



Guidelines for Freight Corridor Punctuality Monitoring

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Change history

VERSION	AUTHOR	DATE	CHANGES
FINAL	RNE OAS	09/05/2012	Approval by the GA
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Abbreviations and Glossary

IPM	Infrastructure Performance Manager
RFC	Rail Freight Corridor
CM	Rail Freight Corridor Manager
CPC	Corridor Performance Coordinator
MB	Management Board
PMO	Program Management Office
RNE	RailNetEurope
IM	Infrastructure Manager
RU	Railway Undertaking
AA	Authorised Applicants
EB	Executive Board
AG	Advisory Group
TIS	Train Information System (formerly Europtirails)
TPM	Train Performance Management
EPR	European Performance Regime
TAF/TAP TSI	Technical Specifications for Interoperability for Telematic Applications for Freight and Passenger
UIC	Union Internationale des Chemins de Fer
....	

1 Introduction

This document describes the basic processes needed to carry out a regular activity of quality monitoring and analysis within the framework of the Rail Freight Corridors (RFCs) established by the Freight Regulation (EU Reg. 913/2010). In particular, such processes are intended to fulfil the requirements stated in the following articles of the Regulation:

- » Art.9: Measures for implementing the freight corridor plan
 1. *The management board shall draw up an implementation plan (...) This plan shall include:
C) the objectives for the freight corridors, in particular in terms of performance of the freight corridor expressed as the quality of the service (...)*
- » Art.17: Traffic management in the event of disturbance
 1. *The management board shall adopt common targets for punctuality and/or guidelines for traffic management in the event of disturbance to train movements on the freight corridor.*
 2. (...)
- » Art.19: Quality of service on the freight corridor
 1. (...)
 2. *The management board shall monitor the performance of rail freight services on the freight corridor and publish the results of this monitoring once a year.*
 3. *The management board shall organise a satisfaction survey of the users of the freight corridor and shall publish the results of it once a year.*

The Member States' governments and the national Infrastructure Managers and Allocation Bodies are of course responsible for the implementation of the Regulation as a European legislative instrument. Nevertheless, as RailNetEurope (afterwards RNE) has been active for years in many of the fields covered by the Regulation and in the tasks that the Regulation assigns to stakeholders, RNE has offered to act as a 'service provider of choice'. The provision of the present Guidelines is one of the services that RNE is offering to the Corridor Organisations and their member Infrastructure Managers (IMs).

The main approach of the present document can be described according to the following principles:

- » The document shall mainly describe processes and connected issues (information needed, expected outputs, actors, pre-requisites, tools). The explicit requirement of the Regulation is that the Corridor Organisations adopt common rules for punctuality targets and objectives in terms of performance. This document aims to provide support to the Corridor Organisations with the development of such targets. A possible way could be the following approach:
 1. Collection and compilation of data to identify a development
 2. Evaluation of the data, with regard to the past and in terms of a forecast for the future e.g. with the aspects
 - Development of the traffic
 - Framework conditions (how have the conditions changed, how will they change in the future; e.g. construction work, changes to the infrastructure?)
 3. Identification of the customer's viewpoint concerning punctuality targets
 4. Consideration of political requirements (international or national)

The process described in the Guidelines focuses on the collection and analysis of reliable data; this information basis is essential in order to develop punctuality targets.

- » In order to optimise the processes in each Corridor, some flexibility is left to decisions to be taken by the Corridor Organisations
- » The experiences made in the last years and the existing tools are the basis for all processes described in this document. In particular, the Train Performance Management (TPM) project carried out at RNE in the last years has been taken into account. The Guidelines drafted within the framework of such a project have been revised in the light of the Freight Regulation requirements and of the pilot test carried out during the project itself.
- » As it is clear from the above-mentioned articles of the Regulation, EU law requires the Corridor Organisations to put in place the process phases related to the monitoring and analysis of the quality of the traffic. It does not, however, prescribe the planning and implementation of corrective actions for quality improvement. Nevertheless, although these phases of the quality improvement process are not mandatory, RNE and the Working Group that drafted the present Guidelines have decided to include such phases in the Guidelines itself, and to leave it up to the Corridor Organisations to choose to implement them or not. The reason for this decision is that the action planning and implementation phases are part of an overall process and are logically connected with the other phases; basically they complete the process itself and therefore it would not have been reasonable to ignore them in the drafting of the process.

An additional requirement in the Regulation is set in Article 19.1: *'The management board of the freight corridor shall promote compatibility between the performance schemes along the freight corridor, as referred to in Article 11 of Directive 2001/14/EC.'*

This is an important issue and must be taken into account while implementing the activities described in the processes for quality monitoring. Nevertheless, the common opinion is that the most effective way to fulfil such requirements will have to be found in the expected outcomes of another international project which is being carried out jointly by UIC (Union Internationale des Chemins de Fer) and RNE, the so-called 'European Performance Regime', and which is still in the development phase. The present status and achievements of this project have been taken into consideration while drafting the Guidelines but will be not described in detail.

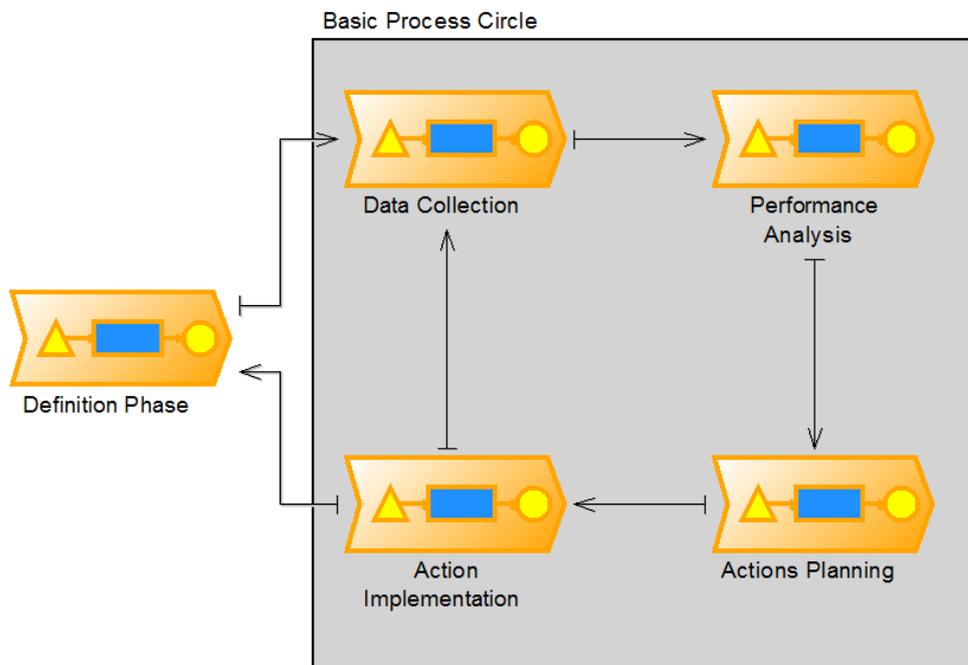
The monitoring should clearly focus on international traffic. To which extent national traffic can be included shall be clarified during the definition phase.

2 Process overview and actors involved

2.1 Process overview

The general shape of the process presented in the TPM Guidelines has not been changed. The process is composed of 5 main phases, which will be described separately in the following sections:

- » Definition phase (Section 3)
- » Data collection phase (Section 4)
- » Performance analysis phase (Section 5)
- » Action planning phase (Section 6)
- » Implementation phase (section 6)



Picture 1 – Overall process map

2.2 Actors involved

This paragraph describes the main actors that, according to the process set up in the Guidelines, are responsible for carrying out the connected tasks. However, they have to be considered not so much as specific persons or bodies but as ‘functions’. Therefore, the Corridor Organisations are of course free to attribute the described functions to the person(s) and/or body they deem appropriate. In addition, the names that have been given to such actors are only valid for the purposes of this document – the Corridor Organisations are free to choose the names they deem suitable as well.

» Corridor Performance Coordinator (CPC)

It is the main actor in the reporting of the punctuality targets. The CPC steers the following tasks:

- Monitoring
- Reporting
- Analysing
- Identifying of operational bottlenecks
- Action planning
- Tasks attributed to the Performance Management Office and/or to the Corridor Manager if necessary (see below)

» IM Performance Managers (IPM)

They support the CPC in:

- Data collection phase
- Performance analysis phase
- Action planning phase
- In the preparation of the periodical reports

» Programme Management Office (PMO) and/or Corridor Manager (CM)

If envisaged by the Corridor Governance, PMO / Corridor Manager supervises the preparation of the reports. The Corridor Manager / PMO gives guidelines, defines objectives, prepares proposals for the definition of samples of trains to be monitored (based on operational and marketing criteria).

» FC Management Board

- Receives and take notice of the reports
- Steers and decides processes and roles described in these guidelines
- Fixes / decides the punctuality targets
- Approves the action planning proposed by CM/PMO and / or CPC.

2.3 Involvement of Executive Boards and Advisory Groups

2.3.1 Executive Board (EB)

It shall supervise the activities and measures regarding the corridor’s punctuality targets.

2.3.2 Advisory Groups (AG)

They are involved in the whole process.

If needed, they can be asked to assist the Performance Coordinator with analyses, identification of bottlenecks and action planning.

They receive the overall corridor performance report

They are actively involved in solving specific problems along the corridor.

3 Definition Phase

This section describes the process phase whose preliminary aim is to set the principles that will be the basis for the following phases.

In particular, in this section, the following topics will be dealt with:

- » Indicators to be monitored
- » Sample to be taken into account (list of trains)
- » Geographical principles of the monitoring.

These Guidelines set a minimum level for each of the listed topics. Some items are left to the decision of the Corridor Organisations: the process to be followed when making decisions about these items is also described here.

3.1 Definition phase process description

The definition phase process mainly involves the Rail Freight Corridor Manager (CM) and the Corridor Performance Coordinator (CPC) on one side, and the Management Board (MB) on the other. The first two should define the above-mentioned rules and items and draft a proposal for the MB, who will take the final decision. The other stakeholders will play a supporting role.

The definition phase shall be carried out on a single occasion, a kick-off meeting where the CM, supported by the CPC, shall present a proposal for each item. The proposal will be shared and discussed with all stakeholders (especially IM Performance Managers – IPM – but also Advisory Groups (AG) representatives, if so decided by the MB). The outcomes of the meeting will be fine-tuned by the CM and distributed to the interested partners. The deliverables of this phase could be either several documents or a single document (e.g. Corridor Guidelines – see also Annex 7.1) with Annexes (e.g. train list, report templates, etc...). If so decided by the Corridor Bodies, specific Working Groups (WGs) within the Corridor Organisations shall also be involved. Table 2 describes the responsibility matrix.

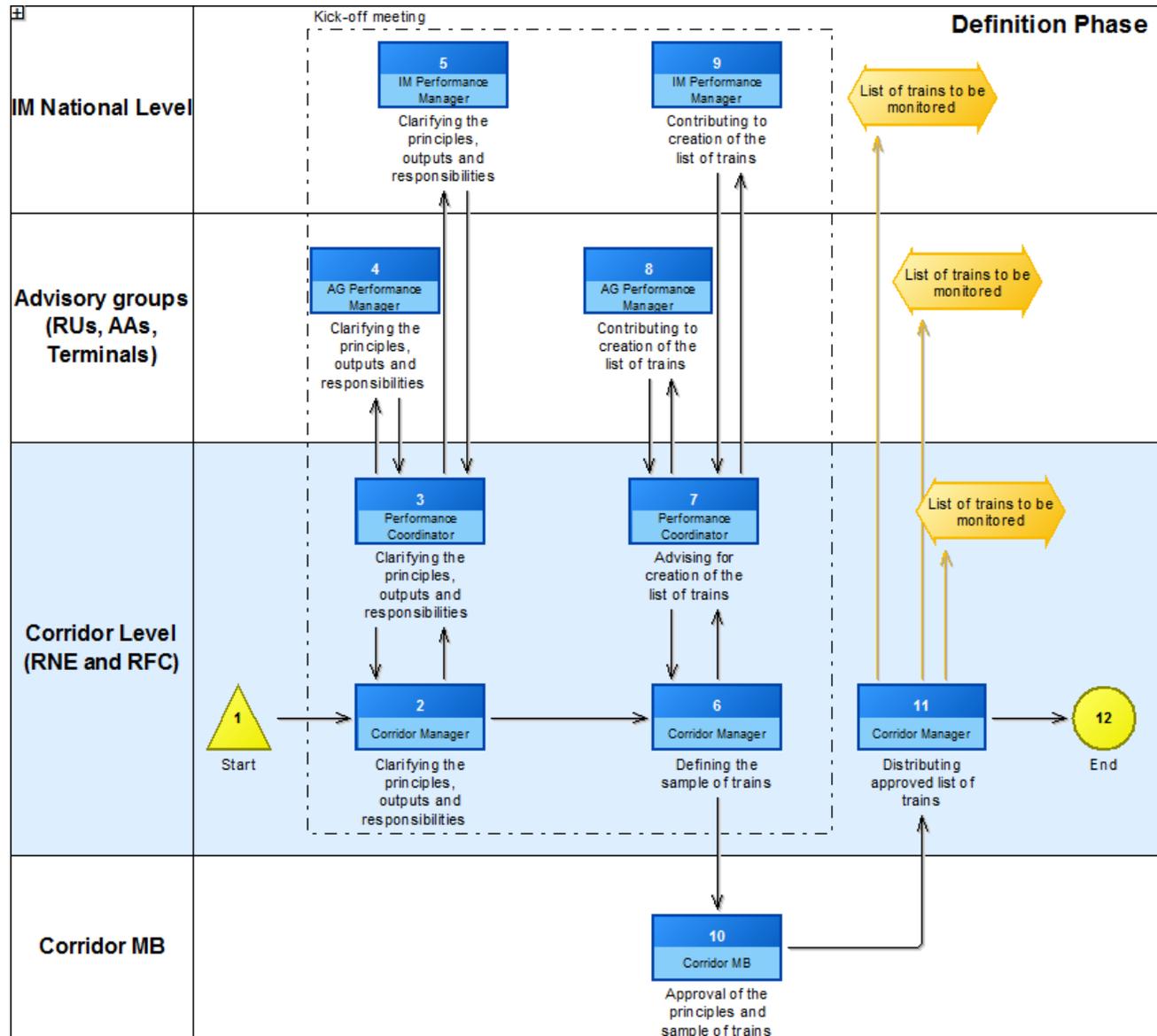
	MB	CM/CPC	WGs /IPM	AG
Identification of participants of the kick-off meeting	A	P		
Definition of the deliverables of the kick-off meeting	A	P	S	S
Clarify principles, outputs and responsibilities of the whole process		T	S	S
Fine-tuning and production of deliverables	A	T	S	S
Deliverables distribution	R	T	R	R

Table 1 Responsibility matrix

Legenda

- » Takes care: T
- » Supports: S
- » Informs: I
- » Approves: A
- » Receives: R
- » Proposes: P

The process described above is graphically illustrated in Picture 2.



Picture 2 – Definition phase map

3.2 Items to be decided by the Corridor Organisations during the definition phase

- » List of indicators
 - Thresholds for punctuality measurement (clearly defined by MB)
- » Trains sample
 - Trains list
 - Update time of the train sample
 - Definition of 'main part' of the Corridor
 - Definition of the important railway connections
- » Geographical principles
 - Measuring points for punctuality
 - O-D categories for measuring average speed
 - Measuring points for number of train, tr*km calculation
- » Punctuality targets
- » Required minimum level for data completeness (see also Section 4),
- » Content of the reports, including, among others (see also Section 5):
 - Detail degree for delay causes
 - Views to be taken into account
 - Recipients
- » Involvement of other stakeholders also in the analysis phase (see also Section 5)

For a complete list of items, please refer to the individual sections.

The decision taken during the definition phase should be illustrated in a document, a sort of 'Corridor Punctuality Monitoring Guidelines'. A template is annexed (Annex 7.1) to this document as a possible example.

3.3 Which indicators should be monitored?

The list of indicators to be monitored shall be drafted by the Corridor Organisations. The principles on which to base their selection are the following:

- » Only indicators related to the operational field should be used
- » The object of the measure should be described in details
- » The measurement definition should be based on historical data
- » Consistency among corridors should be pursued wherever possible.

Below, possible indicators to be monitored are listed in order of priority. The list is not exhaustive, but the first group of indicators (A-Crucial) must be considered as a minimum package to be monitored:

- » A – Crucial:
 - Number of trains
 - Punctuality (must be defined by the MB)
 - Delays: average, minutes
 - Delay causes
 - Data completeness
- » B – Important and easy to have, but adjustments in TIS (Train Information System)¹ necessary
 - Train-km (run)

¹ See paragraph 4.1 for more information about TIS.

- Average speed of freight trains (actual - compared to a target)
- » C – important but hard to get: cancellations

Some of the listed indicators should be monitored in relation to a specific sample of trains (see next paragraph) while others should be measured in relation to the whole traffic along the Corridor. For details, see Table 1.

N°	Indicator	Measurement	Details
1	Number of trains	All international trains on corridor (both freight and passenger)	Figure to describe the situation on corridor
2	Train-km	All international trains on corridor (both freight and passenger)	Figure to describe the situation on corridor
3	Punctuality	Sample of trains	Figure used for analysis
4	Average speed	Sample of trains	Figure used for analysis
5	Delays	Sample of trains	Figure used for analysis
6	Delay causes	Sample of trains	Figure used for analysis
7	Cancellations	Sample of trains	Figure used for analysis
8	Data completeness	Sample of trains	Figure used for analysis

Table 2 – Sample/indicator relation

3.4 Specific system requirements for reports generation

This section describes specific requirements related to some of the indicators, which have to be implemented in TIS.

» Indicator: Number of trains

The counting should be done at defined points within a given timeframe. Corridor Organisations will define the timeframe for measurement and will also define the measuring points based on the sections in which major changes in the number of trains can be expected (e.g. main hubs).

A new function has to be introduced in TIS to calculate the number of trains within a defined timeframe. Trains to be counted should all be international trains, starting and/or ending in a Corridor, entering and/or leaving the Corridor and also trains transferring between Corridors. As national trains are not included in TIS, they will not be included in this indicator.

» Indicator: Train-km

This indicator will be used to monitor traffic flow trends along the Corridor. The indicator should include all international trains and, as a first step, the total train-kilometres (from origin to final destination) of trains on the Corridor should be counted. If the Corridor is defined precisely enough, it will be possible to measure only the train-kilometres run on the Corridor. To enable this measurement, the distances between points will have to be introduced in TIS.

» Indicator: Average speed of freight trains

The goal of this indicator is the comparison between the target journey time and the actual journey time. As a first step, the measurement of average speeds should be done only between the origin/entry to the Corridor and final destination/exit off the Corridor. Several origin/entry to the Corridor – final destination/exit off the Corridor relations could be defined at the same time. As a second step, the measurement could also be done in the various subsections, as defined by Corridor Organisations.

Average speed will be calculated on the basis of the formula: total journey time divided by run distance. The following information will be needed to enable the calculation:

» 1st step:

- Actual time of departure from starting point on Corridor and arrival at ending point on Corridor
- distance between starting and ending points on Corridor

» 2nd step:

- Sections defined by 2 points – actual time information from/to these points and distance between them.

» Indicator: Punctuality reports

Each Corridor Organisation should define threshold values for monitoring punctuality. Several thresholds can be defined as well.

Trains that are running early shall be generally considered as trains on time. However, each Corridor Organisation can consider the creation of separate reports about trains running early.

For the calculation of the average delay, all the negative values (e.g. trains running early) should be considered as zero, so they will not have any impact on the average delay value. Punctuality should be measured according to the actual performance within the Corridor, therefore lateness should be considered only if there is a positive delta between punctuality at entry in the Corridor and exit in the Corridor, to neutralise the effects of unpunctuality outside the Corridor.

3.5 Which sample should be monitored?

For several reasons, it is neither possible nor advisable to monitor all the trains running along a Corridor with regard to specific indicators (see previous paragraph). Therefore, a selection must be made. The selection of the trains sample has to be made during the definition phase.

A list of principles on which the Corridor Organisations shall base their selection can be found below. The train sample shall be periodically updated. The timeframe for the update shall be decided by the Corridor Organisations during the definition phase as well (at least yearly).

A first selection concerns all the indicators and consists of taking into account only international traffic (thus excluding national traffic). The emphasis should lay on international freight traffic and this sample should be included in all the reporting, analysis, action planning and implementation.

The influence of all other traffic types can be analysed according to the following conditions:

- » Depending on the decision of the Corridor MB
- » Depending on the Corridor (if Corridor is also concerned by passenger traffic flows)
- » Depending on available resources
- » Depending on data availability

As far as the definition of ‘international traffic’ is concerned, the following principles must be taken into account:

- » Only trains which are available in the information tool (TIS)
- » Crossing at least one border within the Corridor
- » Passing at least 2 of the defined important points on the Corridor, whose identification is left to the Corridor Organisation’s decision.

Some indicators (from n°3 on in Table above), shall be measured according to a smaller sample. The principles for the selection of this sample are listed below:

- » Focus on paths planned in the annual timetable
- » Regularly operated trains, when possible
- » International freight trains, i.e.:
 - Compliance with the definition of international traffic
 - Trains that cross at least one border within the Corridor
 - A ‘main part’ of the train run should be in a Corridor (the definition of ‘main part’ is to be decided by the single Corridor Organisations – it could be a percentage or a minimum km or according to the number of important stations)
 - Trains can arrive from outside the Corridor and/or run outside the Corridor
 - If a train fulfils the above requirements for more than one Corridor, such a train should be considered in the relevant sections of each Corridor
- » Analysis *per* important relations or traffic flows – important relations to be identified by the Corridor Organisations
- » The sample should reflect the distribution of the types of product and the market share of Railway Undertakings (RUs).

3.6 Where can monitoring take place?

The indicators listed before can be measured in different ways, from a geographical point of view.

The following list describes the suggested principles for the geographical monitoring of the chosen indicators:

- » Punctuality/average delays: at least the EPR criteria as a basis for all, i.e.:
 - origin (or entrance, if not available)
 - destination (or exit if not available)
 - hand-over points – both IMs and RUs
 - additional points as defined case by case
- » Delay causes: all available (or registered) delay causes for the train sample that is monitored. A certain comparability of the number of registered cases (delay codes) between the different IMs has to be ensured
- » Average speed of freight trains: define O-D categories and measure there as a first step; second step would be to divide the O-D relations in sections and perform the calculation there;
- » Number of trains, train*km (run): on defined points – Corridor Organisations will define such points, selecting the sections according to the expected major changes in the number of trains (example: main hubs)
- » Cancellations, data completeness: the geographical point of view is not relevant for such an indicator.

4 Data Collection

This section describes the basic principles for the collection and processing of data needed to monitor the defined indicators (as listed by Corridor Organisations in Section 3.3) and analyse trends on the corridors.

The main parts of this section are:

- » Data collection process
- » Source of data
- » Data to be collected
- » Data quality and completeness.

The present Guidelines set a minimum level for each of the listed topics. Some items are left to the decision of the Corridor Organisations.

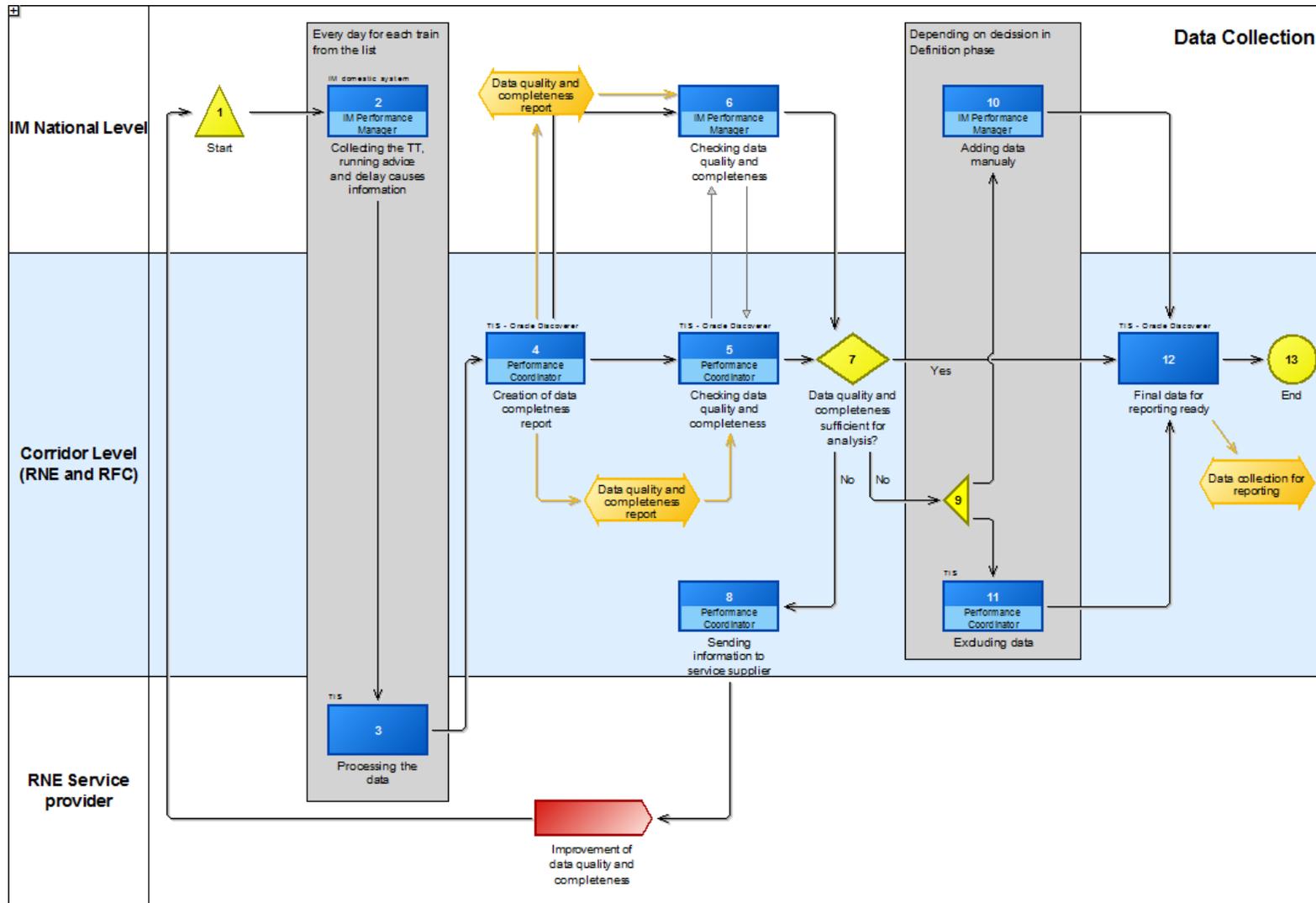
4.1 Data collection process

The data collection process starts at the IM national level, where all train runs are monitored and recorded in the IM's domestic system in real time. All the information needed for international trains, especially trains from the list of trains to be monitored at the corridor level, is sent to TIS – either through UIC messages or TAF/TAP TSI messages – on a regular basis.

TIS processes all the received messages and merges them to create a consolidated single train information report, and stores the information in the TIS database. The Performance Coordinator generates a data completeness report, in order to check data quality and reliability, on a regular basis. The generated data completeness report is distributed to national Performance Managers, so that they can check the data for their section.

If the data are deemed sufficient for the reporting (in line with the criteria agreed during the definition phase), no changes need to be made and the data are ready to be used for report generation.

In case the data completeness report identifies some insufficiencies, either related to the completeness or reliability of the data, the information is sent to RNE (as a service provider of TIS) to initiate the internal RNE process for the improvement of data quality and completeness. As this improvement takes some time, the adaptation of the data set has to be made to enable a reliable report generation. Based on the Corridor Organisation decision during the definition phase, incomplete or unreliable data are either completely excluded from the database, or each Performance Manager has to ensure the manual correction or addition of the missing data into the TIS database.



Picture 3 – Data collection map

4.2 Source of data

In order to ensure the most efficient data collection process and avoid any manual work related to data collection, it is a pre-requisite for the RNE Train Information System (TIS) to be fully implemented in each IM involved on the Corridor.

As all the information collected in TIS comes from the IMs' domestic systems, it must be ensured that national information is sufficiently reliable.

All information could then be extracted from TIS and reports could be generated by using an interface tool that, using the TIS database, allows the generation of simple and user-friendly graphs and tables².

4.3 Data to be collected

To provide all the information needed for reports, IMs have to send specific UIC messages and/or TAF/TAP TSI³ messages. In order to fulfill all the above-mentioned criteria and enable the measurement of all given indicators, the current version of TIS requires some adaptations. Details are described in Table 3 below.

ITEM	UIC messages (current situation)	TAF/TAP messages (further improvement)	TSI TIS	Adaptations needed in the current TIS version
Contracted timetable	Message 2090			
Running advice	Message 2002	Train running information message		
Additional delay with reason	Message 2005	Delay cause message		
Failure of a train	Message 2003	Path cancelled message (cancellation is done by the RU)		These messages must be implemented and always sent To enable partial cancellation, a field specifying the cancelled section has to be introduced
		Path not available message (if the IM had to cancel the booked path)		
Path detail message		Path detail message		
Geographical description				To measure the average speed of the train and the train kilometres, TIS must be able to measure the distance between different monitoring points So in addition to the current identification of the point in TIS thanks to geographical coordinates (latitude and longitude), precise line definitions including the distances have to be made To be able to clearly identify a Corridor train, the Corridor line definition has to be introduced in TIS. For each of the points and each line, it has to be specified whether it is a part of a certain corridor or not

Table 3 – data to be collected scheme

² For example, Oracle Discoverer.

³ Technical Specifications for Interoperability (TSI) for Telematic applications for Freight (TAF) and passenger (TAP) services (http://www.rne.eu/index.php/taf-tap_tsi_it.html).

4.4 Data quality and completeness

During the definition phase, the Corridor Organisation has to agree which level of data quality and data completeness will be sufficient to carry out the analysis. This is especially important in the case of punctuality and delay causes reports.

Therefore, before producing performance reports, the completeness of the data as well as their reliability have to be checked and reported on by the Corridor Performance Coordinator (see process). Automatic checks in TIS should support this task. Automatic data checks are needed and this is a matter for the Technical Board of TIS.

Monitoring of data completeness should include at least the following measurements:

- » amount of available Contracted Timetable at monitoring points
- » amount of available Train Running Advice at monitoring points.

When checking the reliability of the data, special attention should be paid to the following cases:

- » timetables not aligned at borders
- » any inconsistencies in the train running information
- » changes of train numbers and of timetables (especially for parts of the train run).

Other items to be considered are, for example, undocumented delays.

In case a sufficient level of data completeness or reliability has not been reached, basic rules on how to treat this data have to be defined by Corridor Organisations during the definition phase. In particular, they have to decide whether to use the data anyway (and how) or to wait until the sufficient level of data quality has been reached. In addition, measures to improve data quality must be taken, with the support of the TIS TCB.

In any case, it is advisable to include the information about data reliability and completeness in every performance report. Before the performance monitoring process can be fully implemented on the Corridor, a testing period including quality checks should be organised in order to decide what to do with incomplete and/or unreliable data.

5 Performance Analysis

This section describes the investigation of rail freight transport performance on the Corridor through the processing and analysis of the data provided during the data collection phase.

The illustration of this process includes:

- » Process description: actions to be carried out during each phase of the process and related responsible actors (Section 5.1)
- » Deliverable of the performance analysis process: description of document to be produced, its content and related recipients (Section 5.2).

5.1 Process actors and phases

The analysis shall consist of two different steps:

- » As a first step, the data coming from the data collection phase should be processed so as to have understandable, usable information. This step shall be performed mostly at Corridor level (situation as-is);
- » As a second step, the report provided by the first step shall be used for an in-depth analysis comparing the state of the performance with the pre-defined targets (situation as-should-be) and, in case of non-compliance with the targets, to find out the reasons for bad performance. In this step, all stakeholders should be involved, at least in a role of information/advice provider.

The main actor in all phases is the Rail Freight Corridor Performance Coordinator (CPC). He/she is always assisted at national level by each IM Performance Manager (IPM) and if one exists, by the Rail Freight Corridor Manager (CM), as described in Section 2.

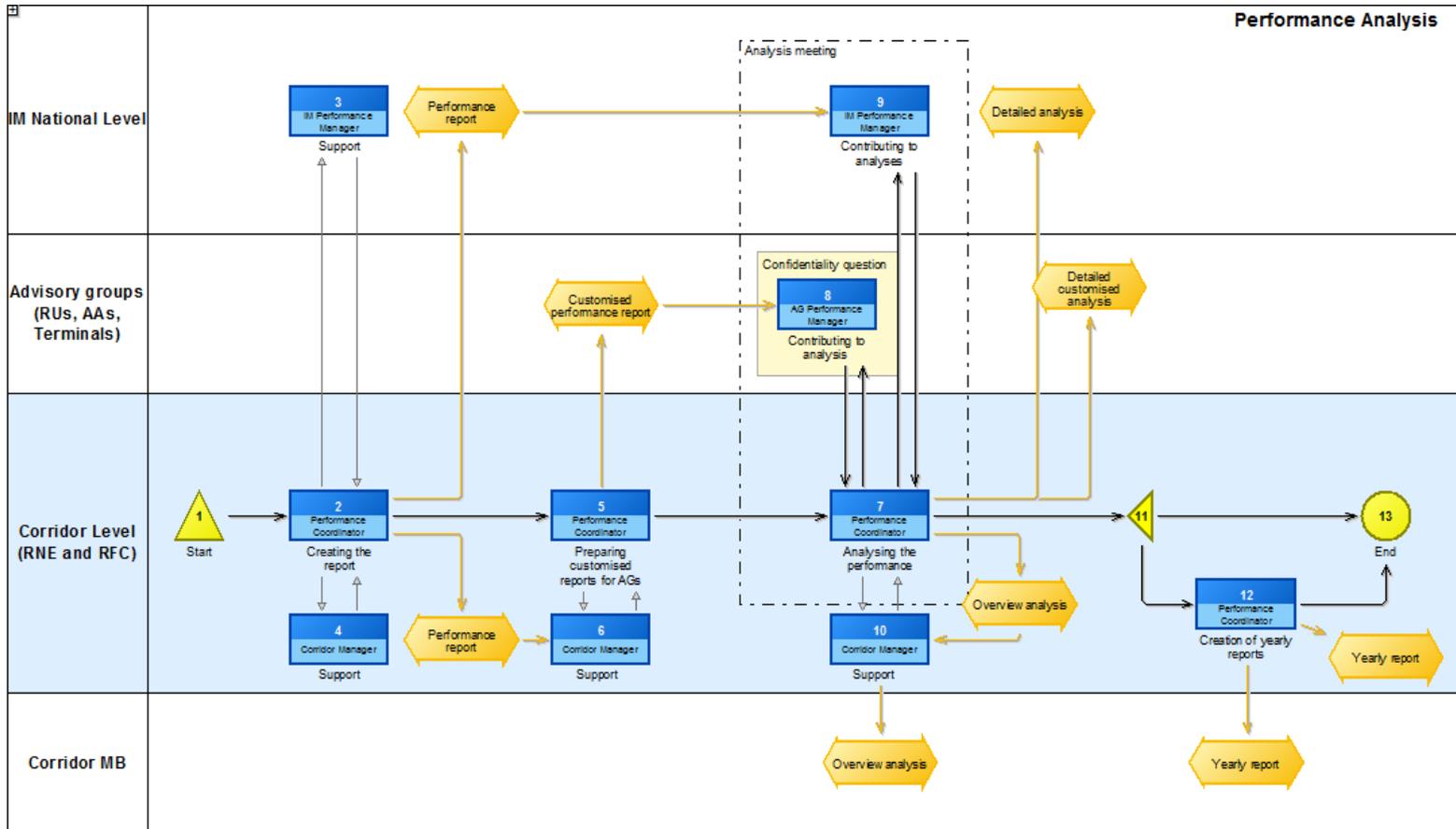
Using the data provided by the data collection phase, the Performance Coordinator drafts the report according to the decisions taken during the definition phase. The Performance Coordinator shares the report with the Infrastructure Performance Managers who assist him/her.

These documents are then used as working papers for the 'Analysis Meeting' to be held on a regular basis (periodicity to be decided according to Rail Freight Corridor needs). All stakeholders will participate in this meeting, including the Advisory Groups representatives, if so decided during the definition phase. If this is the case, the confidentiality profiles will be taken into account, for example organising separate workshops or signing confidentiality agreements.

The tasks of the Analysis Meeting will be:

- » To evaluate the actual performance on the Corridor
- » To make proposals for performance improvement and to report to the MB
- » To establish bilateral / multilateral working groups, to deal with specific problems connected with in certain areas / partners.

The process described above will take place on a regular basis and will be repeated for the provision of the annual report. However, if so decided during the definition phase, the latter steps could be simplified by entrusting to the CPC the task to draft the annual report by collating, for example, the monthly reports.



Picture 3 – Performance analysis map

5.2 Content of the report

The deliverables of the analysis shall consist of regular reporting about performance quality on the corridor. On the one hand, it will have to provide information for high-level bodies responsible for strategic decision-making; on the other hand, it will be used by operational bodies to investigate the causes of bad performance and as a basis for the definition of corrective actions. This might imply the production of different documents. The timeline for the provision of these documents depends on the type of documents and on the recipients. The reports for the operational bodies will have to be created more frequently and be more detailed than those for the high-level bodies. A general report for high-level bodies must be published at least once a year. This can be the collating/summary of the more frequent operational reports as well. The specific recipients shall be decided by the Corridor Bodies and shall include:

- » Management Board (MB)
- » Executive Board if so decided by the MB (EB)
- » Rail Freight Corridor Managers/ Performance Coordinators (CM/PC)
- » Specific working groups if any (WGs)
- » Other stakeholders, e.g Advisory Groups of RUs and Terminals, if so decided by the MB.

Confidentiality rules have to be agreed upon and taken into account when delivering the reports.

The basic content and the structure of the reporting are defined as follows.

- » Description of the corridor:
 - Railway connections on the corridor (from origin or entrance to destination or exit) involved and their length (in kilometre)
 - Number of international train runs in each connection and total (applying a segmentation)⁴ and tr*km (specifying respective shares of freight and passenger traffic)
 - RUs involved
- » Sample monitored:
 - Number of monitored trains (sample)
 - Number of cancelled trains (also partially cancelled), where available among the monitored trains
- » Performance (per rail connection, direction and totals)
 - Punctuality (at origin or entry and at destination or exit)
 - Delay
 - Delay causes (only totals)

The content listed above is the basic information to be provided to the high-level bodies. For operational purposes, more details can be included, for example:

- Punctuality at border or hand-over points
- Average delay at origin (or entry) destination (or exit) and border (or hand-over) points
- Delay causes by IMs and RUs.

The indicators to be used are defined in Section 3. In particular, as far as the delay causes are concerned, the different Corridor Organisations shall decide which kind of information has to be displayed (see Definition Phase), for example, among others:

- » All micro causes (delay code level)
- » All macro causes (IM, RU, SECONDARY DELAYS etc)
- » Only 'top' causes.

An example of reporting related to an already ongoing activity is annexed to these Guidelines (Annex 7.2).

⁴ The number of train runs of all trains (including national, regional) is not considered (except for international passenger trains as decided in the definition phase) because it is not available in TIS and it is more relevant for the market study.

5.3 Role of the Advisory Groups

A critical issue in the organisation of the analysis of rail transport performance by the IMs, especially at international (Corridor) level, is the involvement of customers and other stakeholders in the process.

On the one hand, their participation is very important, especially as far as the provision of information is concerned. It is therefore advisable to include them in the analysis phase of the process, in order to collect complete information on the reasons for bad performance and also to prepare them to implement (or to cooperate with the implementation of) the corrective actions afterwards decided if necessary.

On the other hand, when exchanging 'sensitive' data, there is always a risk of infringing the principles or the rules governing confidential data protection.

Therefore, during the definition phase the responsible bodies (mainly the MBs) ought to decide the degree and mode of involvement of the Advisory Groups (and, if applicable, of other stakeholders) in terms of:

- » Type of information they shall receive
- » Ways of gathering information from them
- » Their mode of involvement in the analysis meeting.

6 Action Plan and Implementation

Although Regulation 913/2010 does not explicitly require the RFC Organisations to implement any concrete procedures that help to improve the Corridors' performance, RNE considers that it is its task to come up with a proposal for this key part of the overall performance improvement procedure as well.

Any effort in the definition or analysis phase would be in vain if no appropriate activities were initiated – both nationally by the RFC's IMs and at a Corridor level as a result of the analysis carried out before.

Hence the final part of the process chain has been divided into two parts: the Action Planning phase, during which efficient measures shall be decided upon and listed in an RFC Action Plan; and the Action Implementation phase, which ensures the follow-up of the defined actions.

6.1 Action Planning Process

The further planning of any *analysis phase-based actions* depends on the kind and location of the weaknesses/problems identified in the previous phases.

Actions related to disturbances that can be attributed to the Terminals/RUs or their end-customers' sphere shall be planned at the level of the relevant Advisory Group (AG).

To be able to execute this task the AGs will have to create a position of Performance Manager as well. This is needed in order to provide an adequate contact (person) for the CPC at Corridor level. All planned actions become part of the Advisory Group Action Plan.

In parallel, actions which arise for strictly domestic reasons (related to the RFC's member IMs) should be collected in a National IM Action Plan.

Both the Advisory Group Action Plan and the National IM Action Plan will then be delivered to the CM.

It goes without saying that an in-depth performance analysis requires the involvement of all relevant positions, such as timetablers, sales managers or infrastructure planners.

In the next step, the CM will collate and consolidate the received input, and add all actions that have to be set up independently from the actions planned so far. Such measures could be related to process/procedure-related insufficiencies such as lack of cross-border communication or malfunctioning harmonisation of national timetables.

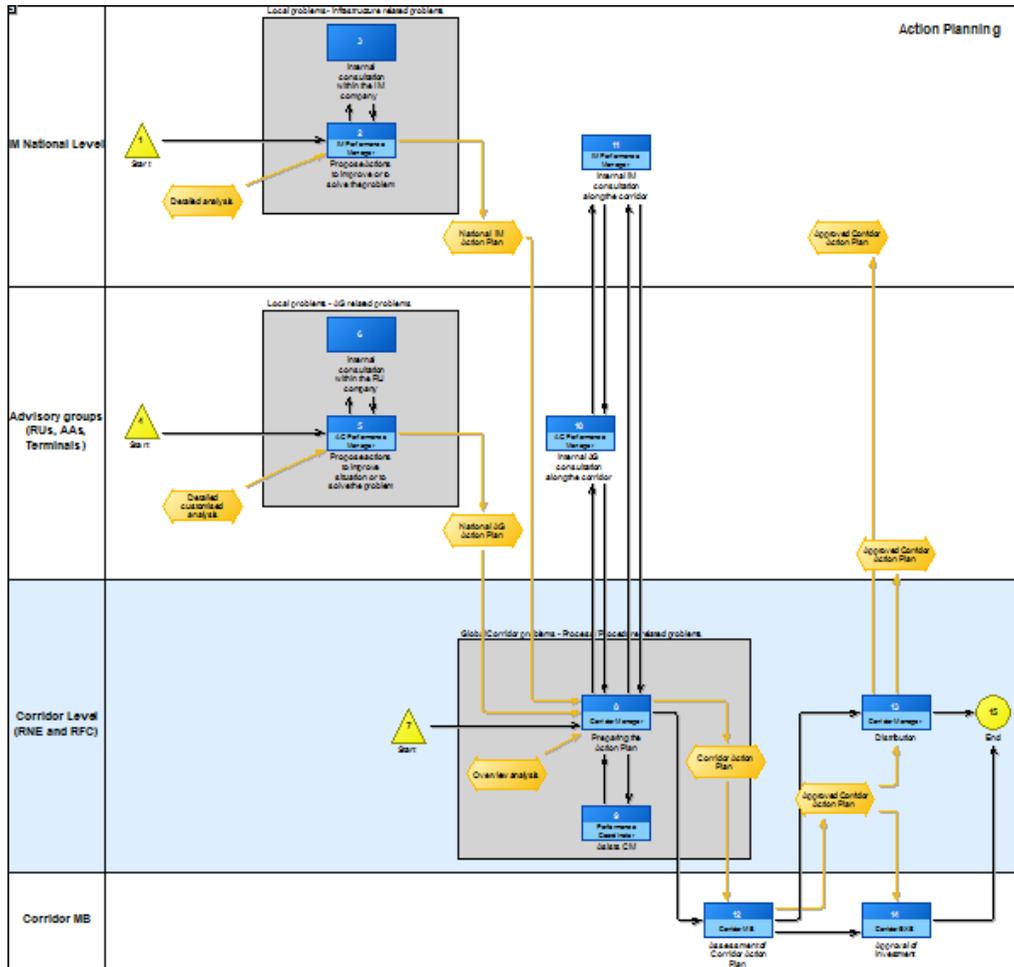
As a result the CM will produce a Draft Corridor Action Plan that shall include all the measures considered appropriate to solve corridor-related problems with a negative impact on the trains' performance (including the national actions carried out exclusively within the IM organisations).

The preparation of this document requires an intensive involvement of the CPC(s).

Depending on the confidentiality agreement concluded at an earlier stage, it can happen that the Draft Corridor Action Plan may *not* be shared with all Advisory Group Members.

In the following step, the CM shall submit the Draft Corridor Action Plan to the approval of the MB. After its approval, the document loses its draft status and shall be forwarded to the RFCs' Executive Boards. The CM should use the Corridor Action Plan as the basis for the future RFC Investment Plan as well to support target-oriented (regarding performance improvement) investment.

In the last step within the Action Planning phase, the CM distributes the approved Corridor Action Plan to the RFC Advisory Group(s) and to the Corridors' Member IMs.



Picture 4 – Action planning map

6.2 Implementation Process

The Corridor Action Plan and the national Action Plans will lay the basis for the measures that will be implemented to improve overall corridor performance in terms of corridor punctuality.

After delivering the approved Corridor Action Plan to all the RFC stakeholders, the MB will have to make sure that measures planned in the RFC Action Plan are implemented.

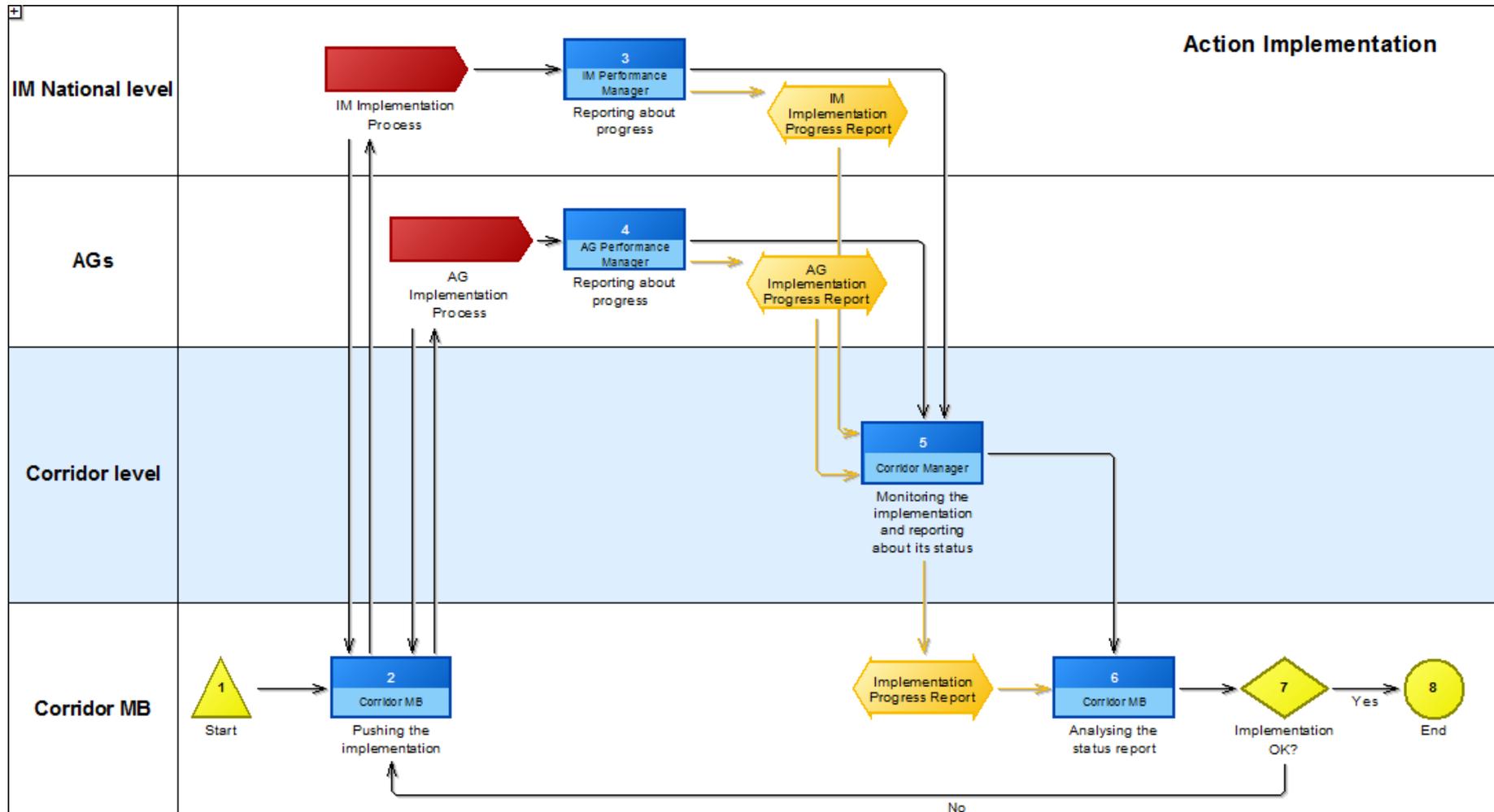
To ensure this, both the AGs as well as the RFC Member IMs will have to set up efficient internal Implementation Processes; these must ensure a sustainable follow-up to the proposed Action Plan implementation.

The description of these processes is not within the scope of this paper.

Based on regular progress reports submitted by the AGs and IPM, the CM is in charge of monitoring the implementation of the Corridor Action Plan's content.

Regular status reports will be provided to the MB, who shall analyse them.

If the deadlines for action implementation (which have to be defined in the Corridor Action Plan) are not fulfilled, the process will start from the beginning again and the MB will escalate the matter towards the related AG(s) and Member IMs.



Picture 5 – Implementation map

7 Annexes

7.1 Examples of report based on best practice

The following illustration shows an example of an already ongoing activity concerning punctuality monitoring and action planning. It concerns the task of 'Train Performance Manager' carried on within the framework of RNE Corridors 2 and 5.⁵

The scale of the monitoring is rather small in comparison to the possible size of a monitored sample in one of the future Rail Freight Corridors and, in particular, the timescale is different. However, the level of reliability of the data and the efficiency of the process make it a valuable example of best practice, especially if considered as a model for carrying out the analysis at an operational level (see Section 5) and as an indispensable basis for quality improvement (Section 6). As far as the overall performance in one corridor on the basis of a wider sample is concerned, it cannot be used as a repeatable example but in any case, it provides a good indication for a possible approach.

7.1.1 Punctuality monitoring and improvement in RNE Corridors 2 and 5

» Definition of traffic flow:

Based on operational experience in both corridors it was decided to follow a flow of traffic rather than the whole corridor. There are separate reports based on different traffic types (passenger /freight) and on the rail connection (origin/departure). A single report for the whole corridor and all traffic types would not make sense, as the conditions are not comparable.

» Organisation

There is a dual approach to the corridor organisation:

- There are TPM meetings where strategies are decided; these can be used to escalate the problems that cannot be addressed in bilateral groups
- The regular bilateral meetings are of an operational nature; there, problems are discussed in detail with the concerned partners.

RUs are involved in the TPM meetings only when needed but are always in the bilateral meetings.

» Actors

- Corridor Manager
Overall responsibility and coordination functions.

- Infrastructure Performance Manager
Responsible for reporting on one or more of the relations, he/she is appointed in the country that has the most affinity with the traffic.

» Thresholds used for the punctuality measures

The international standards are used if they make sense (30 min. for freight/15 min. for passenger), if not they are changed (5 min. on Corridors 2/5 for passenger traffic on 80%). This decision is taken in the strategic corridor group with the RU. Standards should be changed if this is needed for a specific traffic flow.

» Reporting

⁵ For more details see: http://www.rne.eu/index.php/corridor-info/items/Corridor_2.html and http://www.rne.eu/index.php/corridor-info/items/Corridor_5.html

The reports produced by Oracle Discover give an indication of where problems occur, but there is still a need to look into the national system to do a more in-depth analysis. On Corridor 2, SBB is the service provider for the raw reporting out of Oracle, the Infrastructure Performance Manager can then use this to do the detailed analysis.

» Sample

At the moment on Corridor 2, 5 passenger rail connections and 3 freight connections are being monitored. This process is also used for 3 connections outside the Corridor, but at bilateral level. On Corridor 5, 3 freight and 4 passenger connections are being monitored.

» Criteria to select trains

- Demand of the RU
- Availability of data
- Importance of the traffic
- Minimum amount of runs per week and comparability.

» Problems encountered on the longer train runs (freight)

- Cancellations/partial cancellations
- Load shifting
- Timetable inconsistencies at the border
- Rerouting
- Change of train numbers.

These all have an impact on data quality. There is confidence that with the future TAF/TSI messages and the Train Transport Identification (TTID) most of these problems will be solved.

Next page: example of template for Reporting

7.2 Template for Corridor Guidelines

The annex provides a template/format for the drafting of Corridor Guidelines.



Templates for the Corridor Punctuality Monitoring Guidelines

Delivered by	Punctuality Targets Project group
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Abbreviations and Glossary

1. Introduction

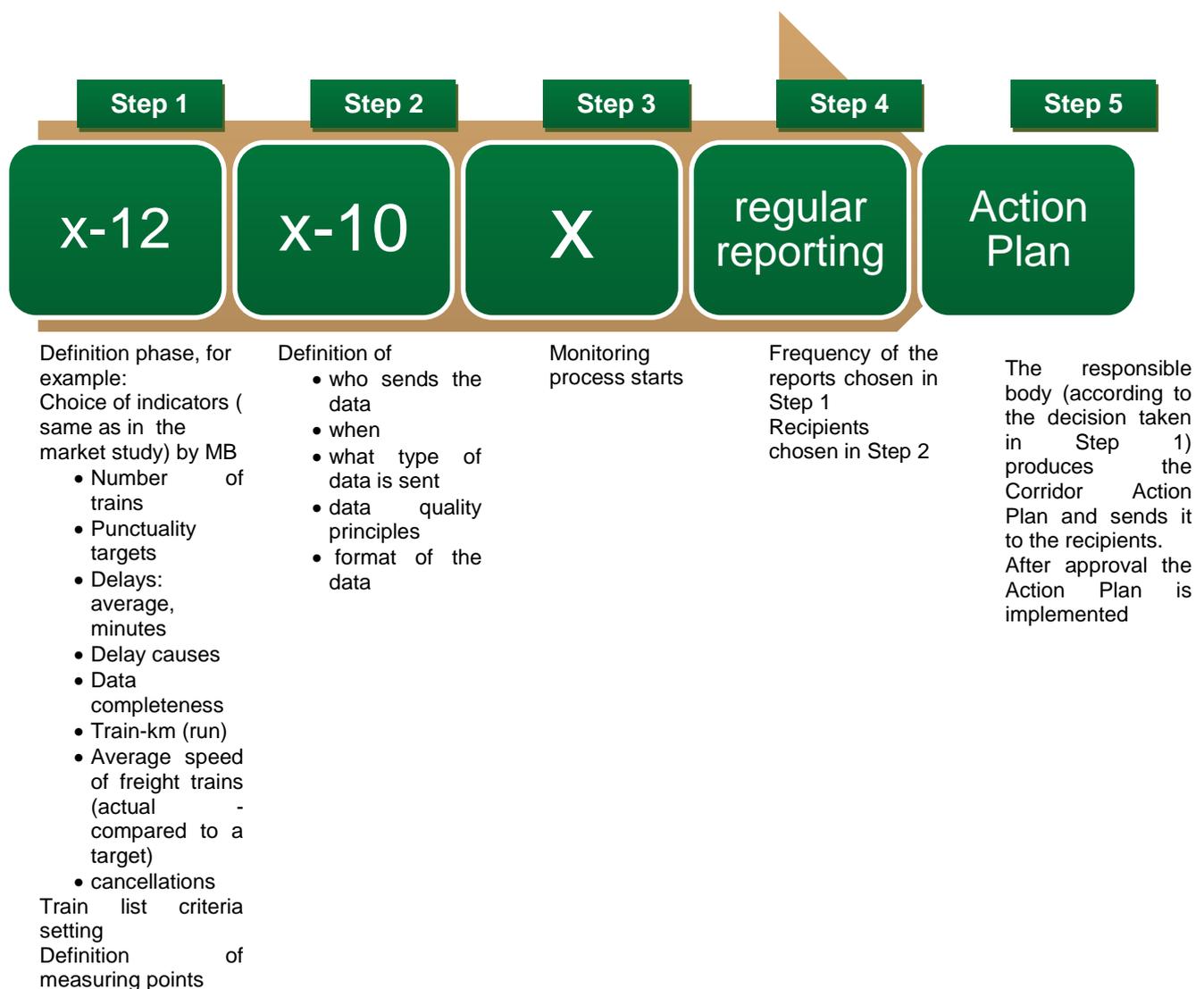
General information, for example:

- » Description of the Corridor
- » Governance of the Corridor
- » Specific features

2. Process overview and actors involved

2.1. Process overview

- » Description of the overall process (maps are welcomed)
- » Overall timeline of the process (example below)



2.2. Actors involved

Definition of actors and responsibilities (according to the Corridor Governance).

2.3. Involvement of Executive Boards and Advisory Groups

Definition of actors and responsibilities: in this paragraph the decision taken during the definition phase must be stated, in particular:

- » Their involvement in the process phases: method, limits, rules
- » Type of information they shall receive
- » Ways of gathering information from them

3. Principles of monitoring

3.1. List of indicators (see also Section 3 of the Guidelines)

3.2. Definition of punctuality (see also Section 3 of the Guidelines)

3.3. Thresholds for punctuality measurement (see also Section 3 of the Guidelines)

3.4. Train sample (see also Section 3 of the Guidelines)

- » Train list
- » Update time of the train sample
- » Definition of 'main part' of the Corridor
- » Definition of the most important railway connections

3.5. Geographical principles (see also Section 3 of the Guidelines)

- » Measuring points for punctuality
- » O-D categories for measuring average speed
- » Measuring points for number of train, tr*km calculation

3.6. Punctuality targets (see also Section 3 of the Guidelines)

3.7. Required minimum level for data completeness (see also Section 4 of the Guidelines)

3.8. Content of the reports, including, among other things (see also Section 5 of the Guidelines)

- » Degree of detail for delay causes
- » Views to be taken into account
- » Recipients

3.9. Involvement of other stakeholders also in the analysis phase (see also Section 4 of the Guidelines)

4. Process description

For every phase of the process, description of the:

- » Process phases
- » Actors involved
- » Actions
- » Expected results
- » Tools used

Process maps, responsibilities matrices, graphs can be useful

5. Annexes

Possible annexes are:

- » Templates
- » Format
- » Address lists
- » Important document(s)