database
RU	Railway Undertaking
TAF	Telematics Applications for Freight
TIS	Train Information System developed by RNE
TRI	Train Running Information
TSI	Technical Specification for Interoperability
TTT	TAF TAP TSIs
UIC	Union Internationale des Chemins de fer
UIP	International Union of Wagon Keepers
WK	Wagon Keeper

Reference documents

Ref. N°	Title	Reference	Version
(1)	TAF and TAP TSI Master Plans	TAF Master Plan – v4.0 TAP Master Plan – v1.0	17.01.2013 28.01.2013
(2)	ERA TAF TSI Implementation Cooperation Group held on 9th March 2022	Minutes	9.03.2022

Reference legislation

Ref. N°	Document Reference	Title	Last Issue
[1]	Left blank intentionally		
[2]	TAF TSI Regulation No 1305/2014	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. Amended by the Commission Implementing Regulation (EU) 2021/541 of 26 March 2021.	26.03.2021
[3]	Corridor Regulation No 913/2010	Regulation (EU) No 913/2010 of the European Parliament and of the Council of 22 September 2010 concerning a European rail network for competitive freight	22.09.2010
[4]	TAP TSI Regulation No 454/2011	Commission Regulation (EU) No 454/2011 relating to the Telematics Applications for Passenger subsystem (TAP TSI)	18.04.2021

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1. EXECUTIVE SUMMARY

Based on the results of the TAF TSI status report 2022 (based on Degrees of Implementation) and the decisions taken by the TAF TSI Implementation Reporting Group (IRG), the TAF TSI Joint Sector Group (JSG) and the Common Sector Group (CSG) adopted the **first working document report on Key Performance Indicators** (KPI) related to TSI TAF and 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 TSIs (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.

The IRG was mandated (2) to draft first ideas of specific KPI’s together with stakeholders and IT-providers. A set of 7 KPI from 4 different TTT functions were chosen as first priorities:

- Primary and Subsidiary Location Codes (PLC/SLC)
- Common Interface Implementation (CI)
- Train Running Information (TRI)

- Rolling Stock Reference Database (RSRD) .

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

The aim is to gradually replace the DI reporting by the KPI reporting and report about it to the EC. To support the development and management of the new TTT KPI Reporting a handbook as a general guideline for NCP's, NAE's, sector organizations, implementers, and data providers is made available for all partners.

The data collection in January 2023 proved to be very ambitious as the companies are very busy at this time of the year. While the data from the company feedback are available in mid-December it was not until mid-February when all the relevant KPI data was available.

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.

1.1 BACKGROUND TO THE ASSIGNMENT

According to Commission Regulation (EU) No 1305/2014[1] [2] relating to the Telematics Applications for Freight subsystem (TAF TSI) and to Commission Regulation (EU) No 454/2011[2] [4] 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 Master plans (1) 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

[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

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.

2. COMMON REFERENCE FILES – LOCATION CODES

2.1 Introduction

Section 4.2.10.1 of the TAF TSI[2] [2] 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. R e f e r e n c e F i l e s
>
> 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 Sector Handbook[3] 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

[2] 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

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

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.

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.

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[4].

RNE Members and Working Groups are involved in further development to enhance both the quality and quantity of the reference files. RNE provides support to RUs who wish to import their Subsidiary Location codes. Support is also provided regarding user management, data collection, access to data and maintaining and ensuring data quality.

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.

2.2 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.

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

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

[4] RNE Website https://ccs.rne.eu/crd/

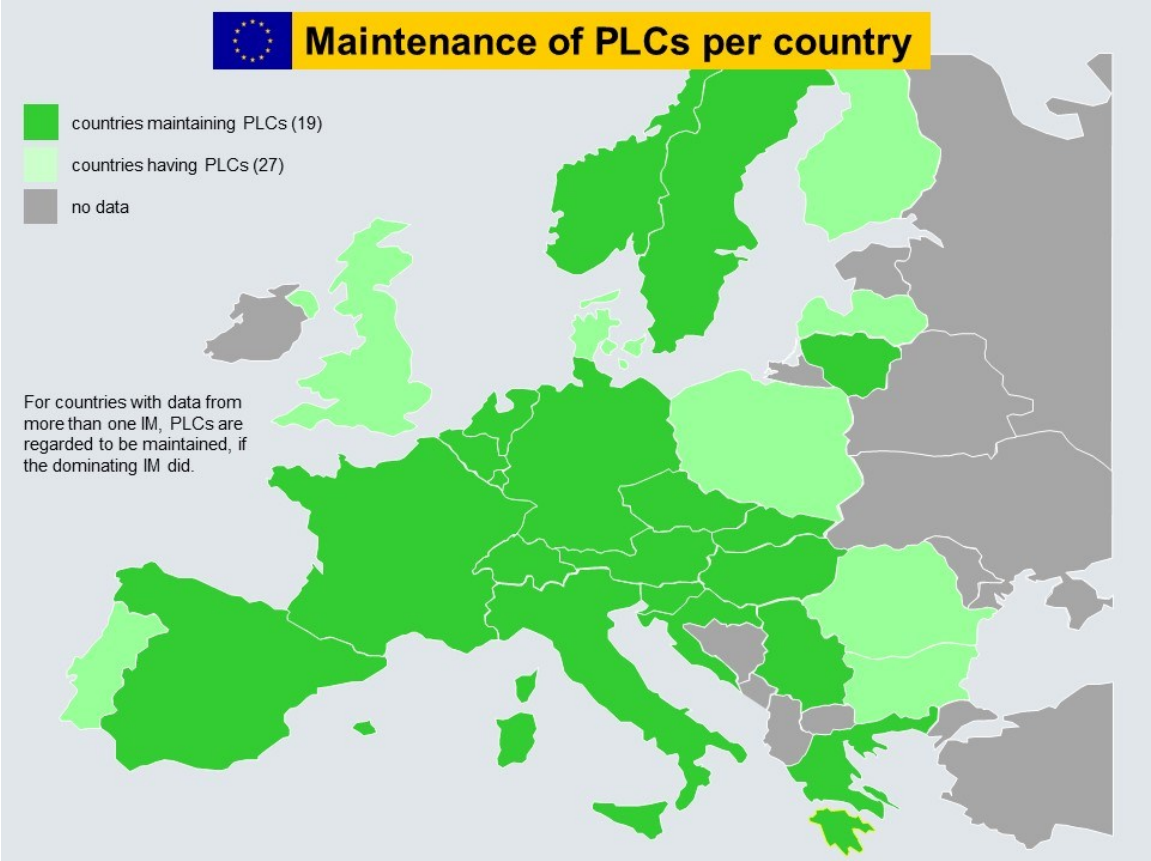

Diagram 1: PLC per country (KPI)

2.3 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.

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

Figure 1: Primary location data completeness definition (KPI)

Definition of properties to be reported:

- GPS location data (longitude and latitude) o Longitude of point representing Position of Location. It is strongly recommended to populate this element. It is possible to use up to 6 decimals. o 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) o 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.

2022	Q1	Q2	Q3	Q4
Total number of PLCs in CRD	59’926	59’797	59’201	59’372
PLCs with GPS location data	51’192	51’119	57’445	57’524
PLCs with commercial activity	34’598	34’470	34’837	34’840
Total number of PLCs in CRD	59’926	59’797	59’201	59’372
GPS location data ratio [% of PLCs]	**85 %**	**85 %**	**97 %**	**97 %**
Commercial activity ratio [% of PLCs]	**58 %**	**58 %**	**59 %**	**59 %**

Table 1: Primary location data completeness (KPI)

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

The big raise in GPS location data from Q2 to Q3 is due to several new IM’s having sent the GPS location data for the first time. The completeness of PLCs regarding voluntary properties as displayed in the following European maps reflects the latest data of Q4 2022.

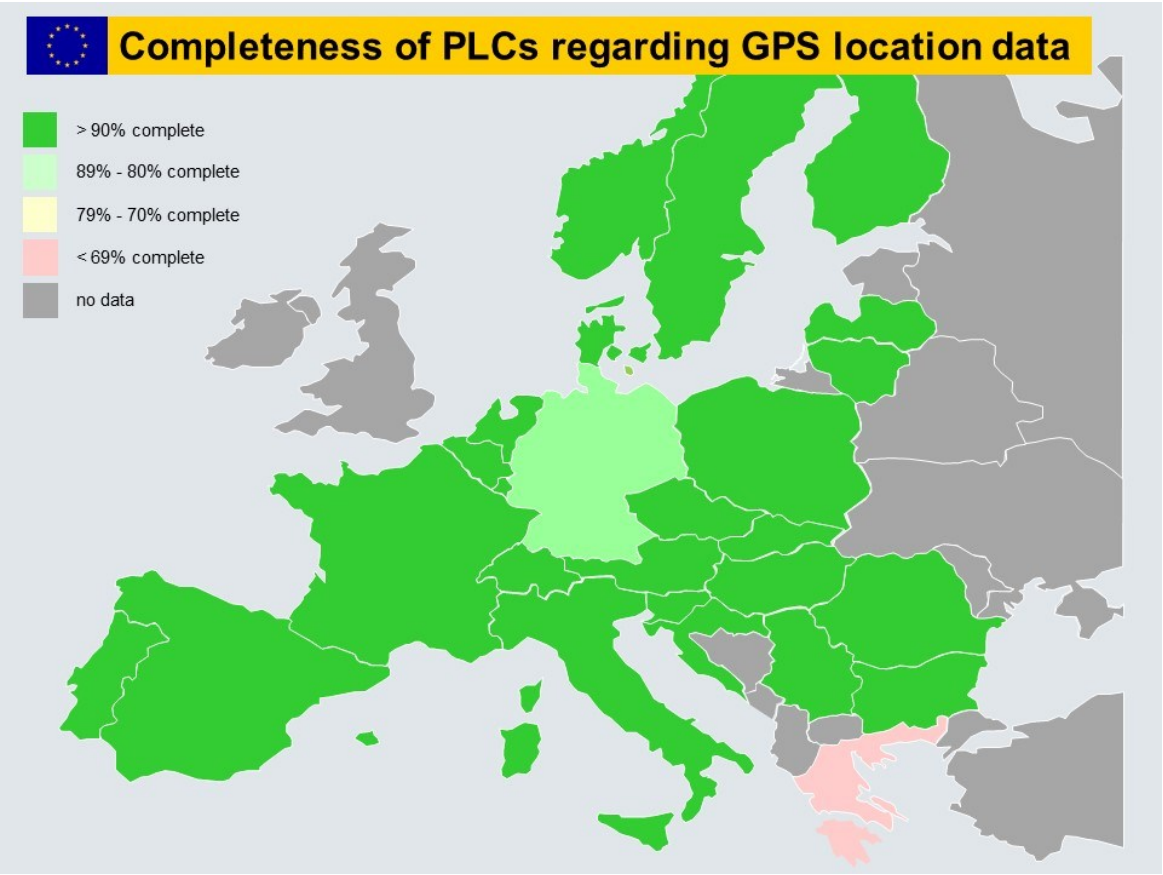

Diagram 2: PLC and GPS location data (KPI)

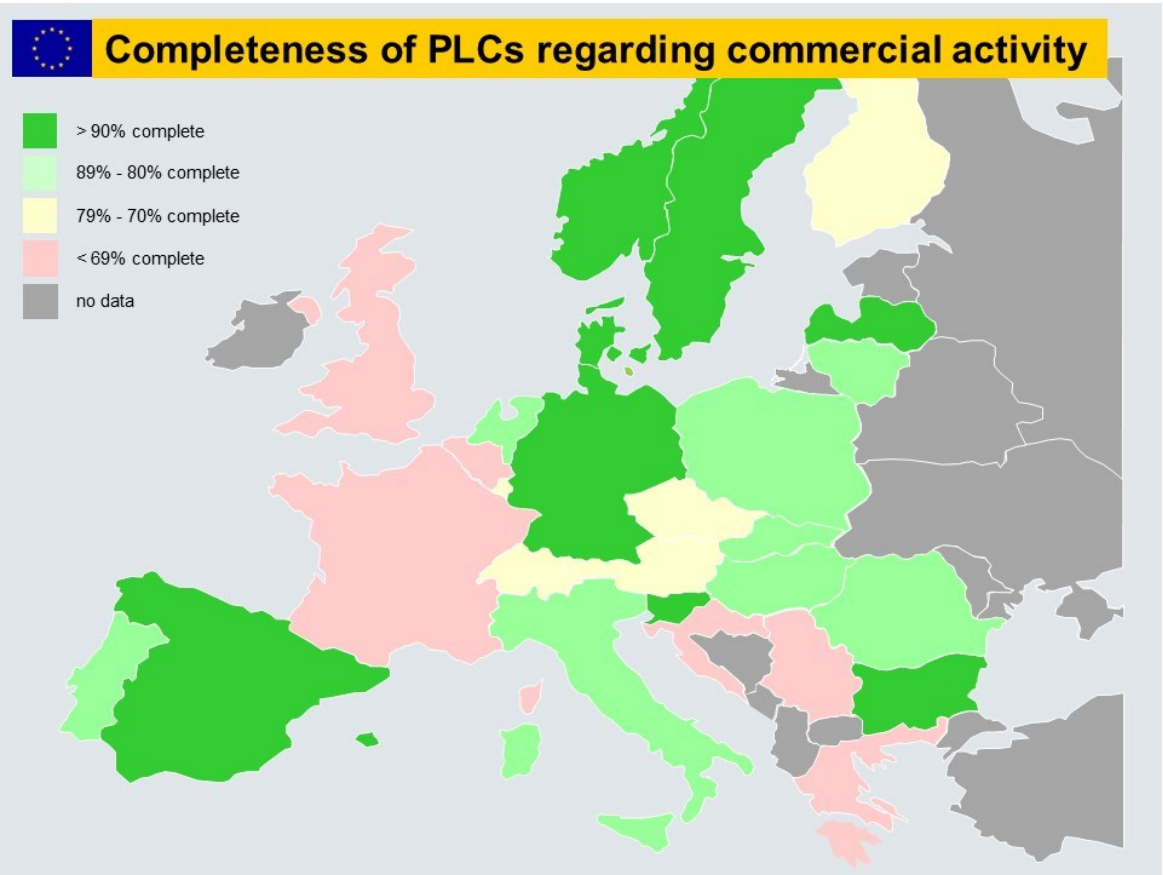

Diagram 3: PLC and commercial activity (KPI)

11.4 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

Figure 2: Number of SLCs definition (KPI)

The following 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 6 – Public loading
- Location Subsidiary Type Code 15 – Platform
- Location Subsidiary Type Code 36 – Freight Yard
- Location Subsidiary Type Code 37 - Loading point
- Location Subsidiary Type Code 41 – Company specific ID
- 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 Q1/2022	# SLC Q2/2022	# SLC Q3/2022	# SLC Q4/2022
1	Track	14047	14047	19042	19042
3	Border point	255	250	237	238
6	Public loading	81	81	82	81
15	Platform	600	600	600	600
36	Freight yard	1420	1420	1420	1421
37	Loading point	9896	9804	11535	11535
41	Comp. specific ID	14721	14723	14716	14721
42	DIUM station	5817	5770	5761	5756
57	Intermodal terminal	81	83	82	86
66	Location ENEE code	2689	2287	2615	2687
Total		**49607**	**49065**	**56160**	**56176**

Table 2: Number of SLCs (KPI)

In general, there are only little changes between the 3-month periods. However, between Q2 and Q3 the change in the SLC Type Code 1 was due to an IM sending 5004 new Track information and for SLC Type Code 37 a Freight RU has sent 1651 new Loading Points.

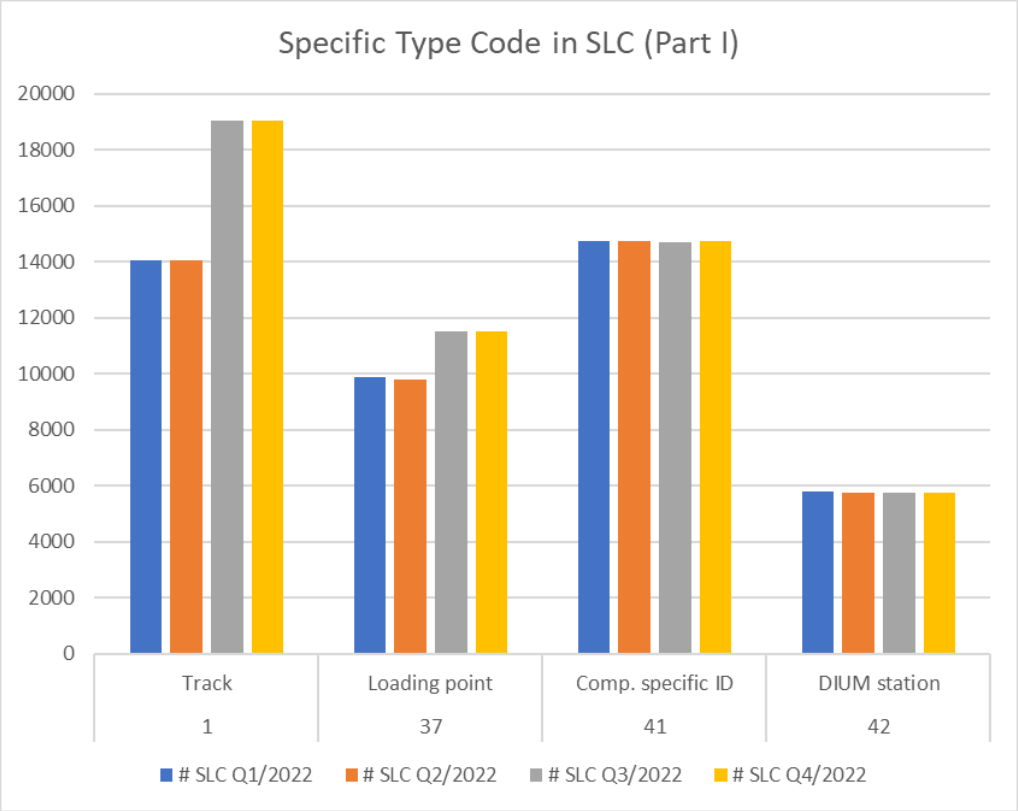

Diagram 4: PLC and Type Code – I (KPI)

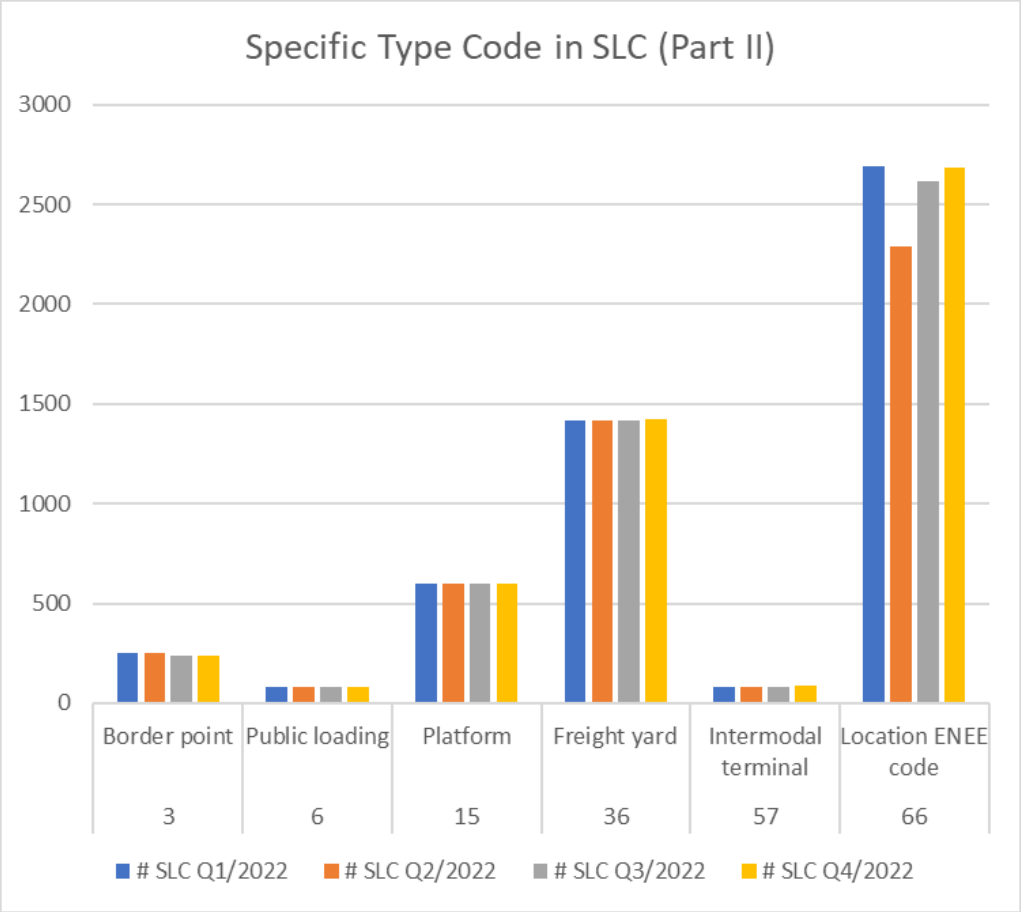

Diagram 5: PLC and Type Code – II (KPI)

3. 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

Figure 3: Common Interface development definition (KPI)

- Q1 2022 – 266 certificates
- Q2 2022 – 185 certificates
- Q3 2022 – 266 certificates
- Q4 2022 – 247 certificates

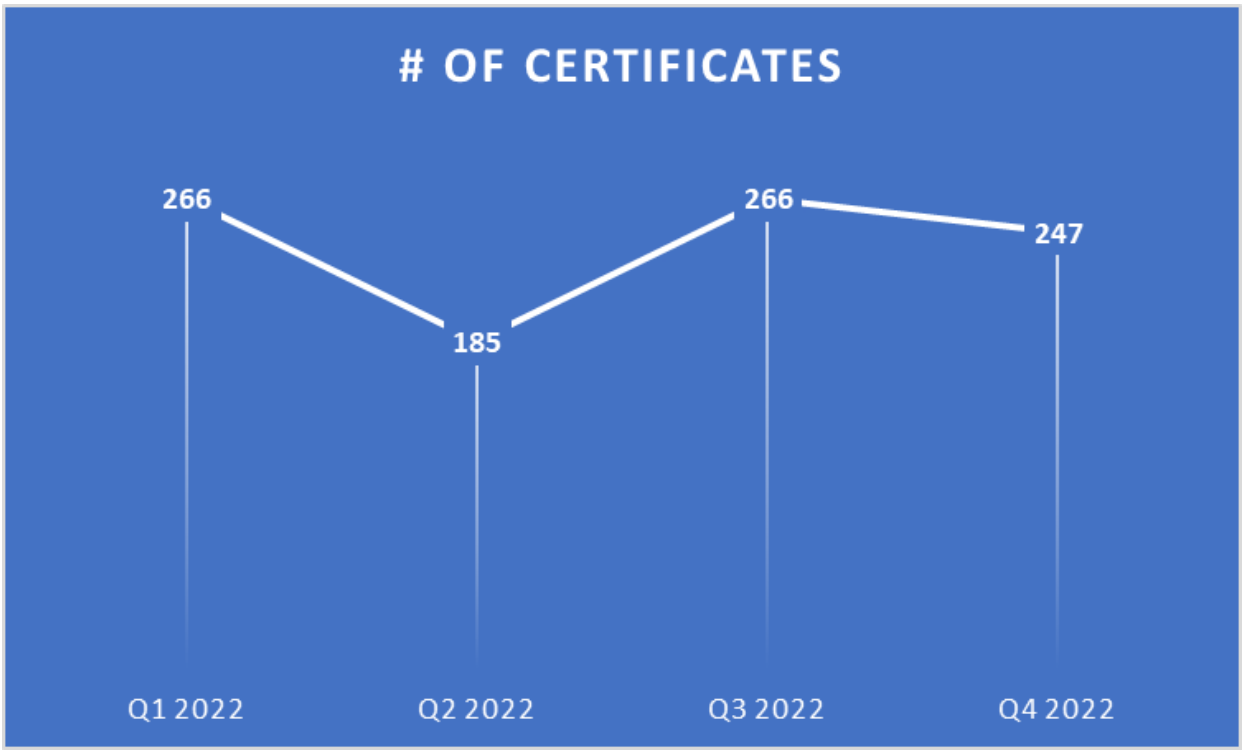

Diagram 6: Common Interface number of certificates (KPI)

The number of certificates varies because certificates automatically expire at a specific date and will have to be provided again. Figures of Q1 and Q3 are probably the most appropriate.

4. TRAIN RUNNING INFORMATION (TRI)

4.1 Introduction

Section 4.2.4.3 of the TAF TSI [2] 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 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 Train Information System (TIS) is a web-based application managed by RNE. It 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. To our understanding, no other similar tool exists at European level.

The RNE TIS system is already fully TAF/TAP TSI-compliant and was, in addition, a frontrunner in terms of implementing this sophisticated framework. The system supports mostly internationally active Railway Undertakings and Terminal Operators in steering their logistical chains and it also provides support to Rail Freight Corridors [3] by providing proper reports for Train Performance Management. Currently TIS handles over 5.8 million single train runs per year[5].

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).

4.2 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).

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

Figure 4: TRI usage definition (KPI)

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.

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

The KPI calculation only considers TAF compliant messages, which ten countries currently are providing.

According to the path details provided per country, TIS expected nearly 37 million TRI messages for international freight and passenger trains in 2022. More than 28 million TRI messages (running advice) have been sent. The overall average degree of TRI messages for international trains calculates to 75 %. Quarterly values are given in the tables below.

International Freight Trains 2022	**Q1**	**Q2**	**Q3**	**Q4**	**Total**
Timetable information (PD)	4.160.343	4.027.258	3.712.479	3.503.412	15.403.492

[5] See https://tis.rne.eu/what-is-tis/

Running information (TRI)	3.247.739	3.229.597	3.117.158	3.072.063	12.666.557
Degree of usage of TRI [%]	78	80	84	88	**82**

Table 3: Number of international freight trains (KPI)

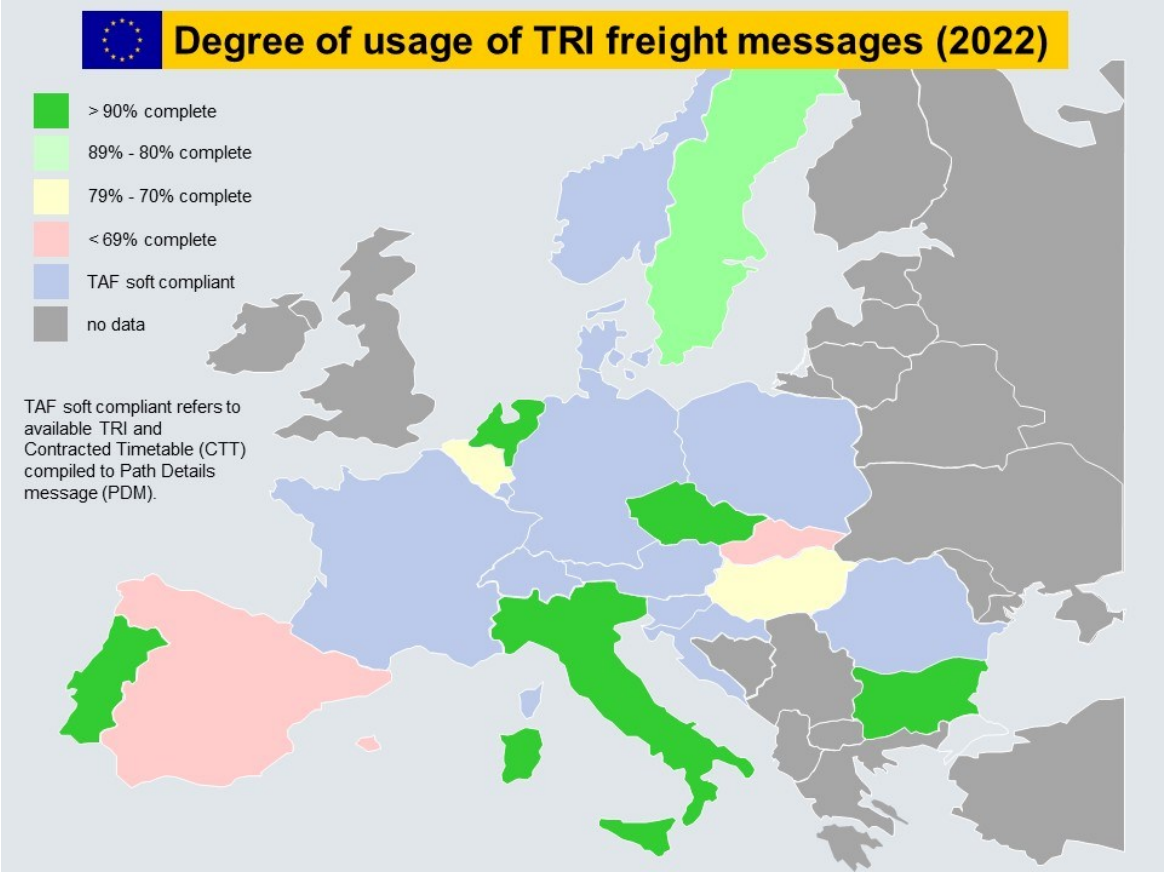

Diagram 7: TRI usage freight (KPI)

Country	Freight PD	Freight TRI	%
Belgium	3.525.708	2.749.379	78
Bulgaria	29.424	27.690	94
Czech Republic	2.799.383	2.678.861	96
Spain	463.649	277.762	60
Hungary	2.047.286	1.526.615	75
Italy	1.866.355	1.718.398	92
Netherlands	1.947.161	1.743.368	90
Portugal	190.985	171.321	90
Sweden	845.882	723.510	86
Slovakia	1.687.659	1.049.653	62
Total	15.403.492	12.666.557	82

Table 4: usage TRI freight trains (KPI)

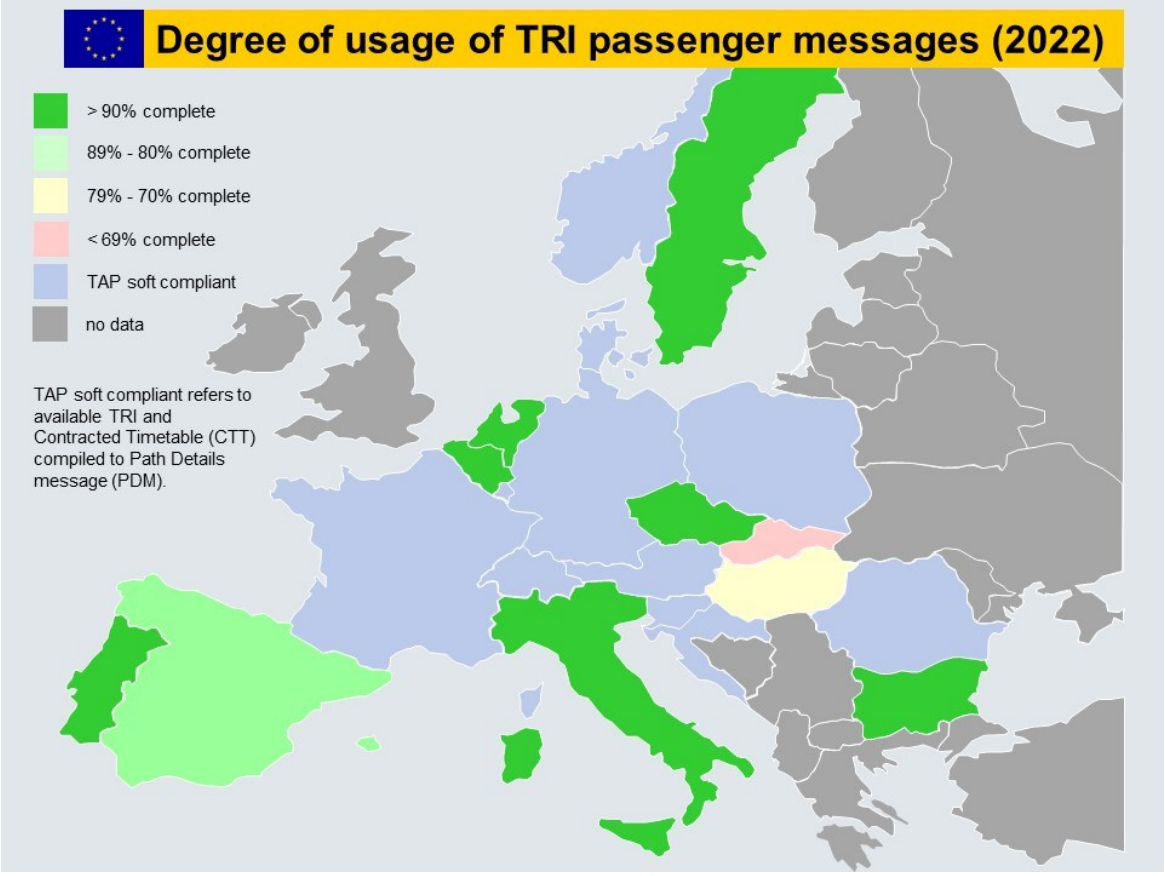

Diagram 8: TRI usage passenger (KPI)

Country	Passenger PD	Passenger TRI	%
Belgium	3.751.323	3.714.135	99
Bulgaria	7.323	7.151	98
Czech Republic	3.813.644	3.760.144	99
Spain	254.670	217.076	85
Hungary	2.219.139	1.595.235	72
Italy	1.456.489	1.413.855	97
Netherlands	1.845.606	1.800.663	98
Portugal	33.343	32.787	98
Sweden	1.950.481	1.881.193	96
Slovakia	1.450.127	825.428	57
Total	16.782.145	15.247.667	91

Table 5: usage TRI passenger trains (KPI)

5. ROLLING STOCK REFERENCE DATABASE (RSRD)

5.1 Introduction

Section 4.2.9.2 of the TAF TSI [2] 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, 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.

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[6].

5.2 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.

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

Figure 5: RSRD usage definition RUs (KPI)

[6] See https://gcubureau.org/gcu_broker/

The number of different RU that query the GCU broker at least once in the respective quarter. The degree of use of RSRD calculates to 10% by the end of 2022 as shown in the table below.

2022	Q1	Q2	Q3	Q4
Number of RUs querying the GCU broker		59		48
Signatories of the GCU broker (number of RUs)		454		454
Degree of use of RSRD [% of RUs]		**13**		**10**

Table 6: usage RSRD RUs (KPI)

5.3 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.

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

Figure 6: RSRD usage definition WKs (KPI)

The number of wagons connected to RSRD in the GCU broker by the end of 2022 is 335,487. The degree of wagons linked to RSRD in the GCU broker calculates to 60 %.

2022	Q1	Q2	Q3	Q4
Number of wagons connected to RSRD		331’876		335’487
Number of wagons registered in the GCU broker		553’127		553’127
Degree of wagons linked to RSRD [% of wagons]		**60 %**		**60 %**

Table 7: usage RSRD WKs (KPI)

6. CONCLUSIONS AND RECOMMENDATIONS

Even after several meetings and discussions, the collection of the KPI data still was a challenge. The key problem is:

- 1st to have a sound definition for a KPI equivalent to the TSI TAF TAP function
- 2nd to define the exact data the IT-tool shall deliver so it is matching the defined KPI
- 3rd to receive the data in due time.

After all, and with the thankful support from staff members of RNE and UIP this first 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.

For the next few years, we do not see that the KPI reporting can fully replace the old DI reporting based on company feedback with the questionnaire.

However, comparing KPI from IT-Tools feedback with DI from company feedback could provide new aspects. RNE TIS has received Path Detail message from IM/countries shown left, while DI feedback about PD implementation received from companies in 2022 questionnaire show a slightly different picture (right).

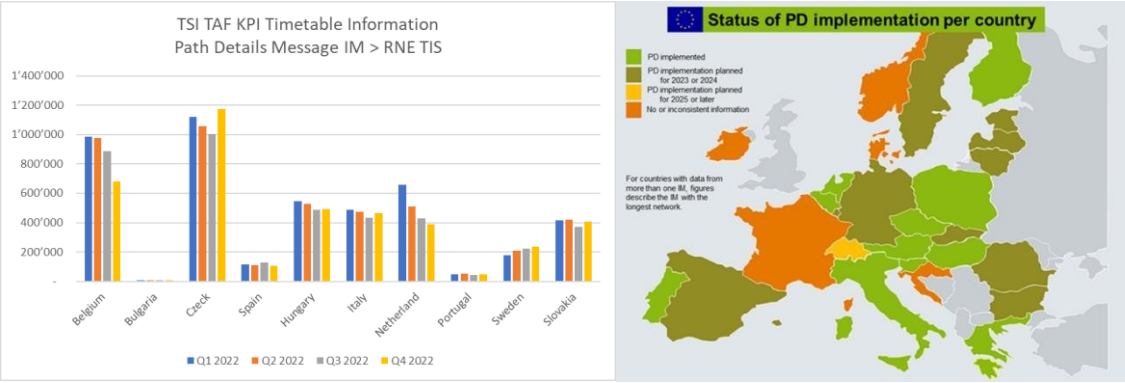

Diagram 9: Conclusions and recommendations (KPI)

The differences in several countries would be worth a separate investigation.

COUNTRY	Report DI	TD in TIS	Status	Remarks
Belgium	done	Yes	OK	
Bulgaria	planne	Yes	partly	tbd
Czechia	done	Yes	OK	
Spain	planned	Yes	partly	tbd
Hungary	done	Yes	OK	
Italy	done	Yes	OK	
Netherland	done	Yes	OK	
Portugal	done	Yes	OK	
Sweden	planned	Yes	partly	tbd
Slovakia	planned	Yes	partly	tbd
Greece	done	No	NOK	check
Slovenia	done	No	NOK	check
Austria	done	No	NOK	check
Poland	done	No	NOK	check
Finnland	done	No	NOK	check

Table 8: differences in implementation per country (KPI)

ANNEX 1: MEMBERS OF THE IMPLEMENTATION REPORTING GROUP (IRG)

Last Name	First Name	Company	e-mail
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		CER	
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