



Key Performance Indicators of Rail Freight Corridors

Version 4.0

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Version control

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2.1	Zita Koops-Árvai, Senior RFC and Sales Manager	2019-09-19	Removing outdated parts and duplications with KPI handbook; simplification
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Glossary

Term/Abbreviation	Definition
Contracted Timetable (CTT)	It defines the planned route and the planned time of a train run. It is delivered by the IMs to the TIS with message 2090 and merged into an international timetable by the TIS.
Framework for Capacity Allocation (FCA)	Regulation (EU) 913/2010 requires the Executive Board of the Rail Freight Corridor to define the framework for the allocation of the infrastructure capacity on the Rail Freight Corridor. The framework specifies procedures, time limits and any information needed to apply and use a PaP on a Rail Freight Corridor.
Key Performance Indicator (KPI)	A measurable value that demonstrates how effectively a company or an organisation is achieving its key business objectives and via which its performance can be steered.
Oracle Business Intelligence (OBI)	A tool normally used to conduct data analysis and to create reports in RNE.
Path Availability Management Tool (PAMT)	Standard PCS report that is available only for RFCs. It contains basic information (timetable, PaP requests, distances, running days, K-value, network PaP information) about the published and requested PaPs on a particular RFC. The content of the report is based on the date of issue. Archive reports are not supported.
Path Coordination System (PCS)	A path coordination and allocation system for international passenger and freight rail transport designed, developed and operated by RNE.
Pre-arranged Path (PaP)	A pre-constructed path on a Rail Freight Corridor according to Regulation (EU) 913/2010. A PaP may be offered either on a whole RFC or on sections of the RFC forming an international path request crossing one or more international borders.
RFC Entry	The location where the train first enters the RFC line (the first point in the train run belonging to the RFC).
RFC Exit	The location where the train leaves the RFC line for the last time (the last point in the train run belonging to RFC).
Reserve Capacity (RC)	Capacity – e.g. Pre-arranged paths – kept available during the running timetable period for ad-hoc market needs (Article 14 (5) Regulation (EU) 913/2010).
Running Advice (RA)	It delivers the actual time at a specific point or the status and the deviation from the planned time at that point. It is sent by the IMs to the TIS with message 2002.
Train Information System (TIS)	A web-based application that supports international train management by delivering real-time train data concerning international passenger and freight trains. The relevant data are processed directly from the IMs' systems.

1 Background, scope and target group of these Guidelines

1.1 Background

Article 19 (2) of Regulation (EU) 913/2010 (hereinafter: Freight Regulation) requires the Management Boards (MB) of the Rail Freight Corridors (hereinafter: RFCs) to *monitor the performance of rail freight services on the freight corridor and publish the results of this monitoring once a year.*

The RFCs are free to choose their own Key Performance Indicators (KPIs) to fulfil this requirement of the Freight Regulation. However, in order to facilitate data provision for the calculation of the KPIs and the processing of such data, it was decided that a common approach and a set of KPIs applicable to all RFCs should be developed while allowing the RFCs to develop and monitor any further individual KPIs as well. As a result, the first set of KPIs commonly applicable to all RFCs were defined in these guidelines, which became applicable as of timetable year 2016.

The development of further commonly applicable KPIs was triggered by the Rotterdam Sector Statement signed in 2016 by the IMs. One of the priority projects defined on the basis of this document is to monitor the quality of freight services with implemented and shared KPIs. The sector developed certain proposals out of which those which are technically feasible - most importantly data are available - were added to the list of commonly applicable RFC KPIs and became applicable as of timetable year 2018.

1.2 Scope and target group

These Guidelines provide recommendations for using a set of KPIs commonly applicable to all RFCs and address all levels of RNE and the corridor organisations.

It does not deal with Train Performance Management issues, to which the RNE 'Guidelines for Train Performance Management on Rail Freight Corridors' are applicable.

2 Documents relevant for these Guidelines

- » Regulation (EU) No 913/2010 concerning a European network for competitive freight,
- » Framework for Capacity Allocation (FCA),
- » Rotterdam Sector Statement,
- » Handbook for Calculation of Key Performance Indicators of Rail Freight Corridors

3 Main principles

3.1 Selection of KPIs

The selection of the KPIs lies within the responsibility of the decision-making bodies of the RFCs, nevertheless, the FCA shall be taken into consideration as well, which was developed in accordance with Article 14 of the Freight Regulation. No overall harmonisation is necessary, however, it is recommended to use the set of KPIs applicable to all RFCs as defined in these Guidelines.

Therefore, the KPIs of an RFC may include a set of commonly agreed KPIs (see point 3.4) and additional KPIs specific to the RFC concerned. The set of KPIs listed in the FCA is mandatory as the FCA is considered to be a legally binding document signed by the Executive Boards of the RFCs.

3.2 Place of publication of the description of the KPIs

For information of third parties, the description of the KPIs (including definition, calculation formula, targets, source of data and data processing tool, publication of the results, etc.) should be published in the same place by all RFCs and in the same document, if possible, and the other RFC

documents should only include reference to this document in terms of the KPIs. It is recommended that this document is the Implementation Plan (Book 5 of the Corridor Information Documents).

For RFC and RNE JO internal use, a detailed description of the calculation procedure (from data collection to publishing) can be found in the 'Handbook for Calculation of Key Performance Indicators of Rail Freight Corridors'. It facilitates the further harmonisation of the calculation, the interpretation and the use of the KPIs included in these guidelines.

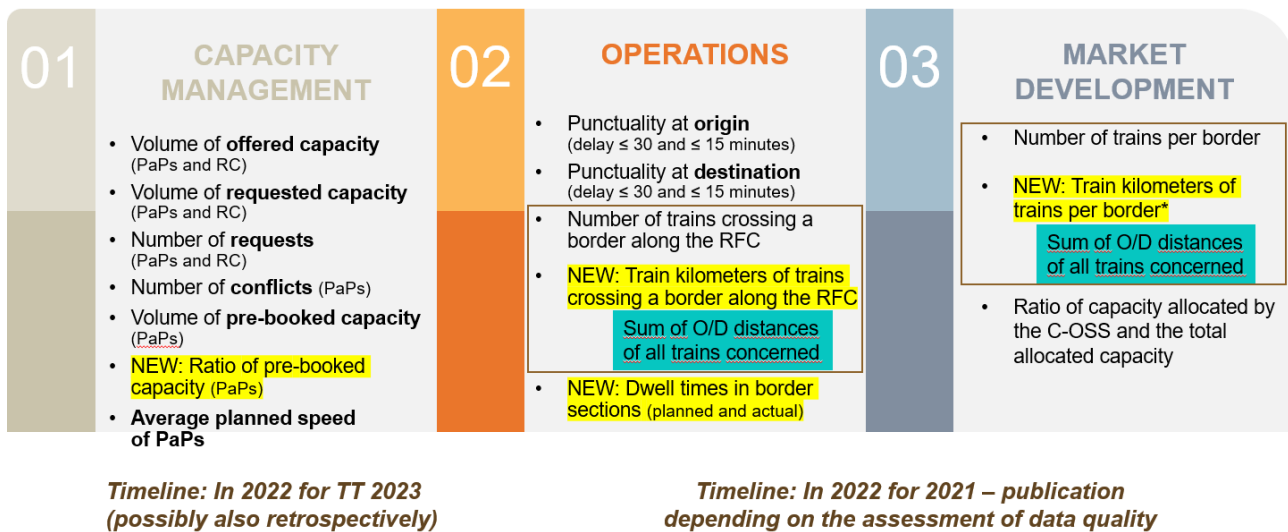
3.3 Source of data for the calculation of the KPIs

In order to reduce the overall efforts of the RFCs and RNE, the same IT tools shall be used for the calculation of the commonly applicable KPIs where possible. In this case, the data are provided by RNE's PCS and TIS, while the data processing tool is OBI. If the necessary data are not available in RNE's IT tools, the RFCs collect the data (e.g. via their IMs from national tools) and do the calculation themselves. It should be avoided in any case that (too much) manual calculation is necessary, every calculation shall be automatised to the best possible extent.

3.4 Set of KPIs commonly applicable to all RFCs

The RFCs shall monitor their performance through the following KPIs.

The newly introduced KPIs are highlighted in yellow and accompanied with additional information concerning their initial publication.



The key parameters of the KPIs are described in the following table.

Capacity Management					
Name of KPI	Calculation formula	Source of data	Calculated by	Timing of calculation	Other
Volume of offered capacity (PaPs)	Km*days offered where km means PaP km between operation points without feeder and outflow sections	PAMT report in PCS	RFCs	At X-11 which is the deadline of publication of the PaP offer	There is a correction phase of the offer between X-11 – X-10.5 which has to be taken into consideration in the final KPI figure. In case of overlapping sections, if an overall figure for all RFCs is calculated, the same capacity is taken into consideration only once in order to avoid double-counting.
Volume of requested capacity (PaPs)	Km*days requested	PAMT report in PCS	RFCs	At X-8 which is the deadline for submitting path requests in the annual timetabling process	Feeder and outflow sections are not included. In case of overlapping sections, if an overall figure for all RFCs is calculated, the same capacity is taken into consideration only once in order to avoid double-counting.
Number of requests (PaPs)	Number of PCS dossiers submitted	PAMT report in PCS	RFCs	At X-8	In case of overlapping sections, if an overall figure for all RFCs is calculated, the same capacity is taken into consideration only once in order to avoid double-counting.

Name of KPI	Calculation formula	Source of data	Calculated by	Timing of calculation	Other
Number of conflicts (PaPs)	Number of PCS dossiers submitted which are in conflict with at least one other PCS dossier for PaPs on the same RFC	PAMT report in PCS	RFCs	At X-8	Requests on PaPs are counted, not requested PaPs. In case of overlapping sections, if an overall figure for all RFCs is calculated, the same capacity is taken into consideration only once in order to avoid double-counting.
Volume of pre-booked capacity (PaPs)	Km*days (pre-booking phase)	PAMT report in PCS	RFCs	At X-7.5 which is the deadline for treatment of PaP requests for the annual timetable by the C-OSS	Feeder and outflow sections are not included. In case of overlapping sections, if an overall figure for all RFCs is calculated, the same capacity is taken into consideration only once in order to avoid double-counting.
Ratio of Pre-Booked Capacity (PaPs)	Ratio of the Volume of Pre-booked Capacity on the Volume of Offered Capacity (PaPs)	KPI figures on the Volume of Offered capacity and the Volume of Pre-booked capacity	RFCs (automated)	At X-7.5, which is the deadline for calculating of the KPI 'Volume of Pre-booked Capacity'	The calculation can be conducted in an automated manner via the joint sheet for collection of 'FCA KPI figures' as soon as both KPIs required for the calculation are provided.
Volume of offered capacity (RC)	Km*days offered	PAMT report in PCS	RFCs	At X-2 which is the deadline of publication of the RC offer	In case of overlapping sections, if an overall figure for all RFCs is calculated, the same capacity is taken into consideration only once in order to avoid double-counting.

Name of KPI	Calculation formula	Source of data	Calculated by	Timing of calculation	Other
Volume of requested capacity (RC)	Km*days requested	PAMT report in PCS	RFCs	At X+12 which is the deadline for submitting path requests for RC	In case of overlapping sections, if an overall figure for all RFCs is calculated, the same capacity is taken into consideration only once in order to avoid double-counting.
Number of requests (RC)	Number of PCS dossiers requested	PAMT report in PCS	RFCs	At X+12	In case of overlapping sections, if an overall figure for all RFCs is calculated, the same capacity is taken into consideration only once in order to avoid double-counting.
Average planned speed of PaPs	Average of the planned commercial speed of the PaPs on the O/D pair concerned per direction	PAMT report in PCS	RFCs	At X-11	<p>There is a correction phase of the offer between X-11 – X-10.5 which has to be taken into consideration in the final KPI figure.</p> <p>On pre-defined O/Ds per RFC (or on adjacent RFCs), the running time of all PaPs covering the entire O/D is taken, and the speed is calculated taking into account the length of the O/D axis.</p> <p>Calculated and published per O/D pair.</p> <p>The RFC may calculate an average figure in addition.</p>

Operations					
Name of KPI	Calculation formula	Source of data	Calculated by	Timing of calculation	Other
Punctuality at origin	The share of all RFC-related trains at RFC entry with a delay less than, or equal to, the threshold compared to all RFC-related trains at RFC entry.	TIS	RNE	At the end of January after the calendar year concerned	<p>International freight trains crossing a border of an RFC are considered as RFC trains in the calculation.</p> <p>'Origin' is considered as RFC entry.</p> <p>The calculation is done both with 30-minute and 15-minute punctuality thresholds.</p> <p>A CTT and a delta time shall be available.</p>
Punctuality at destination	The share of all RFC-related trains at RFC exit with a delay less than, or equal to, the threshold compared to all RFC-related trains at RFC exit.	TIS	RNE	At the end of January after the calendar year concerned	<p>International freight trains crossing a border of an RFC are considered as RFC trains in the calculation.</p> <p>'Destination' is considered as RFC exit.</p> <p>The calculation is done both with 30-minute and 15-minute punctuality thresholds.</p> <p>A CTT and a delta time shall be available.</p>

Name of KPI	Calculation formula	Source of data	Calculated by	Timing of calculation	Other
Number of Trains crossing a border along the RFC	Total number of train runs having a RA on selected pairs of border points	TIS	RNE	At the end of January after the timetable year concerned	<p>International freight trains crossing a border of an RFC are considered as RFC trains in the calculation.</p> <p>Pairs of border points are TIS points defined by the RFCs.</p> <p>A CTT shall be available.</p>
Train kilometres of Trains crossing a Border along the RFC	Sum of O/D distances of all trains crossing a border along the RFC	TIS	RNE	At the end of January after the calendar year concerned	Calculated as the sum of real distances between origin and destination of all trains crossing a border along the RFC.
Dwell times in border sections – planned dwell	Average planned dwell time of all international freight trains crossing the RFC border in the main measuring points, where border crossing related procedures usually occurs	TIS	RNE	At the end of January after the calendar year concerned	<p>Planned dwell in single point is calculated as difference between scheduled departure from point and scheduled arrival to point.</p> <p>For each train, the planned dwells in all relevant measuring points are summed up.</p> <p>The KPI provides the average planned dwell of all international freight trains crossing the border, including the train with zero planned dwell.</p>
Dwell times in border sections – real dwell	Average real dwell time of all international freight trains crossing the border along the	TIS	RNE	At the end of January after the calendar year concerned	Real dwell in single point is calculated as difference between real departure from point and real arrival to

	<p>RFC in the main measuring points, where border crossing related procedures usually occurs</p>				<p>point, excluding the time, which train spent running in advance – real clean dwell.</p> <p>For each train, the clean real dwells in all relevant measuring points are summed up.</p> <p>The KPI provides the average clean real dwell of all international freight trains crossing the border, including the train with zero real dwell.</p>
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The figures of those KPIs which are calculated by RNE will be available one day after the given times of calculation (see above table) at the latest in form of a standardised report accompanied by raw data, which the RFCs can find in OBI for download.

Market Development					
Name of KPI	Calculation formula	Source of data	Calculated by	Timing of calculation	Other
Number of Trains per Border	Number of commercial freight trains crossing selected border points	IMs' national tools	RFCs and IMs	At the end of January after the calendar year concerned	<p>No locos and service trains should be considered.</p> <p>Calculated per border.</p> <p>One IM per border point should provide the data to the RFC.</p> <p>The total sum of the figures per border does not correspond to the figure of the KPI Overall Number of RFC Trains due to, among other reasons, the potential double-counting of trains if crossing more than one border.</p>
Train kilometres of Trains per Border	Sum of O/D distances of all trains crossing a specific border along the RFC	TIS	RNE	At the end of January after the calendar year concerned	Calculated as the sum of real distances between origin and destination of all trains crossing a specific border along the RFC
Ratio of the capacity allocated by the C-OSS and the total allocated capacity	Number of trains allocated in the yearly timetable by the C-OSS per RFC border/the total number of allocated international freight trains in the yearly timetable per RFC border.	<p>PCS for RFC capacity</p> <p>IMs' national tools for total allocated capacity</p>	<p>PCS for RFC capacity</p> <p>PAMT report</p> <p>IMs' national tools for total allocated capacity</p>	In December before the start of the timetable year	Calculated per border

3.5 Targets/thresholds

Currently, no commonly applicable targets/thresholds are defined. However, each RFC is invited to define its own targets.

3.6 Publication of KPI figures

Transparent, harmonised sharing of KPIs is one of the requirements of the sector towards the RFCs under Priority 9 of the Rotterdam Sector Statement. Therefore, the RFCs also make available on RNE's website a joint and harmonised overview of the figures of their commonly KPIs. Under the below link, the figures are summarised both per RFC showing the evolution of their performance over the years and per year displaying an overview of the commonly applicable KPIs of all RFCs for the year concerned.

<http://www.rne.eu/rail-freight-corridors/rfc-kpis/>

The overview shall be continuously updated with new figures in a timely manner. To achieve this goal, the deadlines for the RFCs to provide the figures ready-to-be published to RNE are summarised in Annex 1. After each deadline, the publication of the figures is updated with a one-time upload by RNE.

Besides, the RFCs publish KPI figures on an annual basis e.g. via the Customer Information Platform: <https://cip.rne.eu>

4 RNE/RFC KPI Coordination Group

The RNE/RFC KPI Coordination Group has the following tasks:

- » Providing input to the definition of the strategic approach regarding KPIs to the RNE/RFC High Level Group,
- » Developing KPIs
- » Coordination of the use of the KPIs included in these Guidelines, which means for the individual RFC representatives primarily, disseminating these Guidelines and the Handbook to the relevant experts within the corridor organisation for implementation, coordinating the calculation and the analysis of the figures, providing the figures in a timely manner to RNE for publication,
- » Steering the revision of the KPIs described in point 3.4 when necessary, whereas the technical details are defined by the relevant RNE working groups and the C-OSS Community and the related reports are defined by the RNE Performance Management Working Group,
- » Update of these Guidelines and the Handbook when necessary,
- » Providing exchange of information between the setting up / amendment of KPIs monitoring capacity management in the FCA and in these Guidelines, so that they are in line with each other in order to avoid double work both for the RFCs and for RNE in terms of monitoring and reporting.

This group shall consist of:

- » at least one representative per RFC and it is advisable that this person has relevant experience in the field of Train Performance Management and/or capacity management of the RFCs,
- » if required, relevant experts in PCS, TIS and OBI at RNE and the person in charge of Train Performance Management at RNE

The coordination of this group is under the responsibility of an RFC Manager at RNE. It shall meet at least once a year.

5 Workflow for development of new commonly applicable KPIs

The workflow for the development of KPIs is displayed in Annex 2 of these Guidelines. The main elements are as follows:

- » technical analysis shall take place exclusively in the RNE WGs concerned and/or in the C-OSS Community in order to avoid duplication of efforts,
- » the relevant RNE WGs are responsible for the definition of the calculation of the requested KPIs, while the RNE Performance Management WG takes care of defining the reports needed for these KPIs and the monitoring of their correctness,
- » the RNE/RFC KPI Coordination Group does not carry out any technical work but acts as coordinator of the above-described process and as a strategic platform for the overall RFC KPI topic.

The main, commonly agreed principles for introducing new KPIs in these Guidelines are as follows:

The RNE/RFC KPI Coordination Group shall

- » define the benefit/added value of each proposed KPI,
- » investigate the technical feasibility by doing test calculations on volunteering RFCs,
- » identify potential bottlenecks (process and/or IT gaps),
- » investigate the possibilities if and how potential bottlenecks might be overcome,
- » investigate the need for human resources for data provision and reporting.

New KPIs can be added to these Guidelines if

- » the KPI will actually benefit international rail freight business,
- » the calculation is technically possible, and data are available and reliable,
- » the results of test calculations are satisfactory for all parties concerned,
- » human resources are available for regular data collection, calculation and reporting.

6 Provision of reports for other, RFC-specific KPIs

RNE will try to fulfil any other requests related to KPI reports. Normally, 'the first come – first served' principle is applied. However, due to the fact that the number of such requests cannot be envisaged, it might happen that conflicts occur between certain requests, preventing the delivery of the report at the time wished by the RFC concerned.

Therefore, the following prioritization will be applied in case of conflicts:

Criteria	Scores		
	0	1	2
New KPI (new report)	Yes	No	-
Priority for the RFC	Low	Medium	High
Complexity of development of report by RNE	Complex	Medium	Easy

Total score = New KPI (or not) + Priority + Complexity of development.

The request with the highest score will be fulfilled earlier. If more than one request has the same score, the request requiring a shorter processing time will get priority over requests with longer processing time.

Annex 1 – Table of deadlines

KPI	Deadline for the RFCs to provide the figures to RNE for publication on its website
Volume of offered capacity (PaP)	By the end of February
Volume of requested capacity (PaPs)	By the end of May
Number of requests (PaPs)	By the end of May
Number of conflicts (PaPs)	By the end of May
Volume of pre-booked capacity (PaPs)	By the end of May
Ratio of pre-booked capacity (PaPs)	By the end of May
Volume of offered capacity (RC)	By 15th December
Volume of requested capacity (RC)	By 15th December
Number of requests (RC)	By 15thDecember
Average planned speed of PaPs	By the end of February
Punctuality at origin	By the end of April in the following year
Punctuality at destination	By the end of April in the following year

KPI	Deadline for the RFCs to provide the figures to RNE for publication on its website
Number of trains crossing a border along the RFC	By the end of April in the following year
Train kilometres of trains crossing a border along the RFC	By the end of April in the following year
Dwell times in border sections	By the end of April in the following year
Number of trains per border	By the end of April in the following year
Train kilometres of trains per border	By the end of April in the following year
Ratio of the capacity allocated by the C-OSS and the total allocated capacity	By the end of April in the following year

Annex 2 – Workflow for development of commonly applicable KPIs

