JSG | RU/IM Telematics Joint Sector Group

TAF TAP KPI Reporting Handbook

RU/IM Telematics Joint Sector Group (JSG)

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version 1.0

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Document history

Version	Name	Changes	Date
0.1	Rudolf Achermann Jan-Christian Arms	Initial version	20.01.2022
1.0		Document ready for JSG	01.02.2022

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EXECUTIVE SUMMARY

This handbook defines the new KPIs and sets out responsibilities and processes for the new KPI Reporting. It is also a general guideline for companies who will deliver data for the new KPI reporting. This handbook is an integral part of the JSG governance document and processes and is adopted by ICG and JSG.

The IRG has started the evaluation of new KPI with the intent to complement existing KPI Reports like the RNE Annual Performance Report or the PRIME KPI Reporting. It is also recommended to keep the TAP Retail Report separate from the new KPI reporting.

The aim is to switch step-by-step from the old to the new reporting and change from the EU Survey questionnaire to a more automatic data collection from IT-Systems.

The new KPI reporting can support activities by adding transparency to the real implementation of the TTT functions by the Rail Sector throughout Europe.

1. ABBREVIATIONS

AB	Allocation Body
CEF	Connecting Europe Facility
CER	Community of European Railway and Infrastructure Companies
DG MOVE	Directorate-General for MOBILITY AND TRANSPORT
DI	Degree of Implementation
ERA	European Union Agency for Railways
EU	European Union
ICG	Implementation Cooperation Group
IM	Infrastructure Manager
IRG	Implementation Report Group
IT-System	Information Technology System
JSG	Joint Sector Group
KPI	Key Performance Indicator
RFC	Rail Freight Corridor
RNE	Rail Net Europe
RU-F	Railway Undertaking for Freight transport
RU-P	Railway Undertaking for Passenger transport
TAF	Telematics Applications for Freight Services
TAP	Telematic Applications for Passenger Services
TEN-T	Trans-European Transport Network
TSI	Technical Specifications for Interoperability
TTT	TSI TAF TAP
UIP	International Union of Wagon Keepers
WK	Wagon Keeper

2. STARTING POSITION

The initial proposal to change the reporting came from ERA. The IRG analysed the actual situation by studying existing KPI reporting at European level with four different Workstreams to come up with draft proposals by the end of 2020 (see work programme down below in table 1).

Workstream	Title	Lead	Members	Tasks	Target date	Remarks
WS 1	**Existing Reports**	IRG	ERA EC UIC (NCP)	Desktop analysis of existing reports to avoid double work (RFC, Prime, ...) What, who, how?	April 2020	Desktop analysis
WS 2	**IT-tools**	IRG	RNE Hitrail Raildata RSRD² TSGA UIC UNIFE	Check with IT-suppliers what KPI data could be derived from TAF/TAP compliant IT-systems/tools (like RSRD2 today)	June 2020	Interviews
WS 3	**KPIs**	JSG & CSG	NCP ERA JSG CSG	Check & define single functions with potential KPI	Dec. 2020	• JSG: ad-hoc WG reporting to JSG • CSG: Plenary meetings • Incl. IRG-ERA consultation
WS4	**Legislation**	ERA	ERA EC	• mandate for new reporting • TSIs revision: ○ Article 5 – Implementation ○ 7.1.3. and 7.1.4 ○ Appendix III NCP's tasks	2021	• Incl. IRG – ERA consultation • Requested sector's inputs to be defined by ERA

Table 1: Tasks and workplan for Work Streams of new KPI reporting

The outcome of the workstreams were discussed with ERA on several occasions. During the workstreams several contacts with IT-Services Providers led to first draft KPI. It also turned out that a stepwise implementation of new KPIs would be necessary, as the implementation of the different functions are in very diverse stages. ERA approved this and gave the task to IRG to set up the new KPI reporting. As a basic guidelines ERA asked to leave the DI since the implementation dates are mostly already passed and it is now important to understand how these new TTT functions are used in the Rail business. The real implementation shall be watched with dedicated KPI and data coming from the used IT tools.

The new TTT KPI Reporting shall not be in opposition with the RNE Annual performance report for the Rail-Freight-Corridor. Were similar KPI are concerned RNE shall make sure, that no controversial data are distributed in the different reports.

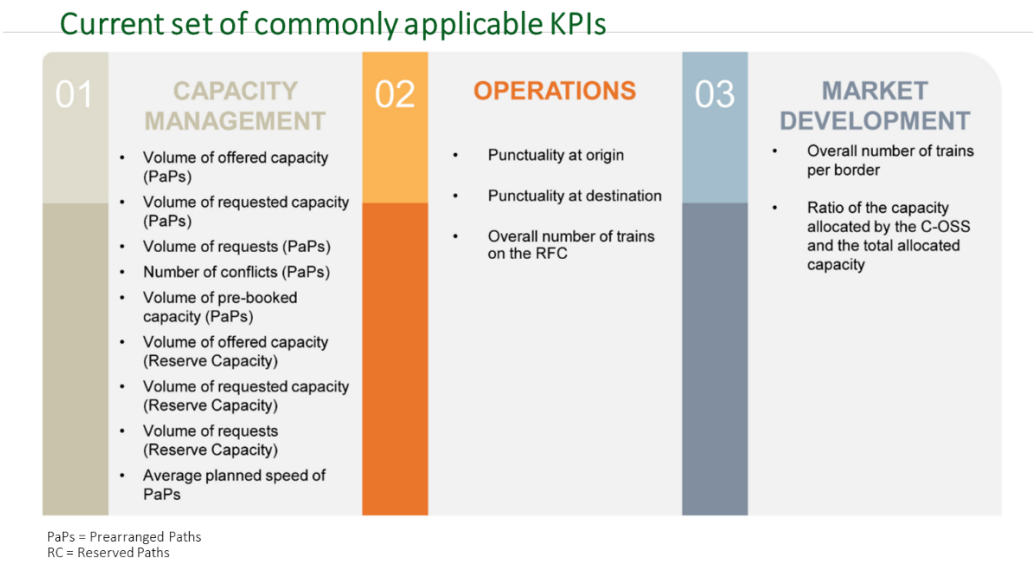


Diagram 1: Existing Rail Freight Corridor KPIs of RNE

The new TTT KPI Reporting is also not intending to replace or conflict with any PRIME KPI. Special attention will be put on Performance, Capacity and Utilisation KPI so that no disagreement or misunderstanding of the provided KPI can occur.

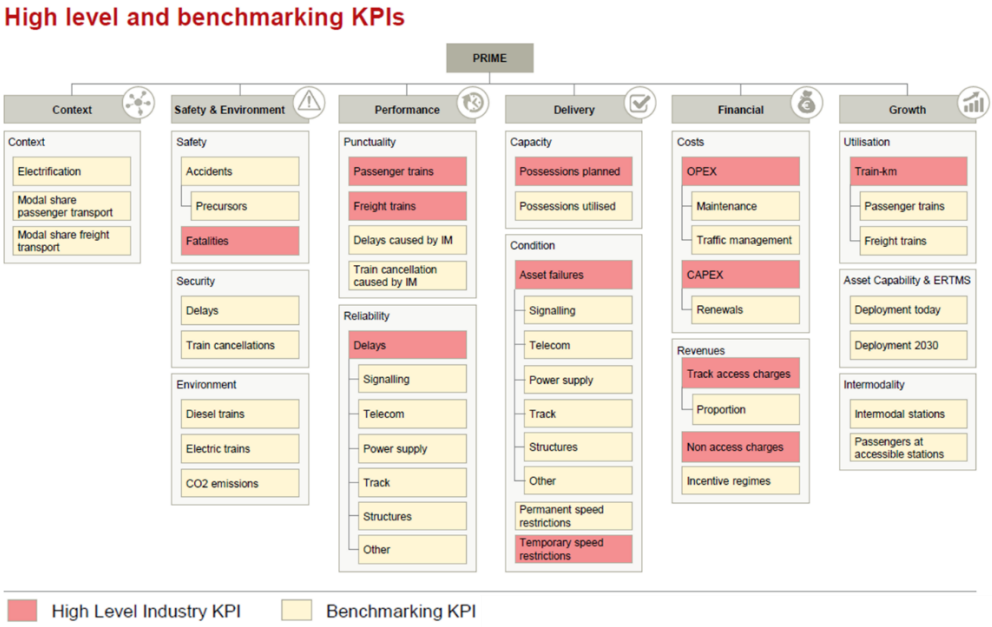


Diagram 2: Existing high-level and benchmarking KPIs of PRIME

A deep analysis made by the IRG showed major differences in the DI reporting performed over the last years between TAP Retail and the TAF/TAP IM-RU Communication. The conclusion is that the melting of the two reporting is not recommended due to different reasons. The current handbook therefor is written under the assumption that for the 2022 KPI reporting only the TSI TAF functions, and the TSI TAP IM-RU Communication functions will be part of the new KPI report.

Basic guidelines of this Handbook were approved by IRG, ERA, JSG and the Implementation Cooperation Group led by ERA.

3. AIM OF THE NEW KPI REPORTING

The main aim of the new KPI reporting is to change from the old “Degree of Implementation” to a new “KPI Deployment” reporting, which shall show the real implementation by using dedicated new Key Performance Indicators (KPI).

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

4. ORGANISATION AND ADMINISTRATION

The whole organization and administration of the new KPI reporting and this KPI Reporting Handbook are integral part of the JSG governance and processes. It has been adopted by the ICG and JSG. 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.

The tasks of the NCP and NAE will remain mainly unchanged. If the EU survey tool is used, NCP must annually update the address lists and support translations. Further activities for the NCP and NAE shall be decided in the ICG meetings.

This KPI Reporting Handbook will usually be updated annually by the IRG and regularly presented to the ICG in March of the following year unless no major change in the next reporting period is needed.

The tasks, competencies, and responsibilities for the new KPI reporting shall be confirmed by a written agreement between the involved stakeholders, like IRG, NCP, RNE, ERA, UIP and others.

5. TRANSITION PERIOD

The switch from the old DI to the new KPI reporting will be done step-by-step and based on a priority list worked out by the IRG and approved by JSG, CER and ERA. In a first step the IRG analysed the number of DI reports and the current "Degree of Implementation" for each TAF TAP function. Based on this analysis KPIs have been prioritised together with IT providers (see table 2).

TAF/TAP function	Number of reports	Degree of implementation (2021 reporting) [%]	Priority for change
Primary Location Codes (PLC)	12	58	
Company Code (CC)	12	IM – 82, RU-F – 78, RU-P – 67, WK - 89	
Common Interface (CI)	12	IM – 46, RU-F – 29, RU-P – 28, WK - 16	
New Identifiers (NI)	2	IM – 12, RU-F – 20, WK - 12	
Path Request (PR)	2	IM – 22, RU-F - 26	
Path Details (PD)	2	IM – 26, RU-F - 30	
Train Ready (TR)	3	IM – 44, RU-F – 62, RU-P – 86	
Train Running Information (TRI)	11	IM – 52, RU-F – 40, RU-P - 34	
Train Running Interrupted Message (TRIM)	3	IM – 32, RU-F – 24, RU-P - 12	
Train Running Forecast (TRF)	2	IM – 30, RU-F - 22	
Train Composition Message (TCM)	8	IM – 36, RU-F - 37	
Consignment Note Data (CND)	7	RU-F - 23	
Wagon Movement (WM)	5	RU-F - 22	
Shipment ETA (ETA)	2	RU-F - 19	
Rolling Stock Reference Database (RSRD)	11	WK - 72	

Table 2: Priority for change per RU/IM function

For the first KPI reporting period in 2022 the following first set of RU/IM functions have been selected (priority for change marked in green in table 2):

- Primary and Subsidiary Location Code (PLC and SLC)
- Company Code (CC)
- Common Interface (CI)
- Train Running Information (TRI)
- Rolling Stock Reference Database (RSRD)

A Test run will start in April 2022 and the first KPI reporting 2022 will start in November. Since KPI reporting will not start with all functions, DI reporting with the EU Survey questionnaire will remain in 2022.

In the long term the old traditional reporting based on the EU Survey questionnaire shall be stopped and only automatic data transfer from IT-Tool remaining.

6. KEY PERFORMANCE INDICATORS

Source and delivery of data

The data source and data delivery is defined in close cooperation between the IRG and the IT provider. The data delivery is organized bilaterally between the IRG and the IT provider individually. The data delivery can be organized in several steps or as a whole package but always with the intent to have full data available for a one-year period January to December.

For the first set of KPI data will be provided by:

- RNE for PLC/SLC, CI and TRI
- UIP for RSRD

Basic agreements of data delivery – RNE

Content: 3 KPI about PLC/SLC based on fact sheet
Source: RNE CRD
Delivery: quarterly

Content: 2 KPI about CI based on fact sheet
Source: RNE Big Data and Single Certification Authority
Delivery: quarterly

Content: 1 KPI about TRI based on fact sheet
Source: RNE TIS
Delivery: quarterly

Basic agreements of data delivery – UIP

Content: RSRD based on fact sheet
Source: GCU broker
Delivery: quarterly

TAF/TAP RU/IM function	KPI name	KPI definition	KPI unit
Location codes	Percentage of IMs maintaining PLCs in CRD	IMs maintaining PLCs in the CRD in relation to all IMs having PLCs in the CRD (number)	% of IMs
	Completeness of PLCs	PLCs not having a particular property (such as freight station) in proportion to the totality of PLCs (number)	% of PLCs
	Number of SLCs provided in CRD	Number of specific types of SLCs (such as terminals) in CRD	Number of SLCs
Common Interface (CI)	Number of CI certificates	Certificates provided by RNE, operating as the Single Certification Authority	Number of certificates
Train Running Information (TRI)	Usage of TRI messages	TRI messages in relation to the number of locations where it is expected to get a TRI message	% of TRI messages
Rolling Stock Reference Database (RSRD)	Use of RSRD function in GCU broker by RUs	RUs querying the GCU broker in relation to all signatories (RUs which could potentially query)	% of RUs
	Implementation of RSRD function in GCU broker by Keepers	Wagons linked to RSRD in proportion to wagons registered in the GCU broker (number)	% of wagons

7. ACTION PLAN

April 2022	Test delivery of KPI data by IT tools
Nov/Dec 2022	Reporting period for 2022 with EU Survey tool
Jan 2023	Delivery of KPI data for 2022 by IT tools
Feb 2023	Establish “DI” and “KPI” reports 2022 and forward to ERA

8. ANNEXES

KPI fact sheets for Location Codes (PLC&SLC)

1. Percentage of IMs maintaining PLCs in CRD

- KPI Definition

This percentage is defined as the number of IMs maintaining PLCs in the CRD in relation to the total number of IMs having PLCs in the CRD.

- KPI Unit

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

- Input Data Items

- number of IMs maintaining PLCs - PLCs are regarded to be maintained when they are updated at a quarterly basis at least
- number of IMs having PLCs

- Data collection

IMs deliver the PLCs to CRD.
PLCs are allocated by NAEs. The correctness of allocation of PLCs is not subject of reporting.

PLCs are grouped by IMs and countries.

Input data is collected and presented at a quarterly basis in the yearly report.

- KPI example

Currently about 50 IMs have PLCs in CRD

- Comments

This KPI can be collected by RNE or ERA. Generally, it is to be decided at JSG level, how much control the sector wants to keep regarding data collection and drafting of the report.

RNE could ask the CRD supplier for an automated process to support data collection in CRD.

2. Completeness of PLCs (quality indicator)

- KPI Definition

PLCs are classified by important properties (flags), such as freight station, passenger station or GPS location data. This KPI is defined as the degree of not recording of such flags.

- KPI Unit

$$\frac{number\ of\ PLCs\ not\ having\ particular\ property}{total\ number\ of\ PLCs\ in\ CRD} \times 100 \leq 100\ \%$$

- Input Data Items

Definition of properties to be reported:

- Geocoordinates (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.

- Data collection

Grouping by IMs as responsible for the quality of PLCs.

Quarterly collection for the yearly report.

- KPI example

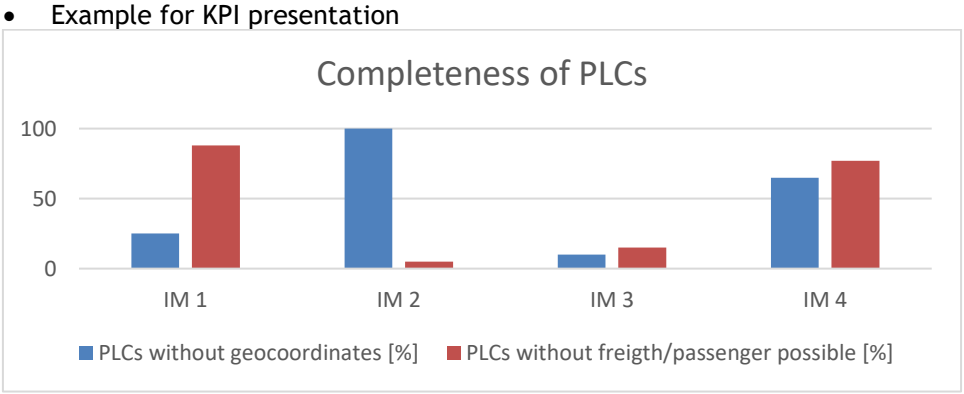
Per cent of PLCs without geocoordinates and per cent of PLCs without Freight and/or Passenger possible per IM.

- Comments

This KPI will be collected by JSG (CCS RNE). Generally, it is to be decided at JSG level, how much control the sector wants to keep regarding data collection and drafting of the report.

RNE could ask the CRD supplier for an automated process to support data collection in CRD.

- Example for KPI presentation



3. Number of SLCs provided in CRD

- KPI Definition

The increase is reported over time by counting the number of specific types of SLCs (e.g. terminals) in CRD.

- KPI Unit

Absolute number per SLC Type Code

- Input Data Items

Quarterly check of the data

Definition of type codes necessary, such as:

- Location Subsidiary Type Code 36 -
- Location Subsidiary Type Code “37” - Loading point
- Location Subsidiary Type Code “42” - DIUM stations - Places of acceptance/delivery Station open into international traffic of goods
- Location Subsidiary Type Code “57” - Intermodal Terminal
- Location Subsidiary Type Code “66” - Location ENEE Code

- Data collection

Grouping by allocating companies (UIC for 36, 37, 42, UIRR 57, IMs 66)

- KPI example

Number of SLC Type Code per company.

- ERA comments

This KPI will be collected by JSG (CCS RNE). Generally, it is to be decided at JSG level, how much control the sector wants to keep regarding data collection and drafting of the report.

RNE could ask the CRD supplier for an automated process to support data collection in CRD.

KPI fact sheet for Common Interface (CI)

Number of CI certificates

- KPI Definition

This KPI displays the development in terms of number of certificates provided by RNE, operating as the Single Certification Authority. This numbers could be given for CIs used by different types of company (e.g. RU, IM). This numbers could also distinguish between CIs provided by RNE and CIs provided by other suppliers.

- KPI Unit

Absolute number

- Input Data Items

-

- Data collection

Annual reporting

- KPI example

About 150 certificates exist today

- ERA comments

RNE is the only certificate provider for TAF7TAP compliant actors.

KPI fact sheet for Train Running Information (TRI)

Usage of Train Running Information (TRI) messages

- Background

The Train Information System (TIS) is a web-based application managed by RailNetEurope (RNE). It supports international train management by delivering real-time train data concerning international passenger and freight trains. The relevant data is obtained directly from the Infrastructure Managers (IMs) systems. No other similar tool exists at European level.

- KPI Definition

All messages exchanged with TIS are TAF compliant. The number of TRI messages (TRI from TIS) in relation to the number of locations expected to send a TRI message (path details).

- KPI Unit

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

- Input Data Items
  - number of TRI messages (running advices from TIS)
    - Predefined locations for which IMs cannot provide TRI messages will be excluded from the reporting.
  - Path details are provided by IMs on a daily basis to TIS. There is no link to PCS for that purpose. Path details contain the locations in terms of Primary Location Codes (PLCs) at which TIS expects to receive a TRI message.
    - For Path Details where no single TRI running advice is available, the train will not be taken into account.
    - Results where path details are not available (e.g. in case of re-routing) are not considered.

- Data collection

The KPI is collected by the sector (RNE-TIS). RNE provides the input data to the Implementation Reporting Group (IRG).

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 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).

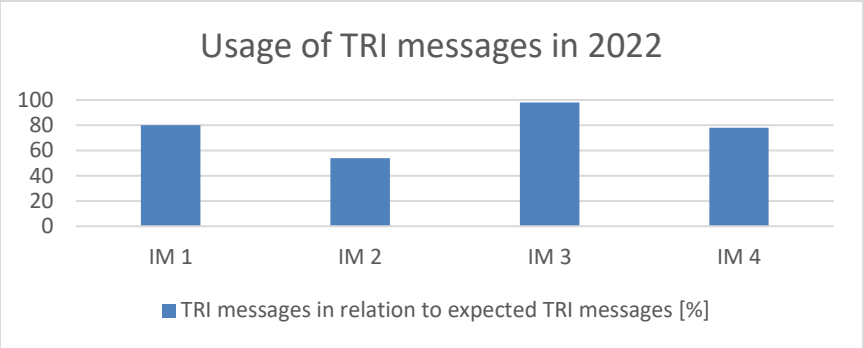
Results at a monthly basis in line with other KPIs which are collected for the Commission (RFC related).

Data can be grouped by IMs (Company Code) or countries (ISO Country Code).
The IM or country will be identified by the location based on the CRD.

Reporting is possible for any defined time period, such as one day, one month or one year.

- Example of KPI presentation

Inbound about 10 million messages per week
Outbound about 12 million messages per week


Usage of TRI messages in 2022
100
80
60
40
20
0
IM 1
IM 2
IM 3
IM 4
TRI messages in relation to expected TRI messages [%]

KPI fact sheets for Rolling Stock Reference Database (RSRD)

1. Use of RSRD function in GCU broker by RUs

- Background

GCU broker

- KPI Definition

All messages exchanged with the GCU Broker are TAF compliant. 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.

- KPI Unit

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

- Input Data Items

Number of RUs in the GCU broker – at the end of the reporting period

- Data collection

The KPI is collected by the sector (GCU trustee). 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 numbers are collected over the complete reporting period of the year.

- Example of KPI presentation

Number of RUs in GCU broker – 433 (2021)

The degree of use is currently about 6 %.

2. Implementation of RSRD function in GCU broker by Keepers

- Background

GCU broker

- KPI Definition

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

- KPI Unit

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

- Input Data Items

  - Collect information on GCU keepers having defined valid communication channel for RSRD function. Combine the information with the number of wagons registered in the GCU broker for those keepers

- Data collection

The KPI is collected by the sector (GCU trustee). 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.

This KPI is calculated for a defined cut-off date (last date of the reporting period).

- Example of KPI presentation

October 2021: 558.039 wagons / RSRD connected wagons 320.932 – 58 %

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/