PRIME
Platform of Rail Infrastructure Managers in Europe

P R I M E

Key Performance Indicators for performance benchmarking

Version 3.4, 1st July 2022

PRIME – Platform of Railway Infrastructure Managers in Europe

Catalogue

Version 3.4

1st July 2022

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Introduction

This Catalogue contains a clear and concise documentation of the PRIME (Platform of Rail Infrastructure Managers in Europe) key performance indicators (KPIs) and their definitions, set out in a structured and prioritised way following the concept of the balanced scorecard.

The KPIs have been developed, in a consultative manner with all of the participant Infrastructure Managers and tested in several pilot exercises.

The KPIs set out in this version of the KPI Catalogue are those agreed at the most recent PRIME KPI Sub Group meeting. These KPIs will be fixed for use in the initial Dashboard tool, but it is expected that they will be developed further and improved on a regular basis in the future.

Background

PRIME is a forum composed of rail infrastructure managers from EU Member States and EFTA states, and the European Commission. The European Union Agency for Railways and industry associations participate as observers. PRIME fulfils the tasks of the European Network of Infrastructure Managers as provided for in Article 7f of Directive 2012/34/EU1. Its objective is to cooperate with a view to facilitating the provision of efficient and effective rail services within the Union, including performance monitoring and best practice benchmarking. It also serves as an "early warning mechanism" for infrastructure managers to alert the European Commission on the main challenges and advise the Commission on both operational and regulatory activities. The work of PRIME should lead towards a better mutual understanding between Infrastructure Managers (IMs) and the Commission, as well as better services to the customers of IMs and a better functioning European network.

The added value for using common KPIs and performance benchmarking is:

- As a learning and improvement tool for railway IMs.
- KPIs provide a better understanding of the costs associated with each process and underlying reasons.
- Cross-sectional benchmarking enables to compare performance with the aim to identify performance gaps and learn.
- More informed management decisions can be taken in comparison to peers.
- Access to data can be used to support negotiations with public authorities and trade unions, and it can also be used for engagement with regulators.
- Provides evidence to monitor whether national or EU policies are working or not.
- Is a communication tool vis-à-vis customers and business partners to indicate trends (if you cannot measure results, you cannot tell success from failure!).

An additional important outcome of the PRIME KPI work is a good quality, comparable and easily accessible, cross-sector, dataset.

[1] Directive 2012/34/EU of the European Parliament and of the Council of 21 November 2012 establishing a single European railway area, as amended by Directive (EU) 2016/2370.

Objectives

The ultimate objective of developing KPIs and benchmarking practices is to enhance the performance and business development of IMs. The developed KPIs will support the IMs in:

- Providing a foundation for benchmarking.
- Supporting exchange of best practice.
- Increasing performance of IMs.

The KPIs that are suggested should be beneficial for both the IMs and the industry at large. Some further guidelines for the work has been to:

- Focus on business development for the IMs.
- Keep it simple.
- Clear definitions.
- Avoid duplications of existing work and reuse.

PRIME KPI system

In establishing the KPI system for the PRIME IMs it was important to create a consistent and integrated set of indicators which reflects all relevant aspects of an IM's operations.

It was essential in developing the indicators to be absolutely clear about their purpose: in the case of PRIME, the ultimate objective of the project to develop KPIs and benchmarking practices is to enhance the performance and business development of each IM[2]. The PRIME KPI system will support this overall objective by addressing all aspects of an IM's business, with a comprehensive but balanced set of performance dimensions.

The choice of KPIs reflects the needs and key decisions to be made by each individual IM. Many of the key decisions, for example around maintenance strategy or operational efficiencies, will be common to most if not all IMs. Therefore the KPI system, in reflecting all parts of an IM's operations and wider business, addresses the key decision making areas for an IM. The value of the KPI system is in providing each IM with a structured set of indicators which allows each of them to understand its business and its performance in relation to the other IMs.

Each of the IMs has its own priorities and the importance of different decisions will vary within the group. All IMs also have their own set of management metrics and performance indicators, used to manage their own business. The common set of indicators which has been developed by the PRIME sub-group, whilst almost certainly overlapping considerably with each IM's own set of management metrics, provides a common set of indicators and definitions, which allows good, clear and robust comparisons between IMs and enables benchmarking if desired.

Whilst different performance indicators have varying priority for the different IMs, there is a core of indicators – Key Performance Indicators– which are of common interest and value to all IMs. It is also beneficial to the process of benchmarking to define a common set of core indicators which can be used consistently and on an ongoing basis for robust comparisons between the IMs. A wider set

[2] J. Pettersson, *General Presentation RU Dialogue PRIME - KPIs and benchmarking*, Vienna, June 2016

of indicators can be used for their own purposes by individual IMs, as they require. To achieve this, the PRIME performance indicator framework is tiered into a hierarchy which includes a relatively small set of KPIs distributed into a primary 'High Level Industry' Dashboard and a secondary 'Benchmarking' Dashboard, as well as a wider set of other Performance Indicators (PIs) and other supporting data. This is illustrated in *Figure 1* below.

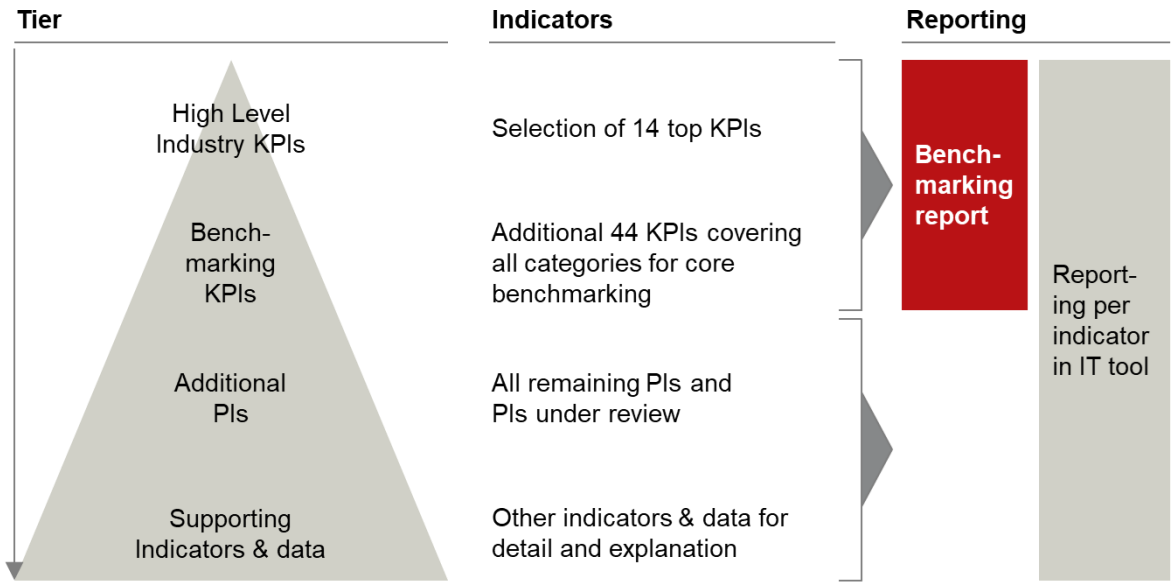


Figure 1 - PRIME performance indicator hierarchy

Data collected by IMs will be used to support all four levels of the hierarchy, but it will be clustered and presented in different ways. The 'High Level Industry' KPIs provide a small set of high level KPIs for use by the High Level Industry team of each IM. A wider set of KPIs, covering all aspects of the IM's business, is available for use by the benchmarking teams in each IM. Both of these groupings of KPIs are presented in the PRIME dashboard tool, which is available online and will be updated on an annual basis. The full set of performance indicators, supporting indicators and data is available for use by active participants in the PRIME benchmarking activities in the form of simple reports.

Dashboard structure

In order to be effective and useful to the management of the IMs, the indicators, in particular the KPIs included in the two dashboards, are aligned as far as possible with the decision making processes of the IMs. This requires that they are aligned not with the organisational structure of the IMs but with the key strategic decisions that an IM is likely to have to make. The PRIME dashboards have been developed with a common structure, for use as a benchmark tool between IMs, but it is envisaged and hoped that individual IMs will develop linkages between the common PRIME dashboards and their own management KPIs and management scorecards.

Typically a management performance scorecard reflects the high level objectives of the organisation, along the line of which success or failure is defined. Very often for a private sector organisation, this aligns with long or short term shareholder value. For a railway infrastructure manager this definition of 'success' has a much broader and more complex definition.

The KPI structure defined for the PRIME project is based on the well-known Balanced Scorecard, developed by the American academics Robert Kaplan and David Norton, and published in the

Harvard Business Review in 1992[3]. This concept has been developed further over the years in different sectors, and additional dimensions have been added and amended to reflect the needs and priorities of different sectors and different organisations.

The PRIME KPI structure, which reflects the needs and priorities of a railway IM has five dimensions, as illustrated in *Figure **2*** below. These five dimensions reflect the activities and outputs of a railway IM, and the needs and demands of its stakeholders and customers.

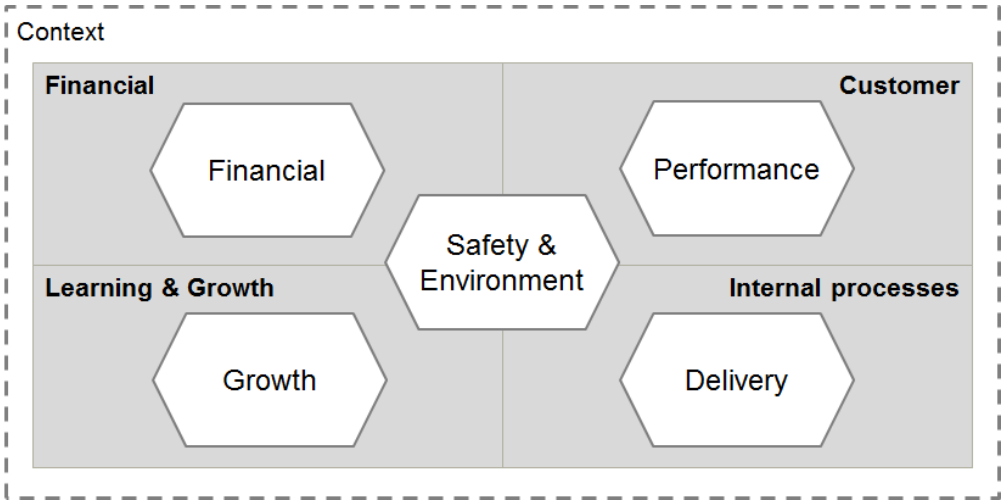


Figure 2 - PRIME Scorecard Dimensions

- **Safety & Environment** – the management and delivery of safety, security and environmental behaviours and standards.
- **Performance** – the performance of the IM's assets and network and resulting impact on operators and customers.
- **Delivery** – the effectiveness of the IM's internal processes and management of the IM's assets and provision of a fit for purpose network, including the delivery of contractors and suppliers.
- **Financial** – the financial performance of the IM, including its cost effectiveness and revenues, including track access charges.
- **Growth** – the level of use of the existing network, network improvement and expansion, integration with other transport modes and use of technology to improve delivery.

In addition to the five scorecard dimensions, a small number of indicators have been included to provide context to the other dimensions. 'Context' provides an overview of the characteristics of each IM and background on the size, relative significance and the market for railway services in each country. This provides useful background to understand the structural differences between the railways, particularly when interpreting other KPIs.

The KPI structure is aligned specifically to these dimensions, as these are dimensions which reflect management objectives and decision making, rather than reflecting specific functions or capabilities. For example, the scorecard could have focused on dimensions such as customer, staff, stakeholders, however, good management does not focus directly on these parties, but rather on how it

[3] R.S. Kaplan and D.P. Norton, *The Balanced Scorecard: Measures that Drive Performance*, Harvard Business Review. 1992

delivers to each of these parties. Management focus on its customers, reflects the customers' needs and priorities, for instance through safety and security, availability, punctuality and performance and charges. Stakeholders' needs are met through, for example, safety and environment, performance and growth.

Within each of the scorecard dimensions there are a number of KPI categories which break the dimensions down further into elements for which specific KPIs can be defined. These categories are clearly aligned with those selected as most important to the members of the PRIME group. The 12 categories are illustrated, aligned to the five scorecard dimensions, in *Figure **3*** below.

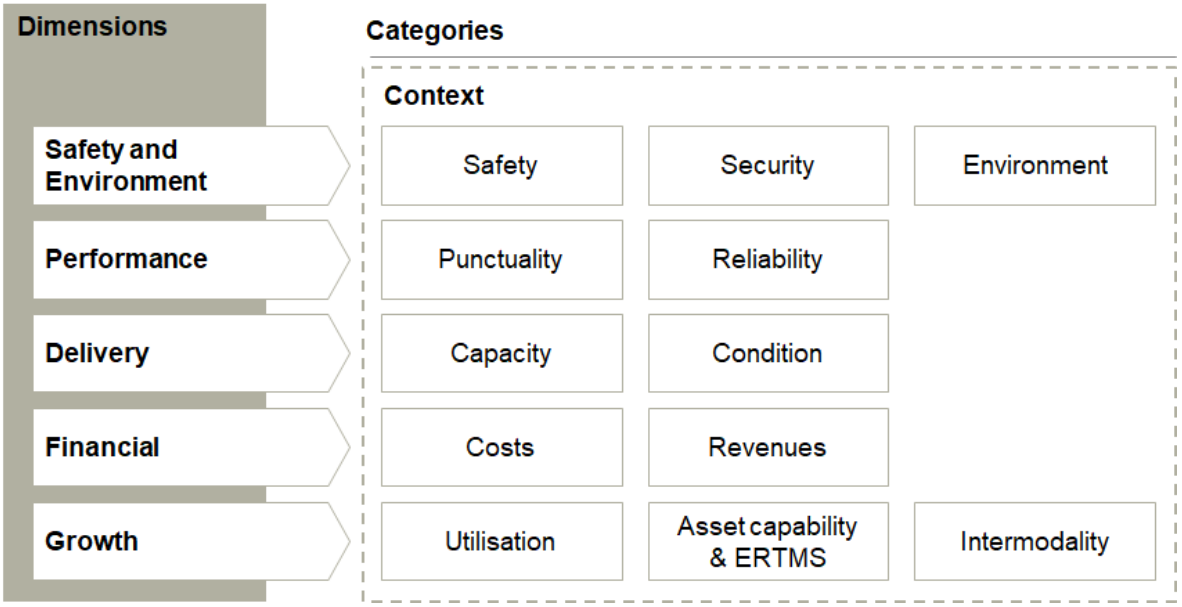


Figure 3 - PRIME KPI categories aligned to scorecard dimensions

It is essential to define clear, comprehensive, yet concise, objectives for each of the scorecard dimensions, which have then been used to define specific KPIs for each of the categories within each scorecard dimension. These objectives and the KPIs for each category are set out and explained in detail in the following section of the KPI Catalogue. Detailed definitions, further background data and information, and other specific information is provided in the appendices to the Catalogue.

The High Level Industry KPIs and their respective scorecard dimensions and categories can be found in*Figure **4***.

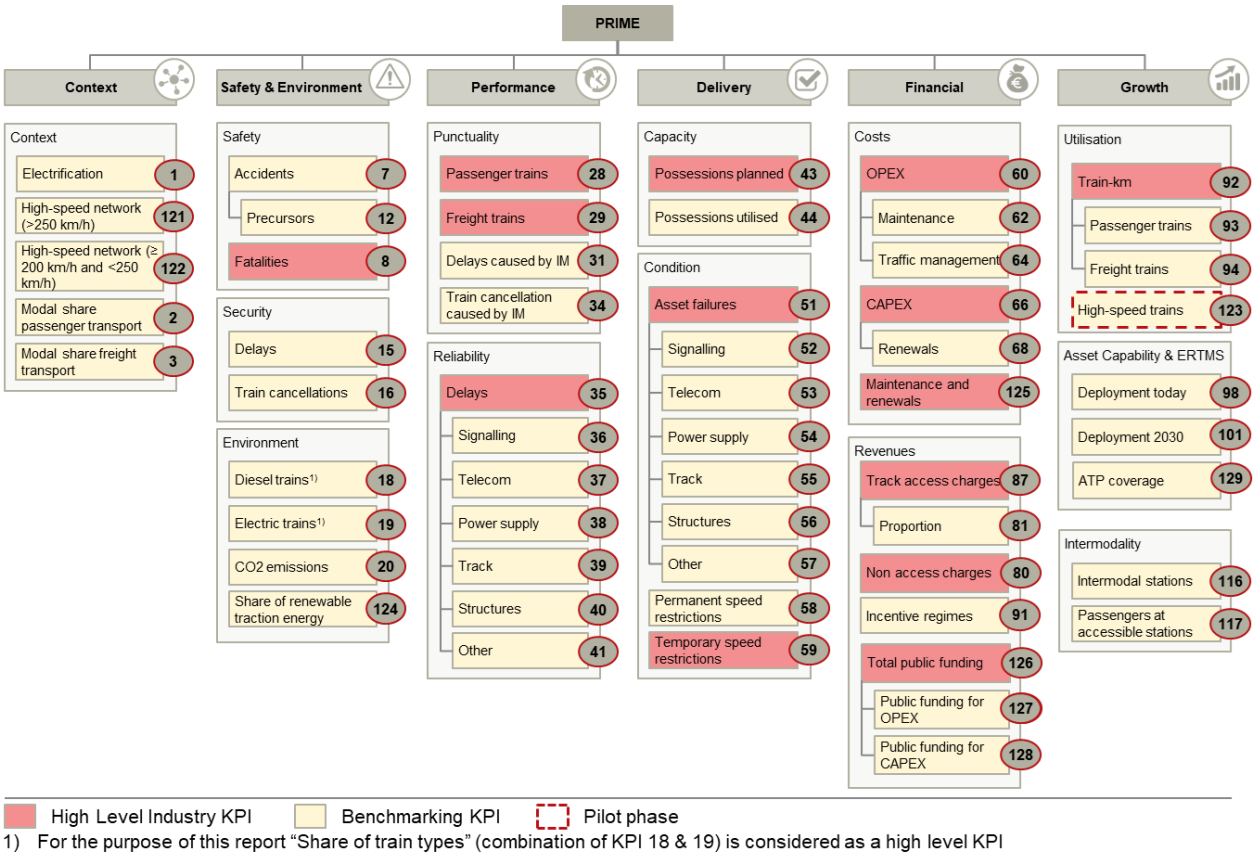


Figure 4 - Overview PRIME KPIs

Performance Indicators

This section contains the complete set of PRIME performance indicators, clustered into the 12 KPI categories and Context category and structured around the five scorecard dimensions, together with the objectives for each dimension.

The KPIs set out in this Catalogue reflect many years work by the participants to develop a good, robust and commonly accepted set of indicators and definitions. Some KPIs have already been collected and used in pilot exercises, others have been defined but have yet to be tested. This version of the Catalogue brings together all of these indicators, into the common structure and provides a constant basis on which the initial comparator tool and dashboards can be be developed. Future versions of the Catalogue will include improvements and changes to the performance indictators and the definitions set out in this version, as a result of further review, testing and use of actual data from the participant IMs.

The data for each of the performance indicators is being collected by the IMs on an annual basis.

Context

This category provides an overview of the characteristics and configuration of each IM. This enables an understanding of the size and relative significance of the railway in each country and the market for railway services, which provides valuable background information and relevant context when reviewing and assessing other KPIs and additional performance indicators.

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
1	Degree of electrification of total main track	Percentage of main track-km which are electrified	% of main track-km	KPI (Benchmarking)
2	National modal share of rail in passenger transport	Proportion of national rail passenger-km compared to total passenger-km of passenger cars, buses/coaches, aviation and railways (Source: European Commission, Eurostat)	% of passenger-km	KPI (Benchmarking)
3	National modal share of rail in freight transport	Proportion of national rail tonne-km compared to total tonne-km of road, inland waterways and rail freight (Source: European Commission, Eurostat)	% of tonne-km	KPI (Benchmarking)
4	Total number of passenger stations	Total number of passenger stations (no freight) within the entire railway infrastructure network, independent of ownership (Source "Passenger stations": European Commission, RMMS)	Number	Additional performance indicator
5	Passenger station density - line-km	Total number of passenger stations (no freight) within the entire railway infrastructure network, independent of ownership, related to the length of main lines. It gives an idea of the density of stations within the network (Source "Passenger stations": European Commission, RMMS)	Number per thousand main line–km	Additional performance indicator
6	Passenger station density – residents	Total number of passenger stations (no freight) within the entire railway infrastructure network, independent of ownership, per million residents (Source "Residents": European Commission, Eurostat. Source "Passenger stations": European Commission, RMMS)	Number per million residents	Additional performance indicator
119	Total number of multimodal rail freight terminals	Total number of all multimodal rail freight terminals (no passengers) within the entire railway infrastructure network, independent of ownership (Source: European Commission, RMMS)	Number	Additional performance indicator
120	Multimodal freight terminal density - line-km	Total number of multimodal freight terminals (no passengers) within the entire railway infrastructure network, independent of ownership, related to the length of main lines. It gives an idea of the density of terminals within the network (Source "Multimodal freight terminals": European Commission, RMMS)	Number per thousand main line–km	Additional performance indicator

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
121	Proportion of high-speed main track-km ≥ 250 km/h)	Percentage of high-speed main track kilometres (≥ 250 km/h) of total main track kilometres.	% of main track-km	KPI (Benchmarking)
122	Proportion of high-speed main track-km (≥ 200 km/h and <250 km/h)	Percentage of high-speed main track kilometres (≥ 200 km/h and <250 km/h) of total main track kilometres.	% of main track-km	KPI (Benchmarking)

Safety, Security & Environment

This dimension demonstrates the level of safety and security provided by the railway, in particular the IM, to its customers, staff and third parties. It also shows the environmental impact of the railway.

The objectives of the Safety & Environment dimension are to:

- Understand and improve the ability of an IM to manage and operate its network and users of its network in such a way as to maximise safety and security (ALARP) for its customers, staff, its partners – operators, contractors and suppliers – and the general public; and
- Demonstrate the ability of an IM to manage its network in such a way as to minimise short term and long term environmental impacts by itself and its staff, its operators, suppliers and customers.

The Safety & Environment dimension contains three categories: **Safety**, **Security** and **Environment**.

Safety

Safety is the primary focus of the management of an IM and a prerequisite in any framework of management indicators. It is the most important and essential element in the performance of an IM, and affects customers, stakeholders, the reputation of the IM, the railway and society at large.

Safety should be considered with a holistic perspective, including as well as the fundamental task of providing a stable, safe and secure network for the user and the IM's staff, wider aspects of safety such as suicide prevention and minimising trespass events.

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
7	Significant accidents	Relative number of significant accidents including sidings, excluding accidents in workshops, warehouses and depots, based on the following types of accidents (primary accidents): - Collision of train with rail vehicle - Collision of train with obstacle within the clearance gauge - Derailment of train - Level crossing accident, including accident involving pedestrians at level crossing - Accident to persons involving rolling stock in motion, with the exception of suicides and attempted suicides - Fire on rolling stock - Other accident The boundary is the point at which the railway vehicle leaving the workshop/warehouse/depot/sidings cannot pass without having an authorization to access the mainline or other similar line. This point is usually identified by a signal. For further guidance, please see ERA Implementation Guidance on CSIs.	Number per million train-km	KPI (Benchmarking)
8	Fatalities and weighted serious injuries	Sum of the number of persons killed (i.e. killed immediately or dying within 30 days, excluding any suicide) and of the weighted number of persons seriously injured (i.e. hospitalised for more than 24 hours, excluding any attempted suicide) by accidents based upon following categories - Passenger - Employee or contractor - Level crossing user - Trespasser - Other person at a platform - Other person not at a platform A person seriously injured is considered statistically equivalent to 0,1 person killed.	Number per million train-km	KPI (High Level Industry)
9	Suicides and attempted suicides	Relative number of suicides and attempted suicides	Number per million train-km	Additional performance indicator
10	Suicides	Relative number of suicides	Number per million train-km	Additional performance indicator
11	Attempted suicides	Relative number of attempted suicides	Number per million train-km	Additional performance indicator
12	IM related precursors to accidents	Relative number of the following types of precursors: - broken rail - track buckle and track misalignment - wrong-side signalling failure	Number per million train-km	KPI (Benchmarking)
13	Overall workforce safety	Relative number of IM's employees, contracted consultants and contractors seriously injured (i.e. hospitalised for more than 24 hours, excluding any attempted suicide) and killed (i.e. killed immediately or dying within 30 days, excluding any suicide) by accidents while at work at IM's premises. (IMs should prepare to present per million worked hours in the future)	Number per thousand main track-km	Additional performance indicator
14	Workforce safety on track or trackside	Relative of IM's employees, contracted consultants and contractors seriously injured (i.e. hospitalised for more than 24 hours, excluding any attempted suicide) and killed (i.e. killed immediately or dying within 30 days, excluding any suicide) by accidents	Number per thousand main track-km	Additional performance indicator

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
		while at work at trackside. (IMs should prepare to present per million worked hours in the future)		

Security

The management of railway security includes activities for the protection of the railway, its users and its staff through monitoring, prevention and preparation of responses to security incidents carried out with malicious intent, which have the potential to harm customers and staff, damage railway assets, or generally to impede and disrupt railway operations.

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
15	Delays caused by security incidents	Number of delay minutes due to security incidents (cable thefts), per train-km	Minutes per train-km	KPI (Benchmarking)
16	Train cancellations caused by security incidents	Percentage of trains cancelled caused by security incidents (cable thefts) per total trains scheduled to be operated	% of scheduled trains	KPI (Benchmarking)
17	People killed or seriously injured due to security incidents	Number of people seriously injured (i.e. hospitalised for more than 24 hours) and killed (i.e. killed immediately or dying within 30 days) due to security incidents (i.e. intentional acts as terrorism, sabotage, cyber-attacks, vandalism, thefts, espionage, unauthorized persons and other acts of aggression or hooliganism). (IMs should note that the definition intentionally differs from KPI ID 8 since ID 8 was aligned with the ERA definition)	Number	Additional performance indicator

Environment

Monitoring the environmental impact of the IM focuses on two aspects: the influence of the IM in affecting and improving the environmental impact of the whole integrated railway (e.g., through electrification) and the direct environmental impact of the IM's own activities.

Railways are one of the most environmentally-friendly modes of passenger and freight transport, and the KPIs recognise the opportunity for railways to effect modal shift from more polluting transport modes. They also take account of the environment impact of an IM's activities, including aspects such as use of electric rolling stock, habitat alteration and fragmentation, emissions to air, wastewater, noise, waste, diesel exhaust emissions, materials, recycling, etc.

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
18	Share of diesel-powered trains	Train-kilometres of diesel-powered trains compared to total train-kilometres (both for passenger and freight trains)	% of total train-km	KPI (Benchmarking)
19	Share of electricity-powered trains	Train-kilometres of electricity-powered trains compared to total train-kilometres (both for passenger and freight trains)	% of total train-km	KPI (Benchmarking)
20	CO2 emission produced from maintenance rolling stock	Tonnes of carbon dioxide emission produced from the activity of maintenance rolling stock compared to main track-km	tCO2 per main track-km	KPI (Benchmarking)
21	Waste management linked to track and trackside	Amount of reused, recycled and recovered waste compared to total produced waste linked to track and trackside	% of tonnes	Additional performance indicator
22	Environmental incidents	Number of rail related environmental incidents with major and significant impact or effect per main track-km	Number per main track-km	Additional performance indicator
23	Noise exposure at night	Total number of citizens exposed to ≥ 50 dB at night per main line-km	Number per main line-km	Additional performance indicator

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
24	Noise limits	Number of not awarded requested train paths due to noise divided by total number of requested train paths	Number per total number of requested train paths	Additional performance indicator
25	Noise measurements - noise barriers	Length of noise barriers per line-km (noise barriers on both sides of the line are counted separately, i.e. twice; without anti-noise lining of tunnels)	% of main line-km	Additional performance indicator
26	Noise measurements - absorbers	Length of track equipped with Rail absorbers per total track-km	% of main track-km	Additional performance indicator
124	Share of renewable traction energy	Share of renewable electric traction energy of total traction energy in % of kWh. Renewable energy is an energy that is derived from natural processes that are replenished constantly, such as energy generated from solar, wind, biomass, geothermal, hydropower and ocean resources, solid biomass, biogas and liquid biofuels. Only electric energy is included.	% of total kWh	KPI (Benchmarking)

Performance

The performance dimension describes the performance of the IMs' assets and network and the resulting impact on operators and customers. This dimension is used to analyse the performance of the IM network in relation to other IMs.

The objectives of the Performance dimension are to:

- Understand the performance of the IM network in relation to other IMs;
- Improve the ability of the IM to enable trains to run on time; and,
- Identify opportunities to improve the management of assets to minimise the number of failures, and the impact of those failures on the operating railway.

The Performance dimension contains two categories: **Punctuality** and **Reliability**.

Punctuality

Train punctuality is the primary measure of overall railway performance and a key measure of quality of service, driven not only by the IM but also operators and customers. The requirements for punctuality differs between IMs, high-speed routes, core network, customer groups, passenger/freight etc. It is essential to understand both the overall performance of the system through punctuality, as well as the IM's impact on and responsibility for punctuality.

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
27	Trains punctuality	Percentage of actually operating (i.e. not cancelled) national and international passenger and freight trains (excluding work trains) which arrive at each strategic measuring point with a delay of less than or equal to 5:29 minutes (passengers) and 15:29 minutes (freight)	% of actually operating trains	Additional performance indicator
28	Passenger trains punctuality	Percentage of actually operating (i.e. not cancelled) national and international passenger trains (excluding work trains) which arrive at each strategic measuring point with a delay of less than or equal to 5:29 minutes	% of actually operating trains	KPI (High Level Industry)
29	Freight trains punctuality	Percentage of actually operating (i.e. not cancelled) national and international freight trains (excluding work trains) which arrive at each strategic measuring point with a delay of less than or equal to 15:29 minutes	% of actually operating trains	KPI (High Level Industry)
30	Delay minutes per train caused by the IM	Average delay minutes caused by incidents that are regarded as IM's responsibility per total number of	Minutes per actually operating train	Additional performance indicator

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
		national and international passenger and freight trains (excluding work trains) actually operating (i.e. not cancelled) out of those that were scheduled in the original working timetable, including those timetabled at short notice; Delay minutes according to UIC leaflet 450-2, Appendix A - Table 1 (columns 1, 2 and 3) and corresponding explanation in appendices B.1, B.2 and B.3. Delay minutes will be measured at all available measuring points. Of those measured delay minutes that exceed a threshold of 5:29 minutes for passenger services and 15:29 minutes for freight services the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point		
31	Delay minutes per train-km caused by the IM	Delay minutes caused by incidents that are regarded as IM's responsibility divided by total train-km operated (revenue service + shunting operations to and from depots + IM's work traffic); Delay minutes according to UIC leaflet 450-2, Appendix A - Table 1 (columns 1, 2 and 3) and corresponding explanation in appendices B.1, B.2 and B.3. Delay minutes will be measured at all available measuring points. Of those measured delay minutes that exceed a threshold of 5:29 minutes for passenger services and 15:29 minutes for freight services the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point	Minutes per train-km	KPI (Benchmarking)
32	Delay minutes per train caused by weather	Average delay minutes caused by weather incidents which have led to disruptions in the railway infrastructure per total number of national and international passenger and freight trains (excluding work trains) actually operating (i.e. not cancelled) out of those that were scheduled in the original working timetable, including those timetabled at short notice; Delay minutes will be measured at all available measuring points. Of those measured delay minutes that exceed a threshold of 5:29 minutes for passenger services and 15:29 minutes for freight services the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point	Minutes per train	Additional performance indicator
33	Delay minutes per train-km caused by weather	Delay minutes caused by weather incidents which have led to disruptions in the railway infrastructure divided by total train-km operated (revenue service + shunting operations to and from depots + IM's work traffic); Delay minutes will be measured at all available measuring points. Of those measured delay minutes that exceed a threshold of 5:29 minutes for passenger services and 15:29 minutes for freight services the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point	Minutes per train-km	Additional performance indicator
34	Percentage of passenger train cancellations caused by the IM	Percentage of fully or partially cancelled national and international passenger trains that were caused by incidents that are regarded as IM's responsibility according to UIC leaflet 450-2, Appendix A - Table 1 (columns 1, 2 and 3) and corresponding explanation in appendices B.1, B.2 and B.3. Including all trains that are included in the last timetable issued the day before the service (or the timetable that is valid when the train service takes place) and including all types of cancelled trains such as full cancellation (cancelled at origin), part cancellation en route, part cancellation changed origin, part cancellation diverted	% of scheduled and cancelled passenger trains	KPI (Benchmarking)

Reliability

Reliability of the infrastructure demonstrates the impact of failures. As well as managing its assets in such a way as to minimise the effect of failures on the railway, these indicators also measure the effectiveness and timeliness of the IM in responding to these failures, and returning the network to normal function.

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
35	Average delay minutes per asset failure	Average delay minutes per asset failure caused by all asset failures on main track according to UIC leaflet 450-2, Appendix A - Table 1 (column 2) and corresponding explanation in Appendix B.2 - Infrastructure installations. An asset failure is counted one time and one time only if any train is affected by it. A train is affected if the asset failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. Delay minutes will be measured at all available measuring points. Of those measured delay minutes the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point. An asset failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Minutes per failure	KPI (High Level Industry)
36	Average delay minutes per signalling failure	Average delay minutes per signalling failure caused by all asset failures of signalling installations and signalling installations at level crossings on main track according to UIC leaflet 450-2, Appendix B.2 (numbers 20 & 21). A signalling failure is counted one time and one time only if any train is affected by it. A train is affected if the signalling failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. Delay minutes will be measured at all available measuring points. Of those measured delay minutes the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point. An signalling failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Minutes per failure	KPI (Benchmarking)
37	Average delay minutes per telecommunication failure	Average delay minutes per telecommunication failure caused by all asset failures of telecommunication installations (GSM-R, Radio failure and more) on main track according to UIC leaflet 450-2, Appendix B.2 (number 22). An telecommunication failure is counted one time and one time only if any train is affected by it. A train is affected if the telecommunication failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. Delay minutes will be measured at all available measuring points. Of those measured delay minutes the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point. An telecommunication failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Minutes per failure	KPI (Benchmarking)

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
38	Average delay minutes per power supply failure	Average delay minutes per power supply failure caused by all asset failures of power supply equipment (power supply for electric traction, variation and drops of voltage and others) on main track according to UIC leaflet 450-2, Appendix B.2 (number 23). An power supply failure is counted one time and one time only if any train is affected by it. A train is affected if the power supply failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. Delay minutes will be measured at all available measuring points. Of those measured delay minutes the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point. An power supply failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Minutes per failure	KPI (Benchmarking)
39	Average delay minutes per track failure	Average delay minutes per track failure caused by all asset failures of track infrstructure (e.g., rail breakage, lateral distortion and other track failures) on main track according to UIC leaflet 450-2, Appendix B.2 (number 24). An track failure is counted one time and one time only if any train is affected by it. A train is affected if the track failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. Delay minutes will be measured at all available measuring points. Of those measured delay minutes the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point. An track failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Minutes per failure	KPI (Benchmarking)
40	Average delay minutes per structure failure	Average delay minutes per structure failure caused by all asset failures of structures (tunnels, bridges) on main track according to UIC leaflet 450-2, Appendix B.2 (number 25). A structure failure is counted one time and one time only if any train is affected by it. A train is affected if the structure failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. Delay minutes will be measured at all available measuring points. Of those measured delay minutes the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point. An structure failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Minutes per failure	KPI (Benchmarking)

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
41	Average delay minutes per other failure	Average delay minutes per other failure caused by all asset failures due to the managing and planning of staff and other causes related to infrastructure installations on main track according to UIC leaflet 450-2, Appendix B.2 (numbers 28 & 29). Any otherfailure is counted one time and one time only if any train is affected by it. A train is affected if any other failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. Delay minutes will be measured at all available measuring points. Of those measured delay minutes the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point. Any otherfailure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Minutes per failure	KPI (Benchmarking)
42	Average delay minutes due to weather related failures	Average delay minutes per weather related failure caused by all asset failures due to effects of weather or natural causes (fog, avalanches, snowfall, mudslides, storms, gales, wheel slide or slip due to leaves on the line, floods) on main track according to UIC leaflet 450-2, Appendix B.8 (number 83). A weather relatedfailure is counted one time and one time only if any train is affected by it. A train is affected if the weather related failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. Delay minutes will be measured at all available measuring points. Of those measured delay minutes the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point. A weather relatedfailure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Minutes per failure	Additional performance indicator

Delivery

The Delivery dimension describes the effectiveness of the IM's internal processes and management of the IM's assets and provision of a fit for purpose network. It takes into account the delivery of contractors and suppliers.

The intention of the Delivery dimension is to provide an understanding of how well the IM manages its assets, delivers its network and handles the demand for train-paths, and to identify opportunities for improvement. The objectives are to understand and support improvements in the ability of the IM to:

- Deliver an available, operable and fully functional network, to the required level of capacity;
- Carry out its asset management functions effectively and in a timely manner; and
- Maintain and improve asset condition in line with its strategy.

The Delivery dimension contains two categories: **Capacity** and **Condition**.

Capacity

The Capacity category measures the overall constraints on capacity of the IM's network. It includes the impact on capacity from the condition of the IM's infrastructure and the impact of activities undertaken to maintain or improve overall condition.

The capacity of the network depends on many different factors and can be described from different perspectives. These KPIs reflect the ability of the railway system to handle the demand for train paths from the RUs, as well as the impact of the IM's current and historical activities, including the impact of engineering possessions and speed restrictions.

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
43	Planned possessions	Percentage of a network's available main track-km-days which are planned to be blocked possessions for IM's activities included in the yearly timetable, including maintenance, enhancement and renewals. This is calculated as the sum of all the possessions' main track-km-days divided by the product of the total networks main track-km and the 365 days in a year. A possession's main track-km-days are its main track-km planned for IM's activities (km) multiplied with its duration in days (t). (∑ km * t) / (main track-km * 365). An alternative and simplified way to calculate this KPI is to use the planned average duration per possession instead. t_avg * (∑ km) / (main track-km * 365). At some IMs the value for planned possessions could be taken from the Network Statement	% of main track-km-days	KPI (High Level Industry)
44	Possessions utilized	Percentage of planned possessions for IM's activities included in the yearly timetable, including maintenance, enhancement and renewals which are executed; This is calculated as the sum of all the possessions' main track-km-days actually used divided by the sum of all the possessions' main track-km-days planned	% of planned possessions	KPI (Benchmarking)
45	Time loss due to permanent speed restrictions	Average time loss in minutes per km (i.e. additional travel time) experienced by trains due to permanent speed restrictions related to the original function of the infrastructure (maximum line speed), included in the yearly timetable	Minutes per thousand main track-km	Additional performance indicator
46	Time loss due to temporary speed restrictions	Average time loss in minutes per km (i.e. additional travel time) experienced by trains due to temporary speed restrictions related to the original function of the infrastructure (maximum line speed), not included in the yearly timetable	Minutes per thousand main track-km	Additional performance indicator
47	Congested tracks	Length of main tracks of congested infrastructure according to Article 47(1) of Directive 2012/34/EU (in respect of the situation at the end of the reporting period) (Source: European Commission, RMMS)	Main track-km	Additional performance indicator
48	Congested nodes	Number of nodes of congested infrastructure according to Article 47(1) of Directive 2012/34/EU (in respect of the situation at the end of the reporting period). (Source: European Commission, RMMS)	Number	Additional performance indicator
49	Rejected path allocations	Number of rejected path allocation requests during the year compared to total number of path allocation requests. Both scheduled and ad hoc requests for passenger and freight train paths should be summarised (Source: European Commission, RMMS)	% of path allocation requests	Additional performance indicator

Condition

The measurement of asset condition is complex, and not always straight forward for a single IM, nevermind as a comparative metric for use in benchmarking. Therefore, the PRIME condition category describes the condition of the asset primarily in terms of how well it functions (i.e. number of failures) and in terms of the impact of condition of the assets on the expected delivery of the network, in terms of temporary and permanent speed restrictions.

The KPIs for condition are based on earlier work from UIC and EIM. KPIs are reused from working groups within EIM with minor adjustments, and the UIC Code 450- 2 is used to define the type of failures used for each KPI.

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
50	Assets failures in relation to traffic volume	Average number of all asset failures on main track according to UIC leaflet 450-2, Appendix A - Table 1 (column 2) and corresponding explanation in Appendix B.2 - Infrastructure installations per million train-km on main track. An asset failure is counted one time and one time only if any train is affected by it. A train is affected if the asset failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. An asset failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Number per million train-km	Additional performance indicator
51	Assets failures in relation to network size	Average number of all asset failures on main track according to UIC leaflet 450-2, Appendix A - Table 1 (column 2) and corresponding explanation in Appendix B.2 - Infrastructure installations per thousand main track-km. An asset failure is counted one time and one time only if any train is affected by it. A train is affected if the asset failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. An asset failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Number per thousand main track-km	KPI (High Level Industry)
52	Signalling failures in relation to network size	Average number of all asset failures of signalling installations and signalling installations at level crossings on main track according to UIC leaflet 450-2, Appendix B.2 (numbers 20 & 21) per thousand main track-km. A signalling failure is counted one time and one time only if any train is affected by it. A train is affected if the signalling failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. A signalling failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Number per thousand main track-km	KPI (Benchmarking)
53	Telecommunication failures in relation to network size	Average number of all asset failures of telecommunication installations (GSM-R, Radio failure and more) on main track according to UIC leaflet 450-2, Appendix B.2 (number 22) per thousand main track-km. A telecommunication failure is counted one time and one time only if any train is affected by it. A train is affected if the telecommunication failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. A telecommunication failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Number per thousand main track-km	KPI (Benchmarking)

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
54	Power supply failures in relation to network size	Average number of all asset failures of power supply equipment (power supply for electric traction, variation and drops of voltage and others) on main track according to UIC leaflet 450-2, Appendix B.2 (number 23) per thousand main track-km. A power supply failure is counted one time and one time only if any train is affected by it. A train is affected if the power supply failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. A power supply failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Number per thousand main track-km	KPI (Benchmarking)
55	Track failures in relation to network size	Average number of all track failures (rail breakage, lateral distortion and other track failures) on main track according to UIC leaflet 450-2, Appendix B.2 (number 24) per thousand main track-km. A track failure is counted one time and one time only if any train is affected by it. A train is affected if the track failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. A track failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Number per thousand main track-km	KPI (Benchmarking)
56	Structure failures in relation to network size	Average number of all asset failures of structures (tunnels, bridges) on main track according to UIC leaflet 450-2, Appendix B.2 (number 25) per thousand main track-km. A structure failure is counted one time and one time only if any train is affected by it. A train is affected if the structure failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. A structure failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Number per thousand main track-km	KPI (Benchmarking)
57	Other infrastructure failures in relation to network size	Average number of all asset failures due to the managing and planning of staff and other causes related to infrastructure installations on main track according to UIC leaflet 450-2, Appendix B.2 (numbers 28 & 29) per thousand main track-km. Any other failure is counted one time and one time only if any train is affected by it. A train is affected if any other failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. Any other failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	Number per thousand main track-km	KPI (Benchmarking)
58	Tracks with permanent speed restrictions	Percentage of main tracks with permanent speed restriction due to deteriorating asset condition weighted by the time the restrictions are in place (included in the yearly timetable) related to total main track-km; restrictions are counted whenever criterion is met regardless of whether IM reports permanent speed restrictions as such or if they are included in the timetable	% of main track-km	KPI (Benchmarking)
59	Tracks with temporary speed restrictions	Percentage of main tracks with temporary speed restriction due to deteriorating asset condition weighted by the time the restrictions are in place (not included in the yearly timetable) related to total main track-km	% of main track-km	KPI (High Level Industry)

Financial

The Financial dimension covers all elements related to all expenditures and financial income of IMs, including track access charges. It is intended to provide understanding of the structure and the level of costs and revenues of an IM in relation to other IMs.

The objectives of the Financial dimension are to:

- Support delivery of a cost-effective railway, through identification and implementation of good practices and processes;
- Identify and encourage opportunities to increase revenues from all sources;
- Understand the impact of charging and charges on IMs and the whole railway industry; and
- Support making the case for appropriate and effective investment in the railway.

The Financial dimension contains two categories: **Costs** and **Revenues.** All the financial values are net values (excluding value added tax).

Costs

The Costs category includes all the costs incurred by the IM, broken down into useful and comparable sub-categories. It includes all Operating, Capital and Investment costs, as illustrated in *Figure **5***. For purposes of comparison, costs will be adjusted where appropriate to reflect local costs using purchasing power parities (PPPs). The costs incurred by an IM will be dependent on a number of factors: some within and some outside the management responsibility of the IM. The background information collected by the PRIME project and set out in Appendix 2 are very useful in interpreting the financial data.

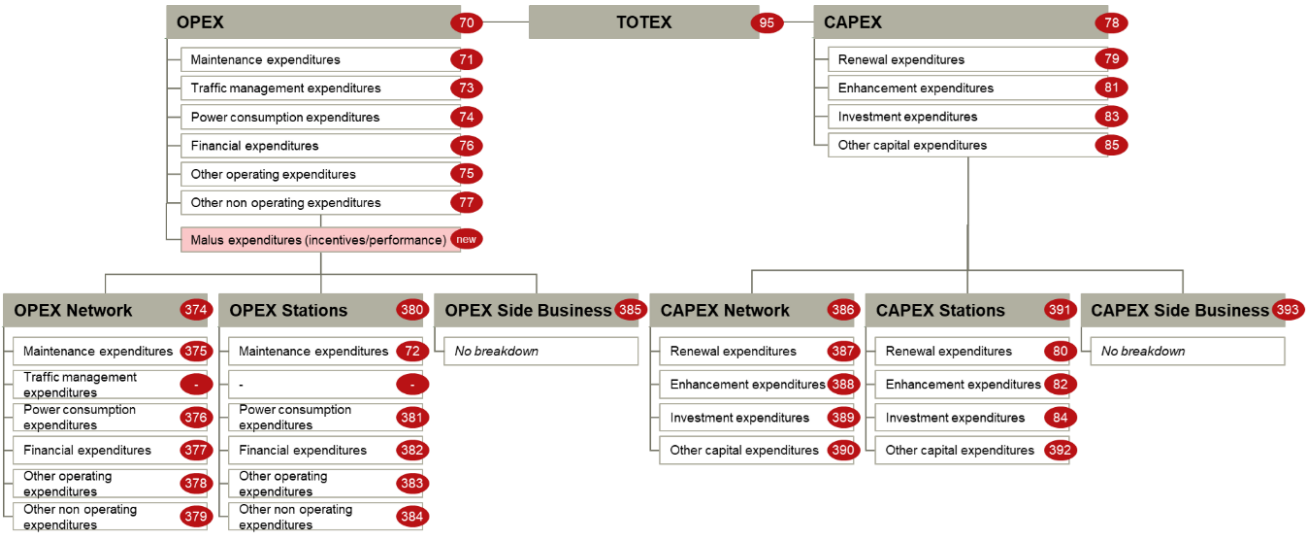


Figure 5 - PRIME Input Data Items, basis for cost KPI

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
60	OPEX – operational expenditures in relation to network size	Total IM's annual operational expenditures (net values, excluding value added tax) per main track-km	Euro per main track-km	KPI (High Level Industry)
61	OPEX – operational expenditure in relation to traffic volume	Total IM's annual operational expenditures (net values, excluding value added tax) per train-km	Euro per train-km	Additional performance indicator

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
62	Maintenance expenditures in relation to network size	Total IM's annual maintenance expenditures (net values, excluding value added tax) per main track-km	Euro per main track-km	KPI (Benchmarking)
63	Maintenance expenditures in relation to traffic volume	Total IM's annual maintenance expenditures (net values, excluding value added tax) per train-km	Euro per train-km	Additional performance indicator
64	Traffic management expenditures in relation to network size	Total IM's annual traffic management expenditures (net values, excluding value added tax) per main track-km	Euro per main track-km	KPI (Benchmarking)
65	Traffic management expenditures in relation to traffic volume	Total IM's annual traffic management expenditures (net values, excluding value added tax) per train-km	Euro per train-km	Additional performance indicator
66	CAPEX – capital expenditures in relation to network size	Total IM's annual capital expenditures (net values, excluding value added tax) per main track-km	Euro per main track-km	KPI (High Level Industry)
67	CAPEX – capital expenditures in relation to traffic volume	Total IM's annual capital expenditures (net values, excluding value added tax) per train-km	Euro per train-km	Additional performance indicator
68	Renewal expenditures in relation to network size	Total IM's annual renewal expenditures (net values, excluding value added tax) per main track-km	Euro per main track-km	KPI (Benchmarking)
69	Renewal expenditures in relation to traffic volume	Total IM's annual renewal expenditures (net values, excluding value added tax) per train-km	Euro per train-km	Additional performance indicator
70	Investment expenditures in relation to network size	Total IM's annual investment expenditures (net values, excluding value added tax) per main track-km	Euro per main track-km	Additional performance indicator
71	Investment expenditures in relation to traffic volume	Total IM's annual investment expenditures (net values, excluding value added tax) per train-km	Euro per train-km	Additional performance indicator
72	Direct expenditures in relation to traffic volume	Total IM's annual direct expenditures (net values, excluding value added tax) per train-km. Direct expenditures are expenditures directly incurred as a result of operating the train service	Euro per train-km	Additional performance indicator
73	Share of direct expenditures in total OPEX	Percentage of IM's direct operational expenditures in the meaning of Regulation (EU)2015/909 (expenditures that are directly incurred as a result of operating the train service) related to total OPEX (net values, excluding value added tax)	% of monetary value	Additional performance indicator
74	Share of direct expenditures in total CAPEX	Percentage of IM's direct capital expenditures in the meaning of Regulation (EU)2015/909 (expenditures that are directly incurred as a result of operating the train service) related to total CAPEX (net values, excluding value added tax)	% of monetary value	Additional performance indicator
75	Renewal expenditures financed with grants	Percentage of IM's renewal expenditures financed with grants related to total renewal expenditures (net values, excluding value added tax)	% of monetary value	Additional performance indicator
76	Enhancement expenditures financed with grants	Percentage of IM's enhancement expenditures financed with grants related to total enhancement expenditures (net values, excluding value added tax)	% of monetary value	Additional performance indicator
77	Investment expenditures financed with grants	Percentage of IM's investment expenditures financed with grants related to total investment expenditures (net values, excluding value added tax)	% of monetary value	Additional performance indicator
78	Proportion of renewal expenditures in total renewal and maintenance expenditures	Percentage of IM's renewal expenditures related to total renewal and maintenance expenditures (net values, excluding value added tax)	% of monetary value	Additional performance indicator
79	Proportion of enhancement and investment expenditures in total expenditures	Percentage of IM's enhancement and investment expenditures related to total expenditures (net values, excluding value added tax)	% of monetary value	Additional performance indicator
125	Maintenance and renewal in relation to network size	Total IM's annual renewal and maintenance expenditures (sum of total IM's annual renewal expenditures and total IM's annual maintenance expenditures, both net values, excluding value added tax) per main track-km	Euro per main track-km	KPI (High Level Industry)

Revenues

The Revenue category provides a summary of the total revenue 'earned' by an IM, excluding subsidies and property development. Furthermore, it measures and compares that element of an IM's revenue that comes from charges from operators using its network and service facilities, as displayed

in *Figure* ***6***. To achieve meaningful comparability, the indicators for charging have been simplified and PRIME is using fundamental KPIs that all IMs find common and easy to collect. Together with the Costs KPIs, it provides an indication of to what extent an IM is capable of covering its costs, and to what extent it relies on subsidy.

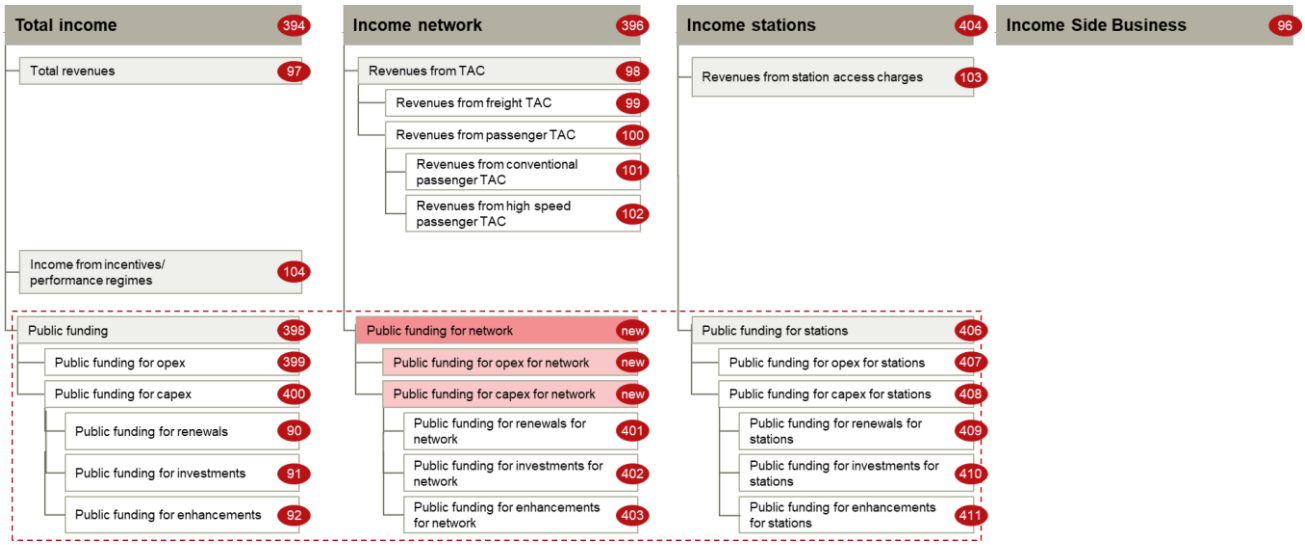


Figure 6 - PRIME Input Data Items, basis for revenue KPI

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
80	Total revenues from non-access charges in relation to network size	Total IM's annual revenues from non-access charges (e.g., commercial letting, advertising, telecoms but excluding grants or subsidies) related to total main track-km	Euro per main track-km	KPI (High Level Industry)
81	Proportion of TAC in total revenue	Percentage of IM's annual TAC revenues (including freight, passenger and touristic trains) compared to total revenues	% of monetary value	KPI (Benchmarking)
82	TAC revenue in relation to traffic volume	Total IM's annual TAC revenues (including freight, passenger and touristic trains) per train-km	Euro per total train-km	Additional performance indicator
83	TAC revenue in relation to traffic volume - Freight	Total IM's annual freight TAC revenues per freight train-km	Euro per total freight train-km	Additional performance indicator
84	TAC revenue in relation to traffic volume - Passenger	Total IM's annual passenger TAC revenues (including touristic trains) per passenger train-km	Euro per passenger train-km	Additional performance indicator
85	TAC revenue in relation to traffic volume - Passenger conventional	Total IM's annual passenger conventional train TAC revenues (excluding touristic trains) compared to total passenger conventional train-km	Euro per conventional passenger train-km	Additional performance indicator
86	TAC revenue in relation to traffic volume - Passenger high-speed	Total IM's annual passenger high-speed train TAC revenues (excluding touristic trains) compared to total passenger high-speed train-km	Euro per high-speed passenger train-km	Additional performance indicator
87	TAC revenue in relation to network size	Total IM's annual TAC revenues (including freight, passenger and touristic trains) compared to total main track-km	Euro per main track-km	KPI (High Level Industry)
88	TAC revenue in relation to network size - Passenger conventional	Total IM's annual passenger conventional train TAC revenues (excluding touristic trains) compared to total conventional main track-km	Euro per conventional main track-km	Additional performance indicator
89	TAC revenue in relation to network size – Passenger high-speed	Total IM's annual passenger high-speed train TAC revenues (excluding touristic trains) compared to total high-speed main track-km	Euro per high-speed main track-km	Additional performance indicator
90	Proportion of revenues for station access	Total IM's annual revenues for station access (including passenger and touristic trains) compared to total revenue	% of monetary value	Additional performance indicator
91	Income from incentive regimes in relation to network size	Total IM's annual income from incentive/performance regimes with customers (if applicable, no public grants or state subsidies) per main track-km	Euro per main track-km	KPI (Benchmarking)

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
140	Total public funding	Total public funding related to network size	Euro per main track-km	KPI (High Level Industry)
141	Total public funding in relation to traffic volume	Total public funding in relation to traffic volume.	Euro per train-km	Additional performance indicator
142	Public funding for OPEX	Total public funding for OPEX related to network size.	Euro per main track-km	KPI (Benchmarking)
143	Public funding for OPEX in relation to traffic volume	Total public funding for OPEX in relation to traffic volume.	Euro per train-km	Additional performance indicator
144	Public funding for CAPEX	Total public funding for CAPEX related to network size.	Euro per main track-km	KPI (Benchmarking)
145	Public funding for CAPEX in relation to traffic volume	Total public funding for CAPEX in relation to traffic volume.	Euro per train-km	Additional performance indicator

Further details are provided in Appendix 4.

Growth

The dimension Growth describes the level of use of the existing network, network expansion, integration with other transport modes and use of technology such as ERTMS to improve delivery.

The objectives of this dimension are to understand the opportunities to:

- Improve the use of the overall capacity of the railway network;
- Encourage modal shift to rail from road and air;
- Promote multi-modal transport integration;
- Understand and use new technology, such as ERTMS, effectively and efficiently to support the objectives of the IM and the integrated railway.

The Growth dimensions contains three categories: **Utilisation**, **Asset Capability & ERTMS**, and **Intermodality.**

Utilisation

Utilisation is an essential measure of the performance of an IM. One of the most important objectives for an IM is to use its infrastructure as effectively as possible. This measure also distinguishes between passenger and freight traffic. Utilisation has a major impact on the ability of an IM to cover its costs and the utilisation of the infrastructure will also affect the future performance (other KPIs) of the infrastructure, e.g., overall condition.

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
92	Degree of network utilisation – all trains	Average daily train-km on main track (passenger and freight revenue service only, no shunting, no work trains) related to main track-km	Daily train-km per main track-km	KPI (High Level Industry)
93	Degree of network utilisation – passenger trains	Average daily passenger train-km on main track (revenue service only, no shunting, no work trains) related to main track-km	Daily passenger train–km per main track-km	KPI (Benchmarking)
94	Degree of network utilisation – freight trains	Average daily freight train-km on main track (revenue service only, no shunting, no work trains) related to main track-km	Daily freight train–km per main track-km	KPI (Benchmarking)
95	Degree of network utilisation – gross tonne-km	Average daily gross tonne-km on main track (passenger and freight revenue service only, no shunting, no work trains) related to main track-km	Daily gross tonne-km per main track–km	Additional performance indicator
96	Degree of network utilisation - double track	Double track line: track-km with traffic volumes >= 200 trains per day (average)	track-km with traffic >= 200 trains a day per total double track-km	Additional performance indicator

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
97	Degree of network utilisation - single track	Single track line: track-km with traffic volumes >= 70 trains per day (average)	track-km with traffic >= 70 trains a day per total single track-km	Additional performance indicator
123	Total passenger high-speed train-km	Total high-speed train-km (revenue service only, no shunting, no work trains), ≥ 200 km/h. The basis for consideration is the potential speed of the train, not the actual speed.	Train-km	KPI (Benchmarking)

Asset Capability & ERTMS

Asset capability describes the functionality of the IM's railway network. It provides the overview of the capability of the network and specifically the extent to which the network meets the TEN-T requirements. The asset capability describes the IM's part of the interoperability of the European railway network, although it is recognised that achievement of interoperability requires capability and functionality from the railway operators as well. Indicators relating to asset capability and ERTMS are described further below.

ERTMS and the deployment of ERTMS is a complex but major topic for the rail sector. While deployment of ERTMS is costly, it is also often not solely to the responsibility of IMs to choose to deploy ERTMS on their networks. However, ERTMS is crucial for IMs in many ways and may influence some of the core functions of IMs. The potential benefits of ERTMS deployment are significant, including increased safety, capacity, availability, and interoperability. As the KPIs are developed, PRIME is keen to understand the potential benefits and the business case for the deployment of ERTMS, as well as supporting the objective of delivering an interoperable cross-border network.

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
98	ERTMS track-side deployment	Main tracks with ERTMS in operation in proportion to total main tracks (measured in track-km)	% of main track-km	KPI (Benchmarking)
99	Train-km with ERTMS in operation	Train-km on main tracks run with ERTMS in operation compared to total train-km on main tracks	% of train-km	Additional performance indicator
~~100~~	~~Planned extent of ERTMS deployment by 2020~~	~~In 2020, the percentage of main track-km planned to have been deployed with ERTMS, i.e. main tracks equipped with both - ETCS (European train control system; any baseline or level) and GSM-R (Global System for Mobile Communications); and where ETCS and GSM-R are used in service~~	~~% of current main track-km~~	~~Additional performance indicator~~
101	Planned extent of ERTMS deployment by 2030	In 2030, the percentage of main track-km planned to have been deployed with ERTMS, i.e. main tracks equipped with both - ETCS (European train control system; any baseline or level) and GSM-R (Global System for Mobile Communications); and where ETCS and GSM-R are used in service	% of current main track-km	KPI (Benchmarking)
102	TEN-T network-lines with ERTMS in operation	Percentage of TEN-T network line main track-km with ERTMS in operation, i.e. main tracks equipped with both - ETCS (European train control system; any baseline or level) and GSM-R (Global System for Mobile Communications); and where ETCS and GSM-R are used in service (Source "TEN-T core network line main track-km": EC TENtec Database)	% of main track-km	Additional performance indicator
103	Train-km with ERTMS in operation on TEN-T network lines	Percentage of TEN-T network line train-km with ERTMS in operation, i.e. main tracks equipped with both - ETCS (European train control system; any baseline or level) and GSM-R (Global System for Mobile Communications); and where ETCS and GSM-R are used in service	% of train-km	Additional performance indicator

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
~~104~~	~~Planned extent of ERTMS deployment by 2020 on TEN-T network lines~~	~~In 2020, the percentage of main track-km TEN-T network lines planned to have been deployed with ERTMS, i.e. main tracks equipped with both - ETCS (European train control system; any baseline or level) and GSM-R (Global System for Mobile Communications); and where ETCS and GSM-R are used in service (Source "TEN-T core network line main track-km": EC TENtec Database)~~	~~% of current main track-km~~	~~Additional performance indicator~~
105	Planned extent of ERTMS deployment by 2030 on TEN-T network lines	In 2030, the percentage of main track-km TEN-T network lines planned to have been deployed with ERTMS, i.e. main tracks equipped with both - ETCS (European train control system; any baseline or level) and GSM-R (Global System for Mobile Communications); and where ETCS and GSM-R are used in service (Source "TEN-T core network line main track-km": EC TENtec Database)	% of current main track-km	Additional performance indicator
106	Axle load	Proportion of the TEN-T network permitting at least 22.5 t axle load (INF) (Source EC TENtec Database)	% of main track-km	Additional performance indicator
107	Gauge	Proportion of the TEN-T network with nominal track gauge of 1435 mm (INF) (Source EC TENtec Database)	% of main track-km	Additional performance indicator
108	Line Speed	Proportion of the TEN-T network permitting 110 km/h line speed (INF) (Source EC TENtec Database)	% of main track-km	Additional performance indicator
109	Train length	Proportion of the TEN-T network permitting 740 m train length (INF) (Source EC TENtec Database)	% of main track-km	Additional performance indicator
110	Electrification	Proportion of the fully electrified TEN-T network, supported with electrified sidings necessary for electric train operations (INF) (Source EC TENtec Database)	% of main track-km	Additional performance indicator
129	ATP coverage	Share of main track-km equipped with ATP. ATP is a train protection system providing warning and automatic stop and continuous supervision of speed, protection of danger points and continuous supervision of the speed limits of the line, where "continuous supervision of speed" means continuous indication and enforcement of the maximal allowed target speed on all sections of the line. Including e.g., ETCS, ATB, LZB, CBTC and similar systems.	% of main track-km	KPI (Benchmarking)
146	Degree of centralisation in relation to network size	Degree of centralisation in relation to network size. Centralisation refers to the total number of permanently manned control points in the IM's network. Control points are locations where traffic control staff / dispatchers work permanently and control the flow of traffic in a given geographical area.	% of main track-km	Additional performance indicator
147	Degree of centralisation in relation to traffic volume	Degree of centralisation in relation to traffic volume. Centralisation refers to the total number of permanently manned control points in the IM's network. Control points are locations where traffic control staff / dispatchers work permanently and control the flow of traffic in a given geographical area.	% of train-km	Additional performance indicator

Intermodality

A highly functional intermodality between different transport modes can bring traffic and business to the rail network. Since trains rarely offer a door-to-door solution, and rather are a part of the mobility chain, connections between modes become essential for the customers. Intermodality promotes efficiency for both freight and passenger traffic. Intermodality also increases the number of potential customers for rail. For the purposes of PRIME, intermodality also includes a measure of those stations which have access for those who are mobility impaired.

KPI ID	KPI name	KPI definition	KPI unit	KPI Level
112	Electrified multimodal rail freight terminals	Percentage of multimodal rail freight terminals accessible to electrified trains, i.e. a structure equipped for transhipment rail and other transport modes (Source European Commission, RMMS)	% of multimodal freight terminals	Additional performance indicator
113	Core maritime ports connection	Percentage of core maritime ports linked to the TEN-T network connected	% of core maritime ports	KPI (Benchmarking)
114	Core inland waterways connection	Percentage of core inland waterways linked to the TEN-T network	% of core inland waterways	KPI (Benchmarking)
115	Core airports connection	Percentage of core airports linked to the TEN-T network	% of core airports	KPI (Benchmarking)
116	Intermodal stations	Percentage of public passenger railway stations with connections to public urban transport (metro, bus, tramways, light rail, ferries etc.) within the entire railway infrastructure network, independent of ownership (Source "Passenger stations": European Commission, RMMS)	% of passenger stations	KPI (Benchmarking)
117	Passengers using accessible stations	Percentage of passengers registered annually in all accessible stations within the entire railway infrastructure network, independent of ownership, related to the total number of passengers. An accessible station is one on which a passenger can, from entering the station, reach the platform via level-access, without steps or equivalent.	% of passengers	KPI (Benchmarking)

Appendix 1: Input Data items

Context

Input ID	Data label	Data definition	Data unit
1	Total track-km	A cumulative length of all tracks maintained by the infrastructure manager	km
2	Total dobule main track-km	Total main track-km on lines which consist of double tracks	km
3	Total single main track-km	Total main track-km on lines which consist of a single track	km
4	Total electrified main track-km	Total main track-km which are electrified	km
5	Total main track-km	A track providing end-to-end line continuity designed for trains between stations or places indicated in tariffs as independent points of departure or arrival for the conveyance of passengers or goods, maintained and operated by the infrastructure manager. Tracks at service facilities not used for running trains are excluded. The boundary of the service facility is the point at which the railway vehicle leaving the service facility cannot pass without having an authorization to access the mainline or other similar line. This point is usually identified by a signal. Service facilities are passenger stations, their buildings and other facilities; freight terminals; marshalling yards and train formation facilities, including shunting facilities; storage sidings; maintenance facilities; other technical facilities, including cleaning and washing facilities; maritime and inland port facilities which are linked to rail activities; relief facilities; refuelling facilities and supply of fuel in these facilities.	km
6	Total passenger conventional main track-km	Total main track-km on lines which consist of a single track	km
7	Total passenger high-speed main track-km (≥ 250 km/h)	Total passenger high-speed main track-km (≥ 250 km/h)	km
8	Total track-km with traffic volumes >= 200 trains a day	Total track-km with traffic volumes >= 200 trains a day	km
9	Total track-km with traffic volumes >= 70 trains a day	Total track-km with traffic volumes >= 70 trains a day	km
10	Total main line-km	Cumulative length of railway lines operated and used for running trains by the end of reporting year. Lines solely used for operating touristic trains and heritage trains are excluded as are railways constructed solely to serve mines, forests or other industrial or agricultural installations and which are not open to public traffic. Metro, Tram and Light rail urban lines (with non-standard – narrow - gauge) should be excluded. Private lines closed to public traffic and functionally separated (i.e. stand-alone) networks should be excluded. Private lines used for own freight transport activities or for non-commercial passenger services and light rail lines occasionally used by heavy rail vehicles for connectivity or transit purposes are excluded.	km
417	Total passenger high-speed main track-km (≥ 200 km/h and <250 km/h)	Total passenger high-speed main track-km (≥ 200 km/h and <250 km/h)	km
418	Planned total main track-km in 2030	Total main track-km planned to be deployed in 2030	km

Safety, Security & Environment

Safety

Input ID	Data label	Data definition	Data unit
13	Number of significant accidents	Number of significant accidents including sidings, excluding accidents in workshops, warehouses and depots based on the following types of accidents (primary accidents): - Collision of train with rail vehicle - Collision of train with obstacle within the clearance gauge - Derailment of train - Level crossing accident, including accident involving pedestrians at level crossing - Accident to persons involving rolling stock in motion, with the exception of suicides and attempted suicides - Fire on rolling stock - Other accident The boundary is the point at which the railway vehicle leaving the workshop/warehouse/depot/sidings cannot pass without having an authorization to access the mainline or other similar line. This point is usually identified by a signal. For further guidance, please see ERA Implementation Guidance on CSIs.	number
14	Number of persons seriously injured	Number of persons seriously injured (i.e. hospitalised for more than 24 hours, excluding any attempted suicide) by accidents based upon following categories - Passenger - Employee or contractor - Level crossing user - Trespasser - Other person at a platform - Other person not at a platform Absolute figures and not weighted values	number
419	Number of persons killed	Number of people killed (i.e. killed immediately or dying within 30 days, excluding any suicide) by accidents based upon following categories - Passenger - Employee or contractor - Level crossing user - Trespasser - Other person at a platform - Other person not at a platform	number
15	Number of suicides and attempted suicides	Number of suicides and attempted suicides.	number
16	Number of suicides	Number of suicides	number
17	Number of attempted suicides	Number of attempted suicides.	number
18	Number of precursors to accidents	Number of the following types of precursors: - broken rail - track buckle and track misalignment - wrong-side signalling failure	number
19	Number of IM's employees killed and seriously injured while at work at IM's premises	Number of IM's employees, contracted consultants and contractors seriously injured (i.e. hospitalised for more than 24 hours, excluding any attempted suicide) and killed (i.e. killed immediately or dying within 30 days, excluding any suicide) by accidents while at work at IM's premises	number
20	Number of IM's employees killed and seriously injured while at work at trackside	Number of IM's employees, contracted consultants and contractors seriously injured (i.e. hospitalised for more than 24 hours, excluding any attempted suicide) and killed (i.e. killed immediately or dying within 30 days, excluding any suicide) by accidents while at work at trackside	number

Security

Input ID	Data label	Data definition	Data unit
21	Delay minutes due to security incidents	Number of delay minutes due to security incidents (cable thefts)	minute
22	Number of cancelled trains due to security incidents	Number of trains cancelled caused by security incidents (cable thefts)	number
23	Number of people killed or seriously injured due to security incidents	Number of people seriously injured (i.e. hospitalised for more than 24 hours) and killed (i.e. killed immediately or dying within 30 days) due to security incidents (i.e. intentional acts as terrorism, sabotage, cyber-attacks, vandalism, thefts, espionage, unauthorized persons and other acts of aggression or hooliganism)	number

Environment

Input ID	Data label	Data definition	Data unit
24	CO_2 emission produced from maintenance rolling stock	Tonnes of carbon dioxide emission produced from the activity of maintenance rolling stock	tCO
425	CO_2 emission produced from maintenance rolling stock (including outsourced companies)	Tonnes of carbon dioxide emission produced from the activity of maintenance rolling stock (including outsourced companies)	tCO
25	Amount of reused, recycled and recovered waste	Amount of reused, recycled and recovered waste linked to track and trackside	tonnes
26	Total produced waste	Total produced waste linked to track and trackside	tonnes
27	Number of rail related environmental incidents	Number of rail related environmental incidents with major and significant impact or effect	number
28	Number of citizens exposed to noise	Total number of citizens exposed to ≥ 50 dB at night	number
29	Refusal of requested train paths due to noise	Number of not awarded requested train paths due to noise	number
30	Total number of requested train paths	Total number of requested train paths	number
31	Length of noise barriers	Length of noise barriers in main line-km	km
32	Length of track equipped with rail absorbers	Length of track equipped with rail absorbers in main track-km	km
413	Share of renewable energies (excl. traction)	Share of renewable energies in IM's total consumption excluding traction current. Renewable energy is an energy that is derived from natural processes that are replenished constantly, such as energy generated from solar, wind, biomass, geothermal, hydropower and ocean resources, solid biomass, biogas and liquid biofuels.	% of kWh
414	Share of renewable traction energy	Share of renewable electric traction energy of total electric traction energy in % of kWh. Renewable energy is an energy that is derived from natural processes that are replenished constantly, such as energy generated from solar, wind, biomass, geothermal, hydropower and ocean resources, solid biomass, biogas and liquid biofuels. Only electric energy is included.	% of kWh

Performance

Punctuality

Input ID	Data label	Data definition	Data unit
33	Number of all trains scheduled to be operated	Total number of national and international passenger and freight trains (excluding work trains) scheduled to be operated, including those timetabled at short notice but excluding replacement trains due to cancellations to avoid double counting	trains

Input ID	Data label	Data definition	Data unit
34	Trains arrived at strategic measuring points with a delay of less than or equal to 5:29 minutes (passengers) or 15:29 minutes (freight) respectively	Total number of national and international passenger and freight trains (excluding work trains) which arrive at each measuring point with a delay of less than or equal to 5:29 minutes for passenger services and 15:29 minutes for freight services	trains
35	Number of scheduled trains that operated	Total number of national and international passenger and freight trains (excluding work trains) actually operated (i.e. were not cancelled) out of those that were scheduled in the original working timetable, including those timetabled at short notice	trains
36	Passenger trains arrived at strategic measuring points with a delay of less than or equal to 5:29 minutes	Total number of national and international passenger trains (excluding freight and work trains) which arrive at each strategic measuring point with a delay of less than or equal to 5:29 minutes	trains
37	Number of scheduled passenger trains that operated	Total number of national and international passenger trains (excluding freight and work trains) actually operated (i.e. were not cancelled) out of those that were scheduled in the original working timetable, including those timetabled at short notice	trains
38	Freight trains arrived at strategic measuring points with a delay of less than or equal to 15:29 minutes	Total number of national and international freight trains (excluding passenger and work trains) which arrive at each strategic measuring point with a delay of less than or equal to 15:29 minutes	trains
39	Number of scheduled freight trains that operated	Total number of national and international freight trains (excluding passenger and work trains) actually operated (i.e. were not cancelled) out of those that were scheduled in the original working timetable, including those timetabled at short notice	trains
40	Delay minutes - IM's responsibility	Delay minutes caused by incidents that are regarded as IM’s responsibility according to UIC leaflet 450-2, Appendix A - Table 1 (columns 1, 2 and 3) and corresponding explanation in appendices B.1, B.2 and B.3. Delay minutes will be measured at all available measuring points. Of those measured delay minutes that exceed a threshold of 5:29 minutes for passenger services and 15:29 minutes for freight services the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point	minute
41	Delay minutes - Weather	Delay minutes caused by weather incidents which have led to disruptions in the railway infrastructure. Delay minutes will be measured at all available measuring points. Of those measured delay minutes that exceed a threshold of 5:29 minutes for passenger services and 15:29 minutes for freight services the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point	minute
42	Cancellations of scheduled passenger trains - IM's responsibility	Number of fully or partially cancelled national and international passenger trains that are included in the last time table issued the day before the service (or the time table that is valid when the train service takes place) caused by incidents that are regarded as IM’s responsibility according to UIC leaflet 450-2, Appendix A - Table 1 (columns 1, 2 and 3) and corresponding explanation in appendices B.1, B.2 and B.3. Including all types of cancelled trains such as full cancellation (cancelled at origin), part cancellation en route, part cancellation changed origin, part cancellation diverted	trains
43	Cancellations of scheduled passenger trains - total	Total number of fully or partially cancelled national and international passenger trains that are included in the last time table issued the day before the service (or the time table that is valid when the train service takes place). Including all types of cancelled trains such as full cancellation (cancelled at origin), part cancellation en route, part cancellation changed origin, part cancellation diverted	trains

Reliability

Input ID	Data label	Data definition	Data unit
44	Total delay minutes - Asset failures	Delay minutes caused by all asset failures on main track according to UIC leaflet 450-2, Appendix A - Table 1 (column 2) and corresponding explanation in Appendix B.2 - Infrastructure installations. Delay minutes will be measured at all available measuring points. Of those measured delay minutes that exceed a threshold of 5:29 minutes for passenger services and 15:29 minutes for freight services the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point	minute
45	Total delay minutes - Signalling failures	Delay minutes caused by asset failures of signalling installations and signalling installations at level crossings on main track according to UIC leaflet 450-2, Appendix B.2 (numbers 20 & 21). Delay minutes will be measured at all available measuring points. Of those measured delay minutes that exceed a threshold of 5:29 minutes for passenger services and 15:29 minutes for freight services the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point	minute
46	Total delay minutes - Telecommunication failures	Delay minutes caused by asset failures of telecommunication installations (GSM-R, Radio failure and more) on main track according to UIC leaflet 450-2, Appendix B.2 (number 22). Delay minutes will be measured at all available measuring points. Of those measured delay minutes that exceed a threshold of 5:29 minutes for passenger services and 15:29 minutes for freight services the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point	minute
47	Total delay minutes - Power supply failures	Delay minutes caused by asset failures of power supply equipment (power supply for electric traction, variation and drops of voltage and others) on main track according to UIC leaflet 450-2, Appendix B.2 (number 23). Delay minutes will be measured at all available measuring points. Of those measured delay minutes that exceed a threshold of 5:29 minutes for passenger services and 15:29 minutes for freight services the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point	minute
48	Total delay minutes - Track failures	Delay minutes caused by track failures (rail breakage, lateral distortion and other track failures) on main track according to UIC leaflet 450-2, Appendix B.2 (number 24). Delay minutes will be measured at all available measuring points. Of those measured delay minutes that exceed a threshold of 5:29 minutes for passenger services and 15:29 minutes for freight services the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point	minute
49	Total delay minutes - Other causes	Delay minutes caused by asset failures due to the managing and planning of staff and other causes related to infrastructure installations on main track according to UIC leaflet 450-2, Appendix B.2 (numbers 28 & 29). Delay minutes will be measured at all available measuring points. Of those measured delay minutes that exceed a threshold of 5:29 minutes for passenger services and 15:29 minutes for freight services the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point	minute

Input ID	Data label	Data definition	Data unit
50	Total delay minutes - Structure failures	Delay minutes caused by asset failures of structures (tunnels, bridges) on main track according to UIC leaflet 450-2, Appendix B.2 (number 25). Delay minutes will be measured at all available measuring points. Of those measured delay minutes that exceed a threshold of 5:29 minutes for passenger services and 15:29 minutes for freight services the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point	minute
51	Total delay minutes - Weather effects	Delay minutes caused by effects of weather or natural causes (fog, avalanches, snowfall, mudslides, storms, gales, wheel slide or slip due to leaves on the line, floods) on main track according to UIC leaflet 450-2, Appendix B.8 (number 83). Delay minutes will be measured at all available measuring points. Of those measured delay minutes that exceed a threshold of 5:29 minutes for passenger services and 15:29 minutes for freight services the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point	minute

Delivery

Capacity

Input ID	Data label	Data definition	Data unit
52	Annual total main track-km-days planned for IM's activities	Annual total main track-km-days planned for IM's activities, including maintenance, enhancement and renewals on main tracks. Planned work in the yearly time table. This is calculated as the number of main track-km planned for IM's activities (km) multiplied with its duration in days (t); (∑ km * t); Example: 10 km*30 days + 20 km*50 days = 1300 km-days. An alternative and simplified way to calculate this Input is to use the planned average duration per possession instead. t_avg * (∑ km) / (main track-km * 365).	km-days
53	Annual total main track-km-days used for IM's activities	Annual total main track-km-days used for IM's activities, including maintenance, enhancement and renewals on main tracks. Executed work in the yearly time table. This is calculated as the number of main track-km planned for IM's activities (km) multiplied with its duration in days (t); (∑ km * t); Example: 10 km*30 days + 20 km*50 days = 1300 km-days . An alternative and simplified way to calculate this Input is to use the planned average duration per possession instead. t_avg * (∑ km) / (main track-km * 365).	km-days
54	Total yearly time loss included in timetable	Annual total time loss in minute-km (i.e. sum of additional travel times multiplied by respective track lengths) experienced by trains due to permanent speed restrictions related to the original function of the infrastructure (maximum line speed), included in the yearly timetable. The method for calculating this is described in the glossary of the current PRIME KPI Catalogue	minute-km
55	Total yearly time loss not included in timetable	Annual total time loss in minute-km-days (i.e. sum of additional travel times multiplied by respective track lengths multiplied by respective duration in days) experienced by trains due to temporary speed restrictions related to the original function of the infrastructure (maximum line speed), not included in the yearly timetable. The method for calculating this is described in the glossary of the current PRIME KPI Catalogue	minute-km-days

Condition

Input ID	Data label	Data definition	Data unit
60	Total number of asset failures	Total number of all asset failures on main track according to UIC leaflet 450-2, Appendix A - Table 1 (column 2) and Appendix B.2 - Infrastructure installations. An asset failure is counted one time and one time only if any train is affected by it. A train is affected if the asset failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. An asset failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	number
61	Total number of signalling failures	Total number of asset failures of signalling installations and signalling installations at level crossings on main track according to UIC leaflet 450-2, Appendix B.2 (numbers 20 & 21). A signaling failure is counted one time and one time only if any train is affected by it. A train is affected if the signaling failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. A signalling failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	number

Input ID	Data label	Data definition	Data unit
62	Total number of telecommunication failures	Total number of asset failures of telecommunication installations (GSM-R, Radio failure and more) on main track according to UIC leaflet 450-2, Appendix B.2 (number 22). A telecommunication failure is counted one time and one time only if any train is affected by it. A train is affected if the telecommunication failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. A telecommunication failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	number
63	Total number of power supply failures	Total number of asset failures of power supply equipment (power supply for electric traction, variation and drops of voltage and others) on main track according to UIC leaflet 450-2, Appendix B.2 (number 23). A power supply failure is counted one time and one time only if any train is affected by it. A train is affected if the power supply failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. A power supply failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	number
64	Total number of track failures	Total number of track failures (rail breakage, lateral distortion and other track failures) on main track according to UIC leaflet 450-2, Appendix B.2 (number 24). A track failure is counted one time and one time only if any train is affected by it. A train is affected if the track failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. A track failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	number
65	Total number of other failures	Total number of asset failures due to the managing and planning of staff and other causes related to infrastructure installations on main track according to UIC leaflet 450-2, Appendix B.2 (numbers 28 & 29). Any other failure is counted one time and one time only if any train is affected by it. A train is affected if any other failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. Any other failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	number
66	Total number of structure failures	Total number of asset failures of structures (tunnels, bridges) on main track according to UIC leaflet 450-2, Appendix B.2 (number 25). A structure failure is counted one time and one time only if any train is affected by it. A train is affected if the structure failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. A structure failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	number
67	Total number of weather related failures	Total number of effects of weather or natural causes (fog, avalanches, snowfall, mudslides, storms, gales, wheel slide or slip due to leaves on the line, floods) on main track according to UIC leaflet 450-2, Appendix B.8 (number 83). An effect of weather or natural causes is counted one time and one time only if any train is affected by it. A train is affected if the weather related failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. An effect of weather or natural causes is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	number

Input ID	Data label	Data definition	Data unit
68	Track-km with permanent speed restriction	Length (km) of main tracks with permanent speed restriction due to deteriorating asset condition weighted by the time the restrictions are in place (included in the yearly timetable); restrictions are counted whenever criterion is met regardless of whether IM reports permanent speed restrictions as such and regardless of the status of their inclusion in the time table	km
69	Track-km with temporary speed restriction	Length (km) of main tracks with temporary speed restriction due to deteriorating asset condition weighted by the time the restrictions are in place (not included in the yearly timetable)	km

Financial

Costs

Input ID	Data label	Data definition	Data unit
70	Total OPEX - operating expenditures	Total IM's annual operating expenditures (net values, excluding value added tax). All operating expenditures for network, stations and ancillary business need to add up to this total.	Local currency unit
71	Total maintenance expenditures	Total IM's annual maintenance expenditures (net values, excluding value added tax). All maintenance expenditures for network, stations and ancillary business need to add up to this total.	Local currency unit
420	Share of outsourced maintenance work	Share of total maintenance work that is outsourced. Outsourcing refers to any maintenance services provided by outside suppliers on a contractual basis	% of expenditures
72	Stations maintenance expenditures	IM's annual maintenance expenditures for stations (net values, excluding value added tax).	Local currency unit
73	Total traffic management expenditures	Total IM's annual traffic management expenditures (net values, excluding value added tax) for operating the network. Only applies to network but not to stations and ancillary business.	Local currency unit
74	Total power consumption expenditures	Total IM's annual power consumption expenditures (net values, excluding value added tax). All power comsumptions expenditures for network, stations and ancillary business need to add up to this total. It includes traction energy.	Local currency unit
75	Total other operating expenditures	Total IM's annual other operating expenditures(net values, excluding value added tax). All other operating expenditures for network, stations and ancillary business need to add up to this total.	Local currency unit
76	Total financial expenditures	Total IM's annual financial expenditures (net values, excluding value added tax). All financial expenditures for network, stations and ancillary business need to add up to this total.	Local currency unit
77	Total other non-operating expenditures	Total IM's annual other non-operating expenditures (net values, excluding value added tax). All other non-operating expenditures for network, stations and ancillary business need to add up to this total.	Local currency unit
78	Total CAPEX - capital expenditures	Total IM's annual capital expenditures (net values, excluding value added tax). All capital expenditures for network, stations and ancillary business need to add up to this total.	Local currency unit
79	Total renewal expenditures	Total IM's annual renewal expenditures (net values, excluding value added tax). All renewal expenditures for network, stations and ancillary business need to add up to this total.	Local currency unit
80	Stations renewal expenditures	IM's annual renewal expenditures for stations (net values, excluding value added tax).	Local currency unit
81	Total enhancement expenditures	Total IM's annual enhancement expenditures (net values, excluding value added tax). All enhancement expenditures for network, stations and ancillary business need to add up to this total.	Local currency unit
82	Stations enhancement expenditures	IM's annual enhancement expenditures for stations (net values, excluding value added tax).	Local currency unit

Input ID	Data label	Data definition	Data unit
83	Total investment expenditures	Total IM's annual investment expenditures (net values, excluding value added tax). All investment expenditures for network, stations and ancillary business need to add up to this total.	Local currency unit
84	Stations investment expenditures	IM's annual investment expenditures for stations (net values, excluding value added tax).	Local currency unit
85	Total other capital expenditures	Total IM's annual other capital expenditures (net values, excluding value added tax). All other capital expenditures for network, stations and ancillary business need to add up to this total.	Local currency unit
86	Total non-operating expenditures	Total IM's annual non-operating expenditures (net values, excluding value added tax). Non-operating expenditures are the sum of total IM's annual other non-operating expenditures and total IM's annual financial expenditures.	Local currency unit
87	Total direct expenditures	Total IM's annual direct expenditures (net values, excluding value added tax) in the meaning of Regulation (EU)2015/909 (expenditures that are directly incurred as a result of operating the train service)	Local currency unit
88	Total direct expenditures (OPEX)	Total IM's annual direct operational expenditures (net values, excluding value added tax) in the meaning of Regulation (EU)2015/909 (expenditures that are directly incurred as a result of operating the train service)	Local currency unit
89	Total direct expenditures (CAPEX)	Total IM's annual direct capital expenditures (net values, excluding value added tax) in the meaning of Regulation (EU)2015/909 (expenditures that are directly incurred as a result of operating the train service)	Local currency unit
90	Total renewal expenditures financed with grants	Total IM's annual renewal expenditures (net values, excluding value added tax) financed with grants	Local currency unit
91	Total investment expenditures financed with grants	Total IM's annual investment expenditures (net values, excluding value added tax) financed with grants	Local currency unit
92	Total enhancement expenditures financed with grants	Total IM's annual enhancement expenditures (net values, excluding value added tax) financed with grants	Local currency unit
93	Sum of total renewal and maintenance expenditures	Total IM's annual renewal and maintenance expenditures (sum of total IM's annual renewal expenditures and total IM's annual maintenance expenditures; net values, excluding value added tax)	Local currency unit
94	Sum of total enhancement and investment expenditures	Total IM's annual enhancement and investment expenditures (sum of total IM's annual enhancement expenditures and total IM's annual investment expenditures; net values, excluding value added tax)	Local currency unit
95	Total expenditures	Total IM's annual expenditures (sum of total IM's annual operational expenditures and total IM's annual non-operating expenditures and total IM's annual capital expenditures; net values, excluding value added tax)	Local currency unit
374	Network OPEX - operating expenditures	IM's annual operating expenditures for network (net values, excluding value added tax).	Local currency unit
375	Network maintenance expenditures	IM's annual maintenance expenditures for network (net values, excluding value added tax).	Local currency unit
376	Network power consumption expenditures	IM's annual power consumption expenditures for network (net values, excluding value added tax).	Local currency unit
377	Network other operating expenditures	IM's annual other operating expenditures for network (net values, excluding value added tax).	Local currency unit
378	Network financial expenditures	IM's annual financial expenditures for network (net values, excluding value added tax).	Local currency unit
379	Network other non-operating expenditures	IM's annual other non-operating expenditures for network (net values, excluding value added tax).	Local currency unit
380	Stations OPEX - operating expenditures	IM's annual operating expenditures for stations (net values, excluding value added tax).	Local currency unit
381	Stations power consumption expenditures	IM's annual power consumption expenditures for stations (net values, excluding value added tax).	Local currency unit
382	Stations other operating expenditures	IM's annual other operating expenditures for stations (net values, excluding value added tax).	Local currency unit
383	Stations financial expenditures	IM's annual financial expenditures for stations (net values, excluding value added tax).	Local currency unit
384	Stations other non-operating expenditures	IM's annual other non-operating expenditures for stations (net values, excluding value added tax).	Local currency unit

Input ID	Data label	Data definition	Data unit
385	Ancillary business OPEX - operating expenditures	IM's annual operating expenditures for ancillary business (net values, excluding value added tax).	Local currency unit
386	Network CAPEX - capital expenditures	IM's annual capital expenditures for network (net values, excluding value added tax).	Local currency unit
387	Network renewal expenditures	IM's annual renewal expenditures for network (net values, excluding value added tax).	Local currency unit
388	Network enhancement expenditures	IM's annual enhancement expenditures for network (net values, excluding value added tax).	Local currency unit
389	Network investment expenditures	IM's annual investment expenditures for network (net values, excluding value added tax).	Local currency unit
390	Network other capital expenditures	IM's annual other capital expenditures for network (net values, excluding value added tax).	Local currency unit
391	Stations CAPEX - capital expenditures	IM's annual capital expenditures for stations (net values, excluding value added tax).	Local currency unit
392	Stations other capital expenditures	IM's annual other capital expenditures for stations (net values, excluding value added tax).	Local currency unit
393	Ancillary Business CAPEX - capital expenditures	IM's annual capital expenditures for ancillary business (net values, excluding value added tax).	Local currency unit

Revenues

Input ID	Data label	Data definition	Data unit
96	Total revenues from non-access charges	Total IM's annual revenues from non-access charges (e.g., commercial letting, advertising, telecoms but excluding grants or subsidies)	Local currency unit
97	Total revenues	Total IM's annual revenues (excluding general grants or subsidies). Specific subsidies the IMs specifically receive for TAC may be included. Categories of access charges are: (1) Minimum Access Charge; (2) Other TAC charges; (3) Other Non-TAC charges (e.g., station access). Other revenues include e.g., commercial letting, advertising, telecoms.	Local currency unit
98	Revenues from TAC	IM's annual income from track access charges, including freight, passenger and touristic trains. TAC for freight and passenger trains need to add up to this total. Charges covered by Directive 2012/34/EU Annex II 2 a)	Local currency unit
99	Revenues from freight TAC	IM's annual income from track access charges for freight trains.	Local currency unit
100	Revenues from passenger TAC	IM's annual income from track access charges for all passenger trains, including conventional, high-speed and touristic trains.	Local currency unit
101	Revenues from conventional passenger train TAC	IM's annual income from track access charges for conventional passenger trains.	Local currency unit
102	Revenues from high-speed passenger train TAC	IM's annual income from track access charges for high-speed passenger trains.	Local currency unit
103	Revenues from station access charges	IM's annual income from station access charges.	Local currency unit
104	Income from incentive and performance regimes	IM's annual income from incentive and performance regimes with customers (if applicable, excluding public grants or state subsidies)	Local currency unit
394	TOTIN - total income	Total IM's annual income. All income for network, stations and ancillary business need to add up to this total.	Local currency unit
396	Network total income	IM's annual income for network. All income from charging, inventive/performance regimes and public funding needs to add up to this total.	Local currency unit
397	Revenues from service facilities, additional and ancillary services	IM's annual income from charges related to Directive 2012/34/EU Annex II services including points 2, 3 and 4 but excluding 2 a	Local currency unit
398	IM's annual income from public funding	Total IM's annual income from public funding (EU, government, states, municipalities)	Local currency unit
399	IM's annual income from public funding explicitly dedicated to OPEX	Total IM's annual income from public funding (EU, government, states, municipalities) explicitly dedicated to OPEX	Local currency unit

Input ID	Data label	Data definition	Data unit
400	IM's annual income from public funding explicitly dedicated to CAPEX	Total IM's annual income from public funding (EU, government, states, municipalities) explicitly dedicated to CAPEX	Local currency unit
401	Public funding for network renewals	IM's annual income from public funding for network renewal expenditures.	Local currency unit
402	Public funding for network investments	IM's annual income from public funding for network investment expenditures.	Local currency unit
403	Public funding for network enhancements	IM's annual income from public funding for network enhancement expenditures.	Local currency unit
404	Stations total income	IM's annual income for stations.All income from charging, other revenues and public funding needs to add up to this total.	Local currency unit
406	Public funding for stations	IM's total annual public funding received for stations. Public funding for station opex and capex need to add up to this total.	Local currency unit
407	Public funding for station opex	IM's annual public funding received for stations opex.	Local currency unit
408	Public funding for station capex	IM's annual public funding received for stations capex. Public funding for station renewals, investments and enhancements need to add up to this total.	Local currency unit
409	Public funding for station renewals	IM's annual public funding received for stations renewals.	Local currency unit
410	Public funding for station investments	IM's annual public funding received for stations investments.	Local currency unit
411	Public funding for station enhancements	IM's annual public funding received for stations enhancements.	Local currency unit
422	Public funding for network	IM's annual public funding received for the network. Public funding for network opex and capex need to add up to this total	Local currency unit
423	Public funding for network opex	IM's annual public funding received for network opex.	Local currency unit
424	Public funding for network capex	IM's annual public funding received for network capex.	Local currency unit

Growth

Utilisation

Input ID	Data label	Data definition	Data unit
105	Total train-km	Total train-km operated (revenue service + shunting operations to and from depots + IM's work traffic)	km
106	Total freight train-km	Total freight train-km operated (revenue service only, no shunting, no work trains)	km
107	Total passenger train-km	Total passenger train-km operated (revenue service only, no shunting, no work trains)	km
108	Total passenger conventional train-km	Total passenger conventional train-km operated (revenue service only, no shunting, no work trains)	km
109	Total passenger high-speed train-km (≥ 200 km/h)	Total passenger high-speed train-km operated (revenue service only, no shunting, no work trains), ≥ 200 km/h	km
110	Total diesel-powered train-km	Total train-km operated by diesel-powered trains (revenue service + shunting operations to and from depots + IM's work traffic)	km
111	Total electricity-powered train-km	Total train-km operated by electricity-powered trains (revenue service + shunting operations to and from depots + IM's work traffic)	km
112	Total train-km on main track	Total train-km on main track operated (passenger and freight revenue service only, no shunting, no work trains)	km
113	Total passenger train-km on main track	Total passenger train-km on main track operated (revenue service only, no shunting, no work trains)	km

Input ID	Data label	Data definition	Data unit
114	Total freight train-km on main track	Total freight train-km on main track operated (revenue service only, no shunting, no work trains)	km
115	Total gross tonne-km on main track	Total gross tonne-km on main track operated (passenger and freight revenue service only, no shunting, no work trains)	km

Asset Capability & ERTMS

Input ID	Data label	Data definition	Data unit
116	Total main track-km with ERTMS	Total main track-km with ERTMS in operation	km
117	Total train-km on main tracks run with ERTMS	Total train-km on main tracks run with ERTMS in operation, i.e. main tracks equipped with both - ETCS (European train control system; any baseline or level) and GSM-R (Global System for Mobile Communications); and where ETCS and GSM-R are used in service	km
119	In 2030 sum of main track-km planned deployed with ERTMS	In 2030, the sum of main track-km planned to have been deployed with ERTMS, i.e. main tracks equipped with both - ETCS (European train control system; any baseline or level) and GSM-R (Global System for Mobile Communications); and where ETCS and GSM-R are used in service	km
120	Total TEN-T network line main track-km with ERTMS	Total TEN-T network line main track-km with ERTMS in operation, i.e. main tracks equipped with both ETCS (European train control system; any baseline or level) and GSM-R (Global System for Mobile Communications); and where ETCS and GSM-R are used in service	km
122	Total TEN-T network line train-km with ERTMS	Total TEN-T network line train-km with ERTMS in operation, i.e. main tracks equipped with both - ETCS (European train control system; any baseline or level) and GSM-R (Global System for Mobile Communications); and where ETCS and GSM-R are used in service	km
123	Total train-km TEN-core network lines	Total train-km TEN-core network lines	km
~~124~~	~~In 2020 total main track-km TEN-T network lines planned deployed with ERTMS~~	~~In 2020, the sum of main track-km TEN-T network lines planned to have been deployed with ERTMS, i.e. main tracks equipped with both ETCS (European train control system; any baseline or level) and GSM-R (Global System for Mobile Communications); and where ETCS and GSM-R are used in service~~	~~km~~
125	In 2030 total main track-km TEN-T network lines planned deployed with ERTMS	In 2030, the sum of main track-km TEN-T network lines planned to have been deployed with ERTMS, i.e. main tracks equipped with both - ETCS (European train control system; any baseline or level) and GSM-R (Global System for Mobile Communications); and where ETCS and GSM-R are used in service	km
415	Main track-km equipped with ATP	Total main track-km equipped with ATP. ATP is a train protection system providing warning and automatic stop and continuous supervision of speed, protection of danger points and continuous supervision of the speed limits of the line, where "continuous supervision of speed" means continuous indication and enforcement of the maximal allowed target speed on all sections of the line. Including e.g., ETCS, ATB, LZB, CBTC and similar systems.	km
416	IM's number of manned control points	Total number of manned control points. Control points are locations where traffic control staff / dispatchers work and control the flow of traffic in a given geographical area.	Number

Intermodality

Input ID	Data label	Data definition	Data unit
134	Number of core maritime ports connected to the rail network	Number of core maritime ports connected to the rail network. Core maritime ports linked to the TEN-T network, according to Regulation (EU) No 1315/2013 on Union guidelines for the development of the trans-European transport network, in particular to the maps in ANNEX III	number

Input ID	Data label	Data definition	Data unit
135	Total number of core maritime ports	Total number of maritime ports linked to the TEN-T network, according to Regulation (EU) No 1315/2013 on Union guidelines for the development of the trans-European transport network, in particular to the maps in ANNEX III	number
136	Number of core inland waterways connected to the rail network	Number of core inland waterways connected to the rail network. Core inland waterways linked to the TEN-T network, according to Regulation (EU) No 1315/2013 on Union guidelines for the development of the trans-European transport network, in particular to the maps in ANNEX III	number
137	Total number of core inland waterways	Total number of core inland waterways linked to the TEN-T network, according to Regulation (EU) No 1315/2013 on Union guidelines for the development of the trans-European transport network, in particular to the maps in ANNEX III	number
138	Number of core airports connected to the rail network	Number of core airports connected to the rail network. Core airports linked to the TEN-T network, according to Regulation (EU) No 1315/2013 on Union guidelines for the development of the trans-European transport network, in particular to the maps in ANNEX III	number
139	Total number of core airports	Total number of core airports linked to the TEN-T network, according to Regulation (EU) No 1315/2013 on Union guidelines for the development of the trans-European transport network, in particular to the maps in ANNEX III	number
140	Number of public passenger railway stations with connections to public urban transport	Number of public passenger railway stations with connections to public urban transport (metro, bus, tramways, light rail, ferries etc.) within the entire railway infrastructure network, independent of ownership	number
141	Total number of passengers registered in accessible stations per year	Total number of passengers registered annually in all accessible stations within the entire railway infrastructure network, independent of ownership. An accessible station is one on which a passenger can, from entering the station, reach the platform via level-access, without steps or equivalent.	number
142	Total number of passengers	Total number of passengers	number

Appendix 2: Background information

Background information is consisting of various data within the areas charging, organisation, human resources, asset information, railway market, country characteristics, policies and plans. Part of background is also finance. In addition to the KPIs, background information serves as a tool to make good analysis and making the right conclusions.

Unless otherwise stated, data should be provided as it stands on 31 December of the data year. However, if a major in-year change has occurred (e.g., opening of a significant section of new high-speed line), the effect of this on, for example, network length, should be pro-rated. Data which are provided by the European Commission are national statistics.

Asset information

Input ID	Data label	Data definition	Data unit
56	Length of main tracks of congested infrastructure	Length of main tracks of congested infrastructure according to Article 47(1) of Directive 2012/34/EU (in respect of the situation at the end of the reporting period) (Source: European Commission, RMMS)	km
57	Number of nodes of congested infrastructure	Number of nodes of congested infrastructure according to Article 47(1) of Directive 2012/34/EU (in respect of the situation at the end of the reporting period) (Source: European Commission, RMMS)	number
58	Number of rejected path allocation requests during the year	Number of rejected path allocation requests during the year. Both scheduled and ad hoc requests for passenger and freight train paths should be summarised (Source: European Commission, RMMS)	number
59	Total number of path allocation requests	Total number of path allocation requests. Both scheduled and ad hoc requests for passenger and freight train paths should be summarised (Source: European Commission, RMMS)	number
121	Total main track-km TEN-core network lines	Total main track-km TEN-core network lines (Source: EC TENtec Database)	km
126	Total main track-km TEN-core network lines permitting at least 22.5 t axle load	Total main track-km TEN-core network lines permitting at least 22.5 t axle load (Source: EC TENtec Database)	km
127	Total main track-km TEN-core network lines with nominal track gauge of 1435 mm	Total main track-km TEN-core network lines with nominal track gauge of 1435 mm (Source: EC TENtec Database)	km
128	Total main track-km TEN-core network lines permitting 110km/h line speed	Total main track-km TEN-core network lines permitting 110km/h line speed (Source: EC TENtec Database)	km
129	Total main track-km TEN-core network lines permitting 740 m train length	Total main track-km TEN-core network lines permitting 740 m train length (Source: EC TENtec Database)	km
130	Total main track-km fully electrified TEN-core network lines	Total main track-km fully electrified TEN-core network lines (Source: EC TENtec Database)	km
131	Number of multimodal freight terminals - National	Number of multimodal freight terminals - National (Source: European Commission, RMMS)	number
133	Number of multimodal rail freight terminals accessible to electrified trains	Total number of multimodal rail freight terminals accessible to electrified trains, i.e. a structure equipped for transhipment rail and other transport modes (Source: European Commission, RMMS)	number
143	Total main line-km - National	Total main line-km - National (Source: European Commission, Statistical Pocket book)	km

Input ID	Data label	Data definition	Data unit
144	Main line-km	Cumulative length of railway lines operated and used for running trains by the end of reporting year. Lines solely used for operating touristic trains and heritage trains are excluded as are railways constructed solely to serve mines, forests or other industrial or agricultural installations and which are not open to public traffic. Metro, Tram and Light rail urban lines (with non-standard – narrow - gauge) should be excluded. Private lines closed to public traffic and functionally separated (i.e. stand-alone) networks should be excluded. Private lines used for own freight transport activities or for non-commercial passenger services and light rail lines occasionally used by heavy rail vehicles for connectivity or transit purposes are excluded.	N/A
145	- High-Speed	High-Speed main line-km	km
146	- Conventional	Conventional main line-km	km
148	Main track-km	A track providing end-to-end line continuity designed for trains between stations or places indicated in tariffs as independent points of departure or arrival for the conveyance of passengers or goods, maintained and operated by the infrastructure manager. Tracks at service facilities not used for running trains are excluded. The boundary of the service facility is the point at which the railway vehicle leaving the service facility cannot pass without having an authorization to access the mainline or other similar line. This point is usually identified by a signal. Service facilities are passenger stations, their buildings and other facilities; freight terminals; marshalling yards and train formation facilities, including shunting facilities; storage sidings; maintenance facilities; other technical facilities, including cleaning and washing facilities; maritime and inland port facilities which are linked to rail activities; relief facilities; refuelling facilities and supply of fuel in these facilities.	N/A
149	- Conventional (principle track)	Conventional main track-km, principle track (All main/running track except siding and platform tracks)	km
150	- Conventional (other main track)	Conventional main track-km, other main track (siding and platform tracks)	km
151	- Conventional (other track)	Conventional track-km, other (All other tracks than main/running ones: tracks maintained, but not operated by the infrastructure manager; tracks at service facilities not used for running trains.)	km
153	Main lines in TEN-T network - National	Percentage of main lines being part of TEN-T network - National (%) (Source: European Commission, TENtec)	%
154	TEN corridors line-km – National	Total line-km which are part of a TEN corridor (Source: European Commission, TENtec)	km
155	Main track electrified	Percentage of main track-km which is electrified (%)	%
156	Bridges	Main track-km on bridges (>=2m)	km
157	Number of bridges	Number of bridges (>=2m) in main track	number
158	Tunnels	Main track-km in tunnels	km
159	Switches	Switch quantities	N/A
160	- Main track	Switch quantity, main track	number
161	- Other track	Switch quantity, other track	number
162	Level crossings	Level crossing quantity in main track	number
163	Is the IM classifying its stations according to UIC leaflet 180?	Is the IM classifying its stations according to UIC leaflet 180: Classification of Rail Passenger Stations? (Y/N)	Y/N
164	Passenger stations - National	Number of passenger stations - National (Source: European Commission, RMMS)	number
165	Stations per category	Number of stations on lines owned by IMs per category (nr)	N/A
166	- over 25,000 travellers per day	Number of stations serving over 25,000 travellers per day	number
167	- 10,000 - 25,000 travellers per day	Number of stations serving 10,000- 25,000 travellers per day	number
168	- 1,000 - 10,000 travellers per day	Number of stations serving 1,000 - 10,000 travellers per day	number

Input ID	Data label	Data definition	Data unit
169	- 0 - 1,000 travellers per day	Number of stations serving less than 1,000 travellers per day	number

Organisation, management & ownership

Input ID	Data label	Data definition	Data unit
171	Is the IM state-owned?	Is the IM state-owned?	Y/N
172	Are IM and operators integrated?	Are IM and operators integrated?	Y/N
173	Management of activities by IM	Management of activities	N/A
174	Maintenance	Maintenance managed by IM?	Y/N
175	Operations	Operations managed by IM?	Y/N
176	Renewals	Renewals managed by IM?	Y/N
177	Investments	Investments managed by IM?	Y/N
178	Stations	Stations managed by IM?	Y/N
179	Traffic information	Traffic information managed by IM?	Y/N
180	Ownership of activities by IM	Ownership of activities	N/A
181	Maintenance	Activity 'Maintenance' owned by IM?	Y/N
182	Operations	Activity 'Operations' owned by IM?	Y/N
183	Renewals	Activity 'Renewals' owned by IM?	Y/N
184	Investments	Activity 'Investments' owned by IM?	Y/N
185	Stations	Activity 'Stations' owned by IM?	Y/N
186	Traffic information	Activity 'Traffic information' owned by IM?	Y/N
187	Management of assets by IM	Management of assets	N/A
188	Lines, overall	Lines managed by IM?	Y/N
189	Passenger stations - Station areas	Station areas managed by IM?	Y/N
190	Passenger stations - Platforms	Platforms managed by IM?	Y/N
191	Passenger stations - Commercial areas	Commercial areas managed by IM?	Y/N
192	Freight terminals	Freight terminals managed by IM?	Y/N
193	Marshalling yards	Marshalling yards managed by IM?	Y/N
194	Train formation facilities	Train formation facilities managed by IM?	Y/N
195	Storage sidings	Storage sidings managed by IM?	Y/N
196	Infrastructure maintenance facilities	Infrastructure maintenance facilities managed by IM?	Y/N
197	Rolling stock maintenance facilities	Rolling stock maintenance facilities managed by IM?	Y/N
198	Energy - Power supply	Power supply managed by IM?	Y/N
199	Energy - Refilling facilities	Refilling facilities managed by IM?	Y/N
200	Telecom, Infrastructure	Telecom infrastructure managed by IM?	Y/N
201	Rolling stock - Operating fleet	Operating fleet managed by IM?	Y/N
202	Rolling stock - Maintenance fleet	Rolling stock maintenance fleet managed by IM?	Y/N
203	Ownership of assets by IM	Ownership of assets	N/A
204	Lines, overall	Lines owned by IM?	Y/N
205	Passenger stations - Station areas	Station areas owned by IM?	Y/N
206	Passenger stations - Platforms	Platforms owned by IM?	Y/N
207	Passenger stations - Commercial areas	Commercial areas owned by IM?	Y/N
208	Freight terminals	Freight terminals owned by IM?	Y/N
209	Marshalling yards	Marshalling yards owned by IM?	Y/N
210	Train formation facilities	Train formation facilities owned by IM?	Y/N
211	Storage sidings	Storage sidings owned by IM?	Y/N
212	Infrastructure maintenance facilities	Infrastructure maintenance facilities owned by IM?	Y/N
213	Rolling stock maintenance facilities	Rolling stock maintenance facilities owned by IM?	Y/N

Input ID	Data label	Data definition	Data unit
214	Energy - Power supply	Power supply owned by IM?	Y/N
215	Energy - Refilling facilities	Refilling facilities owned by IM?	Y/N
216	Telecom, Infrastructure	Telecom infrastructure owned by IM?	Y/N
217	Rolling stock - Operating fleet	Operating fleet owned by IM?	Y/N
218	Rolling stock - Maintenance fleet	Rolling stock maintenance fleet owned by IM?	Y/N

Human resources

Input ID	Data label	Data definition	Data unit
219	Number of FTE employees working within IM's company	Total number of FTE employees working within IM's Company, excluding subcontractors (quantity)	number
220	Age average of IM's employees	Age average of IM's employees	years
221	Age distribution of IM's employees	What is the age distribution of IM's employees?	N/A
222	- < 30 years	Percentage of IM's employees < 30 years of age	%
223	- 30 - 50 years	Percentage of IM's employees 30 - 50 years of age	%
224	- > 50 years	Percentage of IM's employees > 50 years of age	%
225	Male employees among IM's workforce	Percentage of male employees among IM's workforce	%

Railway market

Input ID	Data label	Data definition	Data unit
226	Market/Modal shares - National	Market/Modal shares - National	N/A
227	- Freight - Railway	Freight modal share - Railway (%) (Source: European Commission, Eurostat)	%
228	- Freight - Inland waterways	Freight modal share - Inland waterways (%) (Source: European Commission, Eurostat)	%
229	- Freight - Road	Freight modal share - Road (%) (Source: European Commission, Eurostat)	%
230	- Passenger - Railway	Passenger modal share - Railway (%) (Source: European Commission, Eurostat)	%
231	- Passenger - Buses/Coaches	Passenger modal share - Buses/Coaches (%) (Source: European Commission, Eurostat)	%
232	- Passenger - Aviation	Passenger modal share - aviation (%) (Source: European Commission, Eurostat)	%
233	- Passenger - Cars	Passenger modal share - cars (%) (Source: European Commission, Eurostat)	%
234	Train-km - National	Train-km - National (Source: European Commission, RMMS, UIC)	million km
235	Passengers carried - National	Number of passengers carried - National (Source: European Commission, Eurostat)	thousand
236	Passenger-km - National	Passenger-km delivered - National (Source: European Commission, Statistical Pocket book)	billion km
237	Passenger-km on IM's lines	Passenger-km delivered on IM's lines	km
238	Freight tonnes carried - National	Number of freight tonnes carried - National (Source: European Commission, Statistical Pocket book)	thousand tonnes
239	Freight tonne-km - National	Freight tonne-km delivered - National (Source: European Commission, Statistical Pocket book)	billion km
240	Freight tonne-km on IM's lines	Freight tonne-km delivered on IM's lines	km
241	Do you conduct customer satisfaction surveys?	Do you conduct customer satisfaction surveys?	N/A
242	- RUs	Surveys for Railway undertakings?	Y/N
243	- End-user customers	Surveys for End-user customers?	Y/N
244	- Passengers	Surveys for Passengers?	Y/N
245	- Freight	Surveys for Freight?	Y/N
246	Degree of satisfaction in customer satisfaction survey - Railway undertakings	Degree of satisfaction in surveys related to railway undertakings	N/A

Input ID	Data label	Data definition	Data unit
247	Degree of satisfaction - Total transport	Degree of satisfaction in surveys related to railway undertakings - Total transport	%
248	Degree of satisfaction - Freight transport	Degree of satisfaction in surveys related to railway undertakings - Freight transport	%
249	Degree of satisfaction - Passenger transport	Degree of satisfaction in surveys related to railway undertakings - Passenger transport	%
250	Delta in degree of satisfaction - Total transport	Delta in degree of satisfaction compared to previous year in surveys related to railway undertakings - Total transport	%
251	Delta in degree of satisfaction - Freight transport	Delta in degree of satisfaction compared to previous year in surveys related to railway undertakings - Freight transport	%
252	Delta in degree of satisfaction - Passenger transport	Delta in degree of satisfaction compared to previous year in surveys related to railway undertakings - Passenger transport	%
253	Degree of satisfaction in customer satisfaction survey - End customers	Degree of satisfaction in customer satisfaction surveys related to end customers	N/A
254	Degree of satisfaction - Total transport	Degree of satisfaction in surveys related to end customers - Total transport	%
255	Degree of satisfaction - Freight transport	Degree of satisfaction in surveys related to end customers - Freight transport	%
256	Degree of satisfaction - Passenger transport	Degree of satisfaction in surveys related to end customers - Passenger transport	%
257	Delta in degree of satisfaction - Total transport	Delta in degree of satisfaction compared to previous year in surveys related to end customers - Total transport	%
258	Delta in degree of satisfaction - Freight transport	Delta in degree of satisfaction compared to previous year in surveys related to end customers - Freight transport	%
259	Delta in degree of satisfaction - Passenger transport	Delta in degree of satisfaction compared to previous year in surveys related to end customers - Passenger transport	%
260	Main areas covered by the customer satisfaction survey - Railway undertakings	Overview of quality measurements included in survey related to railway undertakings	N/A
261	Punctuality - Freight	Punctuality (freight) included in survey?	Y/N
262	Capacity - Freight	Capacity (freight) included in survey?	Y/N
263	Traffic management - Freight	Traffic management (freight) included in survey?	Y/N
264	Traffic information - Freight	Traffic information (freight) included in survey?	Y/N
265	Modal integration - Freight	Modal integration (freight) included in survey?	Y/N
266	Business relations - Freight	Business relations (freight) included in survey?	Y/N
267	Quality management - Freight	Quality management (freight) included in survey?	Y/N
268	Punctuality - Passenger	Punctuality (passengers) included in survey?	Y/N
269	Capacity - Passenger	Capacity (passengers) included in survey?	Y/N
270	Traffic management - Passenger	Traffic management (passengers) included in survey?	Y/N
271	Traffic information - Passenger	Traffic information (passengers) included in survey?	Y/N
272	Modal integration - Passenger	Modal integration (passengers) included in survey?	Y/N
273	Station areas - Passenger	Station areas (passengers) included in survey?	Y/N
274	Business relations - Passenger	Business relations (passengers) included in survey?	Y/N
275	Quality management - Passenger	Quality management (passengers) included in survey?	Y/N
276	Main areas covered by the customer satisfaction survey - End customer	Overview of quality measurements included in survey related to end customers	N/A
277	Punctuality - Freight	Punctuality (freight) included in survey?	Y/N
278	Capacity - Freight	Capacity (freight) included in survey?	Y/N
279	Traffic management - Freight	Traffic management (freight) included in survey?	Y/N
280	Traffic information - Freight	Traffic information (freight) included in survey?	Y/N
281	Modal integration - Freight	Modal integration (freight) included in survey?	Y/N
282	Quality management - Freight	Quality management (freight) included in survey?	Y/N
283	Punctuality - Passenger	Punctuality (passengers) included in survey?	Y/N
284	Capacity - Passenger	Capacity (passengers) included in survey?	Y/N
285	Traffic management - Passenger	Traffic management (passengers) included in survey?	Y/N

Input ID	Data label	Data definition	Data unit
286	Traffic information - Passenger	Traffic information (passengers) included in survey?	Y/N
287	Modal integration - Passenger	Modal integration (passengers) included in survey?	Y/N
288	Station areas - Passenger	Station areas (passengers) included in survey?	Y/N
289	Quality management - Passenger	Quality management (passengers) included in survey?	Y/N

The KPIs for customer satisfaction show which IMs are carrying out any surveys or other quality analysis of the service provided, both related to end-user customers and/or Railway Undertakings (RUs). The purpose of the matrix in the background information is to give an overview of the contents of the measurements included in the analysis for each IM. The idea is to first present the degree of satisfaction from surveys from both RUs and end-user customers for total satisfaction segmented between freight and passenger transport. The next step will be to present time series data for satisfaction surveys.

Country characteristics

Input ID	Data label	Data definition	Data unit
290	Country area	Country area (Source: European Commission, Eurostat)	thousand km2
291	Population	Number of persons living in the country area (Source: European Commission, Eurostat)	million persons
292	Nominal GDP	GDP (nominal) (Source: European Commission, Eurostat)	billion Euro
293	GDP per capita	GDP per capita (Source: European Commission, Eurostat)	Index, EU-28=100
294	Number of border countries	Number of border countries (Source: European Commission, Static)	number
295	Currency	Currency (Source: European Commission, European Central Bank)	text
296	Average annual exchange rate	Average annual exchange rate (Source: European Commission, European Central Bank)	Local currency unit/Euro
297	Purchasing power parity	Purchasing power parity (Price level indices and real expenditures for ESA 2010 aggregates) (Source: European Commission, Eurostat PPP)	Index, EU-28=1
372	Population density	Population density (Source: European Commission, Eurostat)	Persons per km2

Policies and plans

Input ID	Data label	Data definition	Data unit
298	Does IM have an asset management system based on ISO55000 or PAS55?	Does the IM organisation have an Asset Management System based on the requirements within ISO55000 or the PAS55 guidelines?	Y/N
299	Does IM apply a structured self-assessment matrix?	Does the IM apply a structured self-assessment matrix to identify main short-comings in the Asset Management Capability?	Y/N
300	Or is the asset management capability assessed externally?	Or is the Asset Management Capability assessed by an external authority?	Y/N
301	If yes, how long are asset management capability assessment intervals?	If the Asset Management Capability is assed by an external authority, how long are the assessment intervals in years?	years
302	Does IM have a plan for deployment of ERTMs accepted by the government?	The IM has a plan for deployment of ERTMs accepted by the government.	Y/N
303	Is IM responsible for drafting action plan regarding noise?	Are you as an IM responsible for drafting action plan regarding noise?	Y/N
304	Does IM produce saturation or congestion maps?	Do you produce saturation or congestion maps on the national level?	Y/N
305	Were noise maps compiled?	Were noise maps compiled along the railway network?	Y/N
306	Does IM conduct acoustic grinding?	Do you conduct acoustic grinding on the railway network?	Y/N
307	Does IM have programs to support quieter trains?	Do you have programs to support quieter trains (retrofitting freight trains)?	Y/N

Input ID	Data label	Data definition	Data unit
308	Does IM subsidize noise proof windows?	Do you subsidize noise proof windows?	Y/N
309	Strategy infrastructure plans and contractual agreements	Strategy infrastructure plans and contractual agreements	N/A
310	- Date of adoption/signature	- Date of adoption/signature	date
311	- Duration	- Duration	years

Charging

Input ID	Data label	Data definition	Data unit
312	Minimum access package charges	Minimum access package charges used by IM	N/A
313	Do you apply the direct cost principle in your charging system?	Do you apply the direct cost principle in your charging system? (Article 31(3))	Y/N
314	Direct cost principle - Tariff structure varies with activity?	Does the tariff structure vary with the activity? (Article 31(3))	Y/N
315	Direct cost principle - Tariff structure varies with something else?	Does the tariff structure vary with something else? (Article 31(3))	Y/N
316	Direct cost principle - If yes, with what else does the tariff structure vary?	Only applies if tariff structure varies with something else (Article 31(3))	text
317	Direct cost principle - Level of charge depends on the type of rolling stock?	Does the level of charge depend on the type of rolling stock? (Article 31(3))	Y/N
318	Direct cost principle - Level of charge depends on tonnage?	Does the level of charge depend on the tonnage? (Article 31(3))	Y/N
319	Direct cost principle - Level of charge depends on something else?	Does the level of charge depend on something else? If yes, what? (Article 31(3))	Y/N
320	Direct cost principle - If yes, on what else does the level of charge depend?	Only applies if level of charge does depend on something else	text
321	Direct cost principle - Any comments?	If you have any comment about this section, write it here: (Article 31(3))	text
322	Does charging system include a scarcity charge?	Does your charging system include a scarcity charge? (Article 31(4))	Y/N
323	Does charging system take account of the cost of environmental effects?	Does your charging system take account of the cost of environmental effects? (Article 31(5))	Y/N
324	Environmental effects - Charging system takes specifically account of the cost of noise?	Does it take specifically account of the cost of noise? (Article 31(5))	Y/N
325	Environmental effects - Charging system takes specifically account of the cost of CO2 emissions?	Does it take specifically account of the cost of the CO2 emission? (Article 31(5))	Y/N
326	Environmental effects - Charging system takes account of something else?	Does it take account of something else? (Article 31(5))	Y/N
327	Environmental effects - If yes, what else does the charging system take into account?	Only applies if charging system takes something else into account	text
328	Do you apply mark-ups on the following segments?	Do you apply mark-ups on the following segments? (Article 32(1))	Y/N
329	Mark-ups - Segment Freight service?	- Freight service? (Article 32(1))	Y/N
330	Mark-ups - Segment Passenger service within the framework of a public service contract?	- Passenger service within the framework of a public service contract? (Article 32(1))	Y/N
331	Mark-ups - Segment Other Passenger service?	- Other passenger service? (Article 32(1))	Y/N

Input ID	Data label	Data definition	Data unit
332	Mark-ups - Segment If yes, which other passenger services are mark-ups applied on?	Only applies if there are mark-ups for other passenger services	text
333	Mark-ups - Do you define sub-segments in each of the segments listed above?	Do you define sub-segments in each of the segments listed above? (Article 32(1))	Y/N
334	Mark-ups - If yes, which sub-segments do you define in the segments listed above?	Only applies if sub-segments are defined	text
335	Mark-ups - Any comments?	If you have any comment about this section, write it here: (Article 32(1))	text
336	Does charging system include charges for specific investment projects?	Does your charging system include charges for specific investment projects? (Article 32(3))	Y/N
337	Does charging system include a possession charge?	Does your charging system include a possession charge? (Article 31(9))	Y/N
338	Incentive regimes	Incentive regimes used by IM	N/A
339	Are time-limited discounts commonly applied?	Is it common for you to apply time-limited discounts to encourage the development of new rail services, or discounts encouraging the use of considerably underutilised lines? (Article 33)	Y/N
340	Have you implemented a performance scheme?	Have you implemented a performance scheme? (Article 35)	Y/N
341	Do you have a distinction in charges for ETCS trains?	Do you have a distinction in your charges for the trains equipped with ETCS? (Article 32.4)	Y/N
342	Does charging system include a reservation charge for unused capacity?	Does your charging system include a reservation charge for capacity that is allocated but not used? (Article 36)	Y/N

Revenues & Funding

Input ID	Data label	Data definition	Data unit
343	Grants	Grants	N/A
345	Grants, P&L	Total Grants, of which P&L	Local currency unit
348	Grants - Renewals and Enhancements, CAPEX	Total Renewals and Enhancements, of which CAPEX	Local currency unit
349	Grants - Others, Total	Total Others	Local currency unit
350	Grants - Others, P&L	Total Others, of which P&L	Local currency unit
351	Grants - Others, CAPEX	Total Others, of which CAPEX	Local currency unit
352	Charges	Charges	N/A
353	Charges, P&L	Total Charges, of which P&L	Local currency unit
354	Charges - Minimum access package charges, P&L	Total Minimum access package charges, of which P&L	Local currency unit
357	Property rental income, P&L	Total property rental income, of which P&L	Local currency unit
358	Electricity supply, P&L	Electricity supply, of which P&L	Local currency unit
359	Borrowing, CAPEX	Borrowing, of which CAPEX	Local currency unit
360	Other funding, P&L	Other funding, of which P&L	Local currency unit
361	Total IM's revenues and funding	Total IM's revenues and funding	N/A
362	Total IM's revenues and funding, Total	Total IM's revenues and funding	Local currency unit
363	Total IM's revenues and funding, P&L	Total IM's revenues and funding, of which P&L	Local currency unit
364	Total IM's revenues and funding, CAPEX	Total IM's revenues and funding, of which CAPEX	Local currency unit
365	Revenues and funding - Costs&Investment	Revenues and funding minus Costs&Investment	N/A
366	Revenues and funding - Costs&Investment, Total	Revenues and funding minus Costs&Investment	Local currency unit
367	Revenues and funding - Costs&Investment, P&L	Revenues and funding minus Costs&Investment, of which P&L	Local currency unit
368	Revenues and funding - Costs&Investment, CAPEX	Revenues and funding minus Costs&Investment, of which CAPEX	Local currency unit

Input ID	Data label	Data definition	Data unit
369	Depreciation, P&L	Depreciation, of which P&L	Local currency unit
370	P&L Net result	P&L Net result	Local currency unit

Appendix 3: Causes for delays and cancelled services

Source: UIC CODE, 450 – 2, OR, 5th edition, June 2009

Causes within coloured boxes are considered as IM responsibilities.

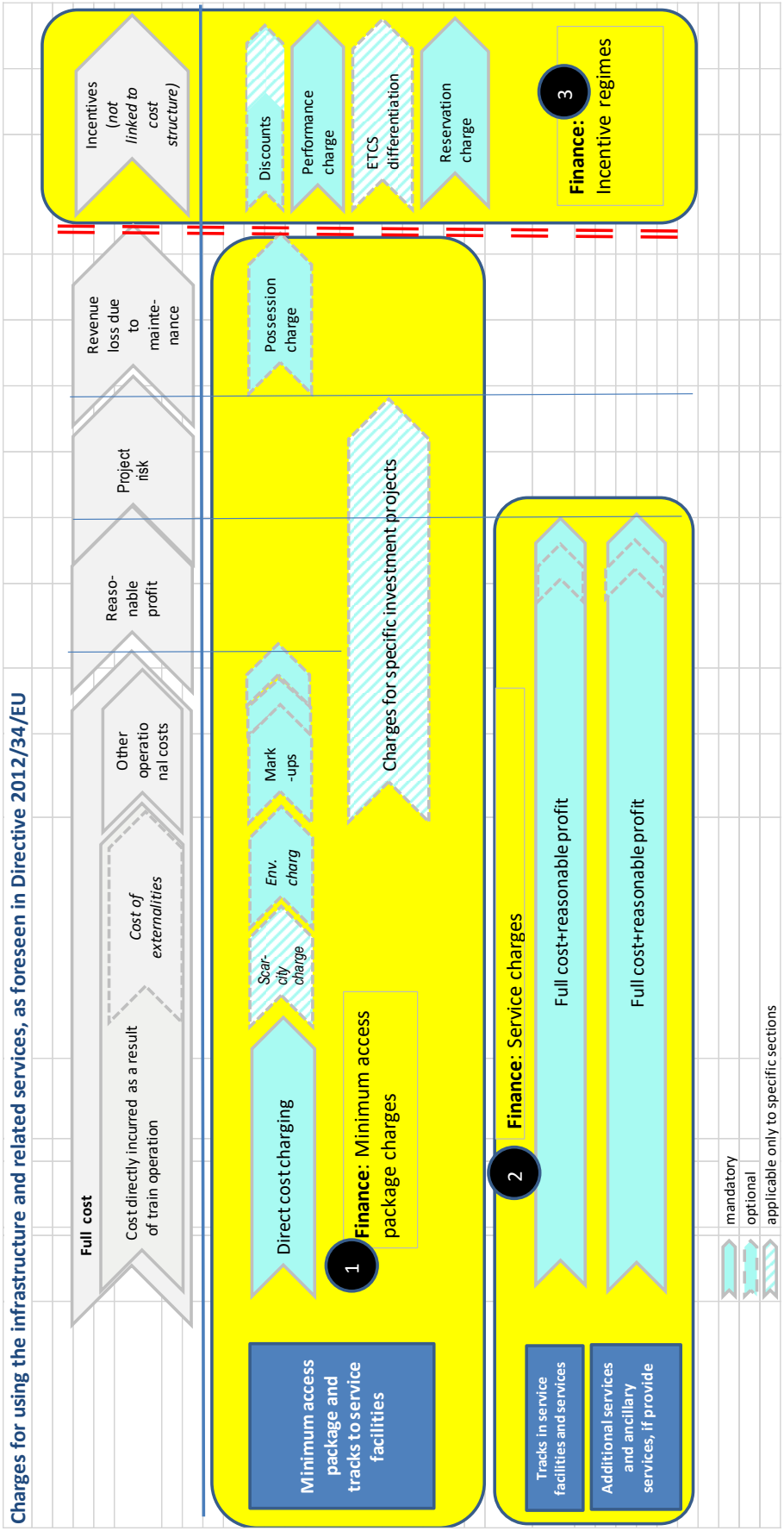
	Traffic Management
	Asset
	Processes

	Infrastructure Manager				Railway undertakings				
	Operational/ planning management	**Infrastructure installations**	**Civil Engineering causes**	**Causes of other IMs**	**Commercial causes**	**Rolling stock**	**Causes of other RUs**	**External causes**	**Secondary causes**
	1-	**2-**	**3-**	**4-**	**5-**	**6-**	**7-**	**8-**	**9-**
-0	Time table compilation	Signalling installations	Planned construction works	Delay caused by next IM	Exceeding the stop time	Roster planning re -rostering	Delay caused by next RU	Strike	Dangerous incidents, accidents and hazards
-1	Formation of train by infrastructure manager	Signalling installations at level crossings	Irregularities in execution of construction work	Delay caused by previous IM	Request of the RU	Formation of train by Railway Undertaking	Delay caused by previous RU	Administrative formalities	Track occupation caused by the lateness of the same train
-2	Mistakes in operational procedures	Tele-communication installations	Speed restriction due to defective track		Loading operations	Problems affecting coaches (passenger transport)		Outside influence	Track occupation caused by the lateness of another train
-3	Wrong application of Level rules	Power supply equipment			Loading irregularities	Problems affecting wagons (freight transport)		Effects of weather and natural causes	Turn round
-4		Track			Commercial preparation of train	Problems affecting power cars, locomotives and rail cars		Delay caused by external reasons of the next net word	Connection
-5		Structures							Further investigation needed
-6									
-7									
-8	Staff	Staff			Staff	Staff			
-9	Other causes	Other causes	Other causes		Other causes	Other reasons		Other causes	

Appendix 4: Charges for using the infrastructure and related services

The Directive 2012/34/EU “Establishing a single European railway area”, known also as SERA-Directive or Recast, defines next to other items the charging principles. The Directive is based on Directives published before (91/440/EEC, 95/18/EC, 2001/14/EC). The general charging principles have not been changed, but were defined more strictly from Directive to Directive. The track access charges (TAC) “shall be set at the cost that is directly incurred as a result of operating the train service.” This verbal description led to numerous different levels of TACs throughout Europe over the years, but it is doubtlessly meant to charge for the marginal cost. Summing it up, authorized charges according to Directive 2012/34/EU consists of nine main cost components, depending on the package or service that is charged:

1. Direct Cost Charging
2. Charging Full Cost + Reasonable Profit
3. Possession Charges
4. Mark Ups
5. Charges For Specific Investment Projects
6. ETCS Charge Differentiation
7. Discounts
8. Performance Related Charges
9. Reservation Charge


Charges for using the infrastructure and related services, as foreseen in Directive 2012/34/EU
Full cost
Cost directly incurred as a result of train operation
Cost of externalities
Other operatio nal costs
Reaso- nable profit
Project risk
Revenue loss due to mainte- nance
Incentives (not linked to cost structure)
Discounts
Performance charge
ETCS differentiation
Reservation charge
3
Finance: Incentive regimes
Possession charge
Direct cost charging
Scar- city charge
Env. charg
Mark -ups
Charges for specific investment projects
1
Finance: Minimum access package charges
Minimum access package and tracks to service facilities
2
Finance: Service charges
Full cost+reasonable profit
Full cost+reasonable profit
Tracks in service facilities and services
Additional services and ancillary services, if provide
mandatory
optional
applicable only to specific sections

Appendix 5: Additional definitions

The glossary defines the terms used in this catalogue. *Figure 7* and *Figure 8* illustrate the definitional structure for sub-categories of track-km and line-km. *Figure 9* illustrates the different types of track. *Figure 10* illustrates delay curves to estimate the total number of delays for different delay thresholds. *Figure 11* illustrates the methodology how to calculate the time loss due to speed restrictions. This is followed by the definitions for all other relevant terms.

The glossary is a live, work in progress document maintained by the sub group and will be updated with each version of the Catalogue.

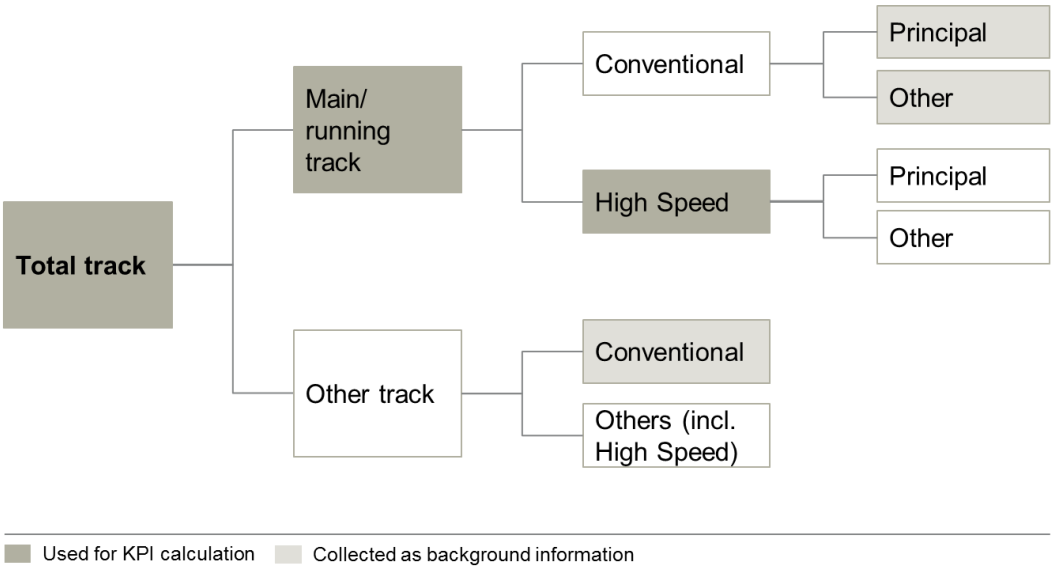


Figure 7 - Definitional structure, Track-km

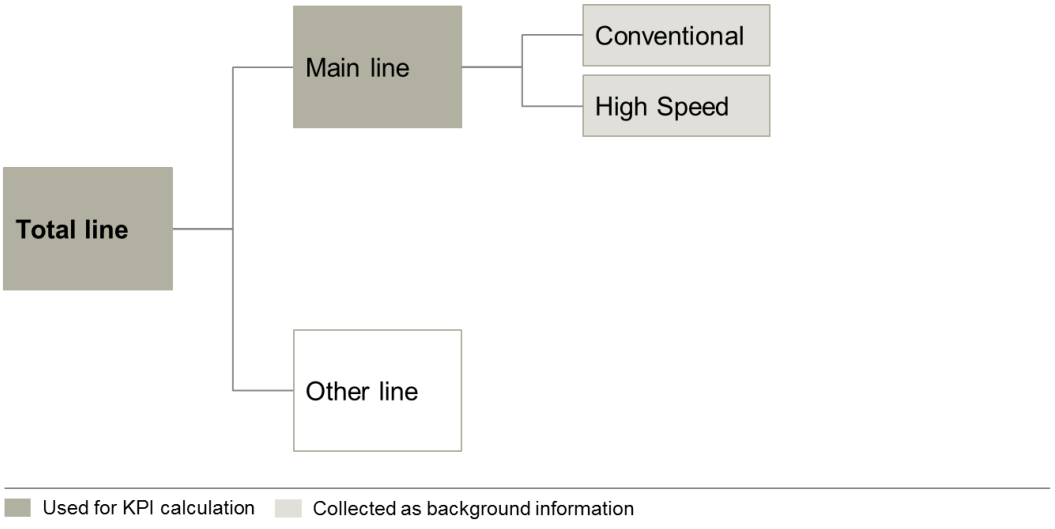


Figure 8 - Definitional structure, Line-km

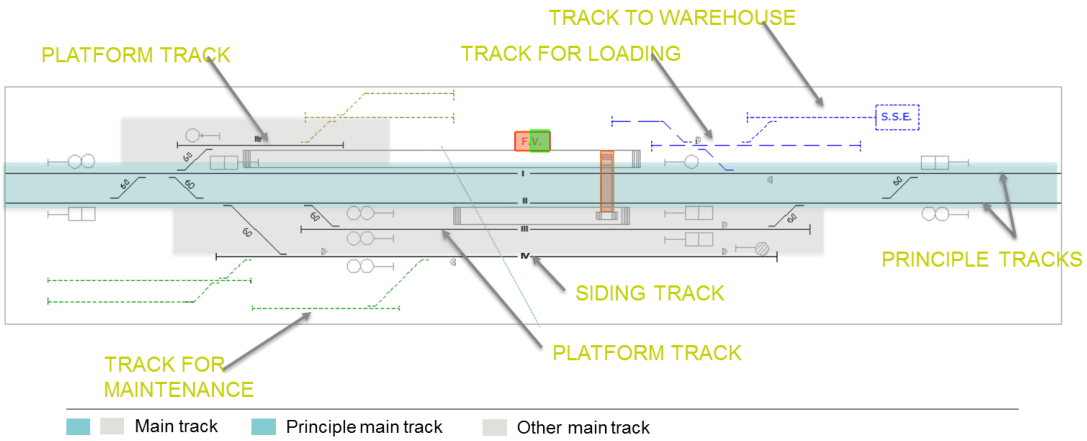
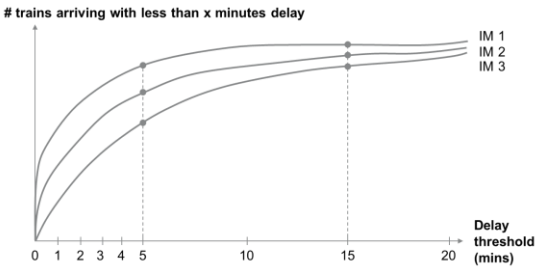


Figure 9 - Definitional structure, main/running track

‘Delay curves’ can be used to estimate the total number of delays for different delay thresholds

Making punctuality data comparable

Example of delay curve



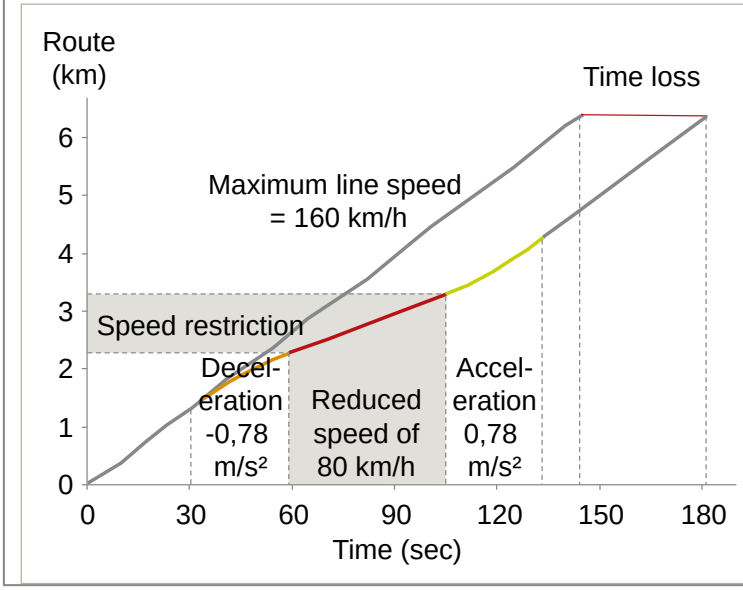
Suggested for IMs to consult with their punctuality experts whether a delay curve is already available/ can be calculated

Description

- Individual IMs use different thresholds to measure punctuality and delayed trains, e.g. >3mins, >5mins, >15mins
- These can also vary by service type, e.g. commuter, long distance, high speed etc.
- For benchmarking purposes it is valuable to compare using a common definition
- Actual data from signalling systems, can be used to interpolate between delay thresholds, and adjust number of delays to a common definition, e.g. >5mins
- ‘Delay curves’ are broadly similar, but the exact shape will vary depending on line speed, service type, traffic density etc.

Figure 10 - Delay curves

Typical speed restriction



Formula to calculate the time loss

$$\Delta t = d \cdot \left(\frac{1}{v_{min}} - \frac{1}{v_{max}} \right) + \frac{(v_{max} - v_{min})^2}{a \cdot v_{max}}$$

where

Δt = time loss due to speed restriction

d = distance of speed restriction

v_{min} = reduced speed

v_{max} = maximum line speed

a = deceleration / acceleration rate

Figure 11 - Time loss due to speed restrictions

For the total annual time loss included in the timetable (due to permanent speed restrictions) in minute-km, the sum of all additional travel times multiplied by respective track lengths needs to be provided.

For the total annual time loss not included in the timetable (due to temporary speed restrictions) in minute-km-days, the sum of all additional travel times multiplied by respective track lengths mulitplied by respective duration in days needs to be provided.

Appendix 6: Glossary of terms

Name	Description	Source
Accessible station	A station which has 'step free' access from the entrance of the station to the edge of the platform, enabling access by mobility impaired passengers (e.g., wheel chairs and children in prams or buggies). It does not include whether there is step-free access from the platform to the train as this is an interface issue and not solely the responsibility of the IM.	PRIME KPI subgroup
Accident to persons involving rolling stock in motion	Accidents to one or more persons who are either hit by a railway vehicle or by an object attached to, or that has become detached from, the vehicle, this includes persons who fall from railway vehicles as well as persons who fall or are hit by loose objects when travelling on board vehicles	Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.9
Affected train (by an asset failure)	A train is affected if the asset failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point.	
Allocation	Allocation of railway infrastructure capacity by an infrastructure manager.	Directive 2012/34/EU (SERA), Art.3 (24)
Ancillary services	Ancillary services may comprise: (a) access to telecommunication networks; (b) provision of supplementary information; (c) technical inspection of rolling stock; (d) ticketing services in passenger stations; (e) heavy maintenance services supplied in maintenance facilities dedicated to high-speed trains or to other types of rolling stock requiring specific facilities.	Directive 2012/34/EU Annex II)
Asset Capability	Asset capability is a quality or function as a property or natural part of an asset. A capability is a characteristic of an asset enabling achievement of its desired function.	
Asset failure	An asset failure is counted one time and one time only if any train is affected by it. A train is affected if the asset failure causes the train to exceed a delay minutes threshold of 5:29 minutes for passenger services or 15:29 minutes for freight services at any available measuring point. An asset failure is not counted if these thresholds are not exceeded for any train at any available measuring point (i.e. if no train is affected)	
Asset Management	Coordinated activity of an organisation to realise value from assets.	ISO 55000:2014
Asset Management Capability	Asset Management Capability, measure of capacity and the ability of an entity (system, person or organization) to achieve its objectives. Not 1 to entry: Asset Management capabilities include processes, resources, competences and technologies to enable the effective and efficient development and delivery of asset management plans and asset life activities and their continual improvement. (ISO55000:2014, Asset Managemen–t - Overview, principles and terminology, Corrected version 2014-03-15, IDT, General terms 3.1.2)	ISO 55000:2014
Asset Management System	An Asset Management System is used by an organisation to direct, coordinate and control asset management activities. "Set of interrelating or interacting elements to establish asset management policy, asset management objectives and processes to achieve those objectives.	ISO 55000:2014

Name	Description	Source
Assets	LICB defines the Railway Infrastructures as consisting of the following items, assuming they form part the permanent way, including sidings, but excluding lines situated within railway repair workshops, depots or locomotive sheds and private branch lines or sidings: Ground area Track and track bed etc. Engineering structures: Bridges culverts and other overpasses, tunnels etc. Level crossings, including appliances to ensure safety of road traffic; Superstructure, in particular: rails, grooved rails; sleepers, small fittings for the permanent way, ballast, points, crossings. Access way for passengers and goods, including access by road; Safety, signalling and telecommunications installations on the open track, in stations and in marshalling yards etc. Lightning installations for traffic and safety purposes Plant for transforming and carrying electric power for train haulage: substations, Supply cables between sub-stations and contact wires, catenaries.	EC Directives, European Commission 5th Framework Programme Improve rail, Deliverable D3, "Benchmarking exercise in railway infrastructure management" as referred in the UIC Lasting Infrastructure Cost Benchmarking (LICB) project.
ATP	ATP is a train protection system providing warning and automatic stop and continuous supervision of speed, protection of danger points and continuous supervision of the speed limits of the line, where "continuous supervision of speed" means continuous indication and enforcement of the maximal allowed target speed on all sections of the line.	
Attempted suicide	An act to deliberately injure oneself resulting in serious injury.	Glossary for Transport Statistics, A.VI-21 Directive (EU) 2016/798 on railway safety, Annex I, Appendix 3.2
Borrowing	Receiving something of value in exchange for an obligation to pay back something of usually greater value at a particular time in the future	
Bottleneck	A physical, technical or functional barrier which leads to a system break affecting the continuity of long-distance or cross-border flows and which can be surmounted by creating new infrastructure or substantially upgrading existing infrastructure that could bring significant improvements which will solve the bottleneck constraints	Regulation (EU) No 1315/2013 (TEN-T), Article (3)(q)
Broken rail	Any rail which is separated in two or more pieces, or any rail from which a piece of metal becomes detached, causing a gap of more than 50 mm in length and more than 10 mm in depth on the running surface.	Directive (EU) 2016/798 on railway safety, Annex I, Appendix 4.1
Cancelled train	If a planned service is not running (i.e. train cancelled in the operations phase). The codes described in UIC CODE, 450 – 2, OR, 5th edition, June 2009, Appendix A page 9 should be used to describe the cause of cancellation on the whole or just a part of the route. Cancelled trains can be split into four types. These are: •full cancellation (cancelled at origin) •part cancellation en route •part cancellation changed origin •part cancellation diverted (any train that diverts and does not stop at all of its scheduled locations will be classed as a part cancellation even if it reaches its end destination).	UIC CODE, 450 – 2, OR, 5th edition, June 2009, 6 – Cancelled services, combined with adopting the types of cancellations described by Network Rail.
Cancelled train causes	See delay causes in Appendix 3	UIC CODE, 450 – 2, OR, 5th edition, June 2009, 5 – Causes for delays and cancelled services.

Name	Description	Source
Capacity (infrastructure)	Capacity means the potential to schedule train paths requested for an element of infrastructure for a certain period;	2012/34/EU (SERA), Article 3 (24)
CAPEX, Capital expenditures	Capital expenditure are funds used by a company to acquire or upgrade physical assets such as property, industrial buildings or equipment. An expense is considered to be a capital expenditure when the asset is a newly purchased capital asset or an investment that improves the useful life of an existing capital asset. Hence, it comprises investments in new infrastructure as well as renewals and enhancements.	PRIME KPI subgroup
Charges for service facilities	Revenues generated by providing access to service facilities. Services facilities include: (a) passenger stations, their buildings and other facilities, including travel information display and suitable location for ticketing services; (b) freight terminals; (c) marshalling yards and train formation facilities, including shunting facilities; (d) storage sidings; (e) maintenance facilities, with the exception of heavy maintenance facilities dedicated to high-speed trains or to other types of rolling stock requiring specific facilities; (f) other technical facilities, including cleaning and washing facilities; (g) maritime and inland port facilities which are linked to rail activities; (h) relief facilities; (i) refuelling facilities and supply of fuel in these facilities, charges for which shall be shown on the invoices separately	Directive 2012/32/EU, Annex II
Collision of train with obstacle within the clearance gauge	A collision between a part of a train and objects fixed or temporarily present on or near the track (except at level crossings if lost by a crossing vehicle or user), including collision with overhead contact lines.	Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.6
Collision of train with rail vehicle	A front to front, front to end or a side collision between a part of a train and a part of another train or rail vehicle, or with shunting rolling stock.	Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.5
Congested infrastructure	Infrastructure element, on which after coordination of the requested train paths and consultation with applicants, it is not possible to satisfy requests for infrastructure capacity adequately. According to Article 47 (1) of Directive 2012/34/EU the infrastructure manager shall immediately declare the section of infrastructure on which this has occurred to be congested. This shall also be done for infrastructure which can be expected to suffer from insufficient capacity in the near future. Where infrastructure has been declared to be congested, the infrastructure manager shall carry out a capacity analysis and it has to be described in the network statement.	Article 47 of Directive 2012/34/EU (SERA)
Control points (manned)	Control points are locations where traffic control staff / dispatchers work and control the flow of traffic in a given geographical area.	
Conventional train	Train, composed of vehicles designed to operate at speeds below 250 km/h.	Decision No. 1692/96/EC (TEN-T), Art.10(1)
Conventional track	Track being a part of the conventional rail network. The conventional rail network shall comprise lines for the conventional transport by rail of passengers and freight, including the rail segments of the trans-European combined transport network referred to in Article 14, access links to sea and inland ports of common interest and those freight terminals which are open to all operators. Track (line) whole or part of line, approved for V_{max} < 250 km/h.	Decision No 1692/96/EC (TEN-T), Art.10(1)

Name	Description	Source
Cyber-attacks	Malicious acts targeting computer information systems, IT infrastructures, computer networks, and/or personal computer devices of railway infrastructure managers, railway undertaking or other railway companies with the intention to steal, alter, or destroy a specified target in the susceptible system.	
Delay	The time difference between the time the train was scheduled to arrive in accordance with the published timetable and the time of its actual arrival.	Adapted from ERA, Glossary of railway terminology
Delay minutes	Delay minutes will be measured at all available measuring points. Of those measured delay minutes that exceed a threshold of 5:29 minutes for passenger services and 15:29 minutes for freight services the maximum number is counted. No delay minutes are counted if these thresholds are not exceeded at any measuring point	
Deployment	The deployment of a mechanical device, electrical system, computer program, etc., is its assembly or transformation from a packaged form to an operational working state. Deployment implies moving a product from a temporary or development state to a permanent or desired state.	
Depreciation	Depreciation is an accounting method of allocating the cost of a tangible or intangible asset over its useful life. It allows a company to write-off the value of an asset over time, but it is considered a non-cash transaction.	
Derailment of train	Any case in which at least one wheel of a train leaves the rails.	Glossary for Transport Statistics, A.VI-14 Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.7
Direct Cost in the meaning of Regulation (EU)2015/909	Direct cost in this context means “the cost that is directly incurred as a result of operating the train service” and which is used for setting charges for the minimum access package and for access to infrastructure connecting service facilities. The modalities for the calculation of the cost that is directly incurred as a result of operating the train are set out in Commission Implementing Regulation (EU) 2015/909 and can in principle be established on the basis of: (a) a network-wide approach as the difference between, on the one hand, the costs for providing the services of the minimum access package and for the access to the infrastructure connecting service facilities and, on the other hand, the non-eligible costs referred to in Article 4 of this regulation, or (b) econometric or engineering cost modelling.	PRIME KPI subgroup on the basis of Implementing Regulation (EU) 2015/909
Electricity supply income	Revenue generated by charging railway undertakings for the use of electricity for traction.	PRIME KPI subgroup on the basis of the Commission Regulation (EU) No 1301/2014 (TSI Energy), Annex 2.1.1
Employee or contractor	Any person whose employment is in connection with a railway and is at work at the time of the accident, including the staff of contractors, self-employed contractors, the crew of the train and persons handling rolling stock and infrastructure installations.	Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.13

Name	Description	Source
Expenditure on enhancements of existing infrastructure	Enhancements (or 'upgrades') means capital expenditure on a major modification work of the existing infrastructure which improves its overall performance. Enhancements can be triggered by changed functional requirements (and not triggered by lifetime) or "forced" investments when acting on regulations. The purpose of enhancements is to change the functional requirements such as electrification of a non-electrified line, building a second track parallel to a single tracked line, increase of line speed or capacity. Enhancements include planning (incl. portfolio prioritization, i.e. which enhancements projects are realized when and where), tendering dismantling (disposal of old equipment), construction, testing and commissioning (when track is opened to full-speed operation). Enhancements are generally looked on at the level of annual spending from a cash-flow perspective, i.e. no depreciation or other imputed costs are taken into account. It includes its proportion of overhead (such as financials, controlling, IT, human resources, purchasing, legal and planning), labour (operative, personnel), material, (used/consumed goods), internal services (machinery, tools, equipment including transport and logistics) and contractors (entrepreneurial production) as well as investment subsidies.	PRIME KPI subgroup on the basis of Regulation (EU) 2015/1100 (RMMS), Article 2
Environmental incidents with major and significant impact or effect to land, water, air and nature conservation	Impacts to land and/or water, example: a) Hydrocarbon spillages (including petrol, hydraulic oils and cutting oils) b) Spillages of hazardous materials c) Spillages of low-hazard products with polluting potential (detergents, disinfectants, foodstuffs, fertilizers, paints and dyes, other organic liquids) d) Loss of cable or transformer oil e) Fly tipping. Impacts to air, example: a) Noise and vibration b) Dust c) Odor d) Other airborne particulates Impacts to nature conservation sites and species, example: a) Causing harm or disturbance to European, National or Biodiversity Action Plan (BAP) protected species b) Damage or disturbance to both statutorily or non-statutorily protected sites.	
ERA	European Union Agency for Railways	Regulation (EU) 2016/796 (ERA)
ERTMS	'European Rail Traffic Management System' (ERTMS) means the system defined in Commission Decision 2006/679/EC and Commission Decision 2006/860/EC European Rail Traffic Management System (ERTMS) is the European signalling system consisting the European Train Control System (ETCS), a standard for in-cab train control, and GSM-R, the GSM mobile communications standard for railway operations. ERTMS in operations refers to main tracks equipped with both - ETCS (European train control system; any baseline or level) and GSM-R (Global System for Mobile Communications); and where ETCS and GSM-R are used in service	Commission Decision 2006/679/EC Commission Decision 2006/860/EC
Espionage	Acts of obtaining information from railway infrastructure managers, railway undertakings or other railway companies defined as secret or confidential without the permission of the information's owner.	
Extensive disruptions to traffic	Train services on a main railway line are suspended for six hours or more.	Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.3
Failure	Termination of an item to perform a given service. Also see -> Asset failure	SIS-EN 13306:2010

Name	Description	Source
Financial expenditures	Financial expenditures are the ones accounted for in the annual profit and loss statement. It includes interests and similar charges which correspond to the remuneration of certain financial assets (deposits, bills, bonds and credits).	PRIME KPI subgroup on the basis of Eurostat concepts and definitions on financial surplus
Fire in rolling stock	A fire or explosion that occurs in a railway vehicle (including its load) when it is running between the departure station and the destination, including when stopped at the departure station, the destination or intermediate stops, as well as during re-marshalling operations.	Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.10
Freight train	Freight (good) train: train for the carriage of goods composed of one or more wagons and, possibly, vans moving either empty or under load.	Glossary for Transport Statistics, A.IV-06
Freight train-km	Unit of measure representing the movement of all freight trains over one kilometre. From an IM's point of view it is important to include all freight train movements as they all influence the deterioration of the rail infrastructure assets. Empty freight train movements are therefore included in the number of freight train movements.	Glossary for Transport Statistics, A.IV-07 LICB Web Glossary, p.19
Funding	An amount of money used for a specific purpose, in our case to finance the IM expenditures.	Longman, Dictionary of contemporary English
Grant	A direct financial contribution given by the federal, state or local government or provided from EU funds to an eligible grantee. Grants are not expected to be repaid and do not include financial assistance, such as a loan or loan guarantee, an interest rate subsidy, direct appropriation, or revenue sharing.	PRIME KPI subgroup
Gross tonnage	Gross tonnage is the weight of the train, including the load, the locomotive and the tare weight of the wagons, in commercial traffic. The weight of service trains, shunting movements, passenger and baggage weight are not included.	Glossary for Transport Statistics, A.IV-14
Gross tonne km	Unit of measure representing the movement over a distance of one kilometre of one tonne of rail vehicle including the weight of tractive vehicle.	Glossary for Transport Statistics, A.IV-14
High-speed train	Train, composed of vehicles designed to operate: - either at speeds of at least 250 km/h on lines specially built for high-speed, while enabling operation at speeds exceeding 300 km/h in appropriate circumstances, - or at speeds of the order of 200 km/h on the lines of section 2.1, where compatible with the performance levels of these lines.	Glossary for Transport Statistics, A.I-02 Directive (EU) 2016/798 on the rail interoperability, Annex I, Article 1
High-speed track	Track (line) whole or part of line, approved for $V_{max} \geq 250$ km/h — specially built high-speed lines equipped for speeds generally equal to or greater than 250 km/h, — specially upgraded high-speed lines equipped for speeds of the order of 200 km/h, — specially upgraded high-speed lines which have special features as a result of topographical, relief or town-planning constraints, on which the speed must be adapted to each case The last category also includes interconnecting lines between the high-speed and conventional networks, lines through stations, accesses to terminals, depots, etc. travelled at conventional speed by 'high-speed' rolling stock. PRIME data collection is conducted separately for high-speed track ≥ 250 & high-speed track ≥ 200 and <250	Glossary for Transport Statistics, A.I-04 Directive (EU) 2016/798 on the rail interoperability, Annex I, Article 1
Incentive regime	Incentive regime revenue (bonus payments) deriving from performance regime schemes related to Minimum Access Package	PRIME KPI subgroup

Name	Description	Source
Industry costs	Industry costs are fees, charges that are that are to be paid to the regulator and other authorities within the industry. Synonyms for industry are line of business, branch. Example from Network Rail: Chapter 6 of ORR's Final Determination of Network Rail's outputs and funding for 2014-19 provides a definition of Industry Costs as comprising: British Transport Police costs (what we pay for BTP's services) Rail Safety and Standards Board (RSSB) levy ORR licence fee and railway safety levy Other (e.g., CIRAS and reporters' costs – see Notes below) Notes: CIRAS is a Confidential Incident Reporting and Analysis System. It is adopted throughout the rail industry. The service takes reports about safety from rail staff and forwards them to rail companies, requesting that they address the issues raised. CIRAS is a confidential process; there is therefore no risk of reprisal from management or work colleagues. Reporters (often referred to as independent reporters) are firms that provide independent expert advice and are used by ORR to review some aspects of Network Rail's performance, plans and activities. They owe a duty of care to both ORR and Network Rail but Network Rail pays for their costs.	PRIME KPI subgroup
Infrastructure Manager (IM)	Any firm or body responsible, in particular, for establishing, managing and maintaining railway infrastructure, including traffic management and control-command and signalling. An infrastructure manager can delegate to another enterprise the following tasks: maintaining railway infrastructure and operating the control and safety system. 'infrastructure manager' means any body or firm responsible in particular for establishing, managing and maintaining railway infrastructure, including traffic management and control-command and signalling; the functions of the infrastructure manager on a network or part of a network may be allocated to different bodies or firms;	Glossary for Transport Statistics. A.III-03 Directive 2012/34/EU (SERA), Article 3(2)
Infrastructure Manager's responsibility for delay minutes	Table, column 1-, 2-, 3- (Operational and planning management, Infrastructure installations, Civil Engineering causes). Plus: Delay minutes caused by weather incidents that have affected the railway infrastructure. The relevant causes are described in Appendix 2.	UIC CODE, 450 – 2, OR, 5th edition, June 2009, Appendix A
Intermodality	Intermodality is a characteristic of a transport system that allows at least two different modes to be used in an integrated manner in a door-to door transport chain. Ability of cargo and passengers to move between different modes of transport. One of the key areas is the desire to be able to move easily between national rail, underground, bus and other transport modes.	Council Directive 92/106/EEC Combined transport
Interoperability	The ability of a rail system to allow the safe and uninterrupted movement of trains which accomplish the required levels of performance.	Directive (EU) 2016/798 on the rail interoperability, Article 2(2)
Investments in new infrastructure	Investment in new infrastructure means capital expenditure on the projects for construction of new infrastructure installations for new lines. It includes planning (incl. portfolio prioritization, i.e. which investment projects are realized when and where), tendering dismantling (disposal of old equipment), construction, testing and commissioning (when track is opened to full-speed operation). Investments are generally looked on at the level of annual spending from a cash-flow perspective, i.e. no depreciation or other imputed costs are taken into account. It also includes its proportion of overhead (such as financials, controlling, IT, human resources, purchasing, legal and planning), labour (operative, personnel), material, (used/consumed goods), internal services (machinery, tools, equipment including transport and logistics) and contractors (entrepreneurial production) as well as investment subsidies.	PRIME KPI subgroup on the basis of Regulation (EU) 2015/1100 (RMMS), Article 2

Name	Description	Source
Killed (Death (killed person))	Any person killed immediately or dying within 30 days as a result of an accident, excluding any suicide.	Glossary for Transport Statistics, A.VI-09 Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.18
Level crossing	Any level intersection between a road or passage and a railway, as recognised by the infrastructure manager and open to public or private users. Passages between platforms within stations are excluded, as well as passages over tracks for the sole use of employees.	Glossary for Transport Statistics, A. I-14 Directive (EU) 2016/798 on railway safety, Annex I, Appendix 6.3
Level crossing accident	Any accident at level crossings involving at least one railway vehicle and one or more crossing vehicles, other crossing users such as pedestrians or other objects temporarily present on or near the track if lost by a crossing vehicle or user.	Glossary for Transport Statistics, A. I-15 Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.8
Level crossing user	Any person using a level crossing to cross the railway line by any means of transport or by foot;	Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.14
Line km	A cumulative length of all lines maintained by infrastructure managers.	PRIME KPI subgroup based on Glossary for transport statistics
Main Lines (Principle railway lines)	Railway lines maintained and operated for running trains.	Glossary for transport statistics, A.I-02.1
Main lines (Principle railway lines), length of	Cumulative length of railway lines operated and used for running trains by the end of reporting year. Excluded are: - Lines solely used for operating touristic trains and heritage trains; - Lines constructed solely to serve mines, forests or other industrial or agricultural installations and which are not open to public traffic; - Private lines closed to public traffic and functionally separated (i.e. stand-alone) networks; - Private lines used for own freight transport activities or for non-commercial passenger services and light rail tracks occasionally used by heavy rail vehicles for connectivity or transit purposes.	Glossary for transport statistics, A.I-02.1 and A.I-01
Maintenance cost	Costs of function: Maintenance means non-capital expenditure that the infrastructure manager carries out in order to maintain the condition and capability of the existing infrastructure or to optimise asset lifetimes. Preventive maintenance activities cover inspections, measuring or failure prevention. Corrective maintenance activities are repairs (but not replacement), routine overhauls or small-scale replacement work excluded from the definitions of renewals. It forms part of annual operating costs. Maintenance expenditure relates to activities that counter the wear, degradation or ageing of the existing infrastructure so that the required standard of performance is achieved. Types of costs: Maintenance cost include planning, its proportion of overhead (such as financials, controlling, IT, human resources, purchasing, legal and planning), labour (operative, personnel), material, (used/consumed goods), internal services (machinery, tools, equipment including transport and logistics) and contractors (entrepreneurial production).	PRIME KPI subgroup on the basis of LICB and Regulation (EU) 2015/1100 (RMMS), Article 2
Main track	A track providing end-to-end line continuity designed for running trains between stations or places indicated in timetables, network statements, rosters or other indications/publications as independent points of departure or arrival for the conveyance of passengers or goods.	Glossary for Transport Statistics, A.I-01.1

Name	Description	Source
Main track (main track km), length of	A cumulative length of all running/main tracks Excluded are: - Lines solely used for operating touristic trains and heritage trains; - Lines constructed solely to serve mines, forests or other industrial or agricultural installations and which are not open to public traffic; - Private lines closed to public traffic and functionally separated (i.e. stand-alone) networks; - Private lines used for own freight transport activities or for non-commercial passenger services and light rail tracks occasionally used by heavy rail vehicles for connectivity or transit purposes	Glossary for Transport Statistics, A.I-02.1 and A.I.01
Main track, electrified	Main running tracks provided with an overhead catenary or with conductor rail (3rd rail) to permit electric traction.	Glossary for transport statistics, A.I-01.1 and A.I.15 LICB Web Glossary, p.16
Minimum access package charges	Revenues generated by charging railway undertakings for enabling them to provide their services. The minimum access package comprises: (a) handling of requests for railway infrastructure capacity; (b) the right to utilise capacity which is granted; (c) use of the railway infrastructure, including track points and junctions; (d) train control including signalling, regulation, dispatching and the communication and provision of information on train movement; (e) use of electrical supply equipment for traction current, where available; (f) all other information required to implement or operate the service for which capacity has been granted.	Directive 2012/32/EU, Annex II
Multimodal rail freight terminals	Multimodal Freight Terminals (IFT) or transfer points are places equipped for the transhipment and storage of Intermodal Transport Units (ITU). They connect at least two transport modes, where at least one of the modes of transport is rail. The other is usually road, although waterborne (sea and inland waterways) and air transport can also be integrated.	PRIME KPI subgroup on the basis of Regulation (EU) 2015/1100 (RMMS), Article 2
Multimodal transport	The carriage of passengers or freight, or both, using two or more modes of transport;	Regulation (EU) No 1315/2013 (TEN-T), Art.3(n)
Network	Principal railway lines managed by the infrastructure manager.	Glossary for Transport Statistics, A.I-02.1
Operations	Operations excluding maintenance: SS-EN 13306:2010 defines operation as: Combination of all technical, administrative and managerial actions, other than maintenance actions that results in the item being in use. Total annual expenditures for the IM on operations. Includes operations proportion of the IM overhead (such as financials, controlling, IT, human resources, purchasing, legal and planning), labour (operative, personnel), material (used/consumed goods), internal services (machinery, tools, equipment including transport and logistics) and if some parts are handled by contractors it´s to be included. (Central or holding overheads are to be allocated proportionally.)	
OPEX, operating expenditures	An operating expense is an expense a business incurs through its normal business operations. Operating expenses include inter alia maintenance cost, rent, equipment, inventory costs, payroll, insurance and funds allocated toward research and development.	PRIME KPI subgroup

Name	Description	Source
Other accident	Any accident other than a collision of train with rail vehicle, collision of train with obstacle within the clearance gauge, derailment of train, level crossing accident, an accident to person involving rolling stock in motion or a fire in rolling stock. Example: Accidents caused by rocks, landslides, trees, lost parts of railway vehicles, lost or displaced loads, vehicles and machines or equipment for track maintenance	Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.11
Other IM capital expenditures	IM capital expenditures that are not included in the other parts.	PRIME KPI subgroup
Other funding	Funding that is not included in any of the other parts.	PRIME KPI subgroup
Other line	All other lines than principal lines, including lines maintained for possible future use, but not operated.	Glossary for transport statistics, A.I-02.2
Other non-operating expenditures	Non-operating expenditures accounted for in the annual profit and loss statement that are not financial expenditures. It includes expenditures such as tax payments, accrued expenses and the evaluation and devaluation of assets. It does not include depreciation.	PRIME KPI subgroup
Other operating expenditures	All operating cost accounted for in the annual profit and loss statement that are not maintenance cost, traffic management cost or traction electricity cost.	PRIME KPI subgroup
Other person at a platform	Any person at a railway platform who is not defined as “passenger”, “employee or contractor”, “level crossing user”, “other person not at a platform” or “trespasser” Examples: Person standing on a platform: Struck by an open train door or other out of gauge item, Struck by an item fallen from a train, infringing the normal kinematic envelope of a train and struck by the train; Person who falls from a platform and is struck by a train; Person other than workforce authorised to cross railways between platforms and struck by a train.	Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.16
Other person not at a platform	Any person not at a railway platform who is not defined as “passenger”, “employee or contractor”, “level crossing user”, “other person at a platform” or “trespasser”; Examples: Person in a road vehicle that impinges on the railway (not a level crossings) and is struck by a train; Person outside the railway struck by -a derailed train -an object fallen from a train.	Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.17
Other track	All other tracks than main/running ones: - tracks maintained, but not operated by the infrastructure manager; - tracks at service facilities not used for running trains. Tracks at service facilities not used for running trains are excluded. The boundary of the service facility is the point at which the railway vehicle leaving the service facility cannot pass without having an authorization to access the mainline or other similar line. This point is usually identified by a signal. Service facilities are passenger stations, their buildings and other facilities; freight terminals; marshalling yards and train formation facilities, including shunting facilities; storage sidings; maintenance facilities; other technical facilities, including cleaning and washing facilities; maritime and inland port facilities which are linked to rail activities; relief facilities; refuelling facilities and supply of fuel in these facilities	Glossary for Transport Statistics A.I-01.2
Outsourcing	Outsourcing refers to any services provided by outside suppliers on a contractual basis	PRIME KPI subgroup
Passage	Any route, other than a road, provided for the passage of people, animals, vehicles or machinery	Directive (EU) 2016/798 on railway safety, Annex I, Appendix 6.5

Name	Description	Source
Passenger	Any person, excluding a member of the train crew, who makes a trip by rail, including a passenger trying to embark onto or disembark from a moving train for accident statistics only	Glossary for Transport Statistics, A.VI-18 Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.12
Passenger-km	Unit of measurement representing the transport of one passenger by rail over a distance of one kilometre. The distance to be taken into consideration should be the distance actually travelled by the passenger on the network. To avoid double counting each country should count only the pkm performed on its territory. If this is not available, then the distance charged or estimated should be used.	Glossary for Transport Statistics, A.V-06
Passenger train-km	Unit of measure representing the movement of all passenger trains over a distance of one kilometer. From an IM's point of view it is important to include all passenger train movements as they all influence the deterioration of the rail infrastructure assets. Empty passenger train movements are therefore included in the number of passenger train movements.	Glossary for Transport Statistics, A.IV-07 LICB Web Glossary, p.18
Passenger trains	Train for the carriage of passengers composed of one or more passenger railway vehicles and, possibly, vans moving either empty or under load.	Glossary for Transport Statistics, A.IV-06 and A.IV-05
Permanent restrictions	Restrictions are defined as permanent if they are incorporated within the yearly timetable.	PRIME KPI subgroup
Principle main/running track	All main/running track except siding and platform tracks	Glossary for Transport Statistics, A.I-02.1
Property rental incomes	The amount of money collected by the infrastructure manager from a tenant or group of tenants for using a particular space.	
Punctuality	"Punctuality of a train is measured on the base of comparisons between the time planned in the timetable of a train identified by its train number and the actual running time at certain measuring point. A measuring point is a specific location on route where the trains running data are captured. One can choose to measure the departure, arrival or run through time". "Punctuality are measured by setting up a threshold up to which trains are considered as punctual and building a percentage." When measuring punctuality following are to be included all in service trains, i.e. Freight and passenger but excluding Empty Coaching Stock movements and engineering trains.	UIC CODE, 450 – 2, OR, 5th edition, June 2009, 4 Measurement of punctuality
Railway line	Line of transportation made up by rail exclusively for the use of railway vehicles and maintained for running trains. A line is made up of one or more tracks and the corresponding exclusion criteria.	Glossary for Transport Statistics, A.I-02
Recovery	Recovery of waste is separated into the recovery of materials and the recovery of energy. The recovery of materials includes activities such as recycling and composting. These activities generally require a collection system and a method of material processing and conversion into a new product. The conversion of non-recyclable waste materials into usable heat, electricity, or fuel is done through a variety of processes including anaerobic digestion, gasification, and pyrolysis.	
Recycling	Reprocessing by means of a manufacturing process, of a used product material into a product, a component incorporated into a product, or a secondary (recycled) raw material; excluding, energy recovery and the use of the product as a fuel. Recycling of waste is any activity that includes the collection and processing of used or unused items that would otherwise be considered waste. Recycling involves sorting and processing the recyclable products into raw material and then using the recycled raw materials to make new products.	ISO 18604:2013, 3.3

Name	Description	Source
Rejected path allocation	Rejected path allocation means a request for a path that is rejected by the infrastructure manager following the coordination process laid down in Article 46(1) of Directive 2012/34/EU (SERA); each cancellation of train service operating as part of a scheduled regular service counts as a rejected path allocation	PRIME KPI subgroup on the basis of Regulation (EU) 2015/1100 (RMMS), Article 2
Renewable energy	Renewable energy is an energy that is derived from natural processes that are replenished constantly, such as energy generated from solar, wind, biomass, geothermal, hydropower and ocean resources, solid biomass, biogas and liquid biofuels	PRIME KPI subgroup
Renewal expenditure	Renewals mean capital expenditure on a major substitution work on the existing infrastructure which does not change its overall original performance. Renewals are projects where existing infrastructure is replaced with new assets of the same or similar type. Usually it is a replacement of complete systems or a systematic replacement of components at the end of their lifetimes. The borderline to maintenance differs among the railways. Usually it depends on minimum cost levels or minimum scope (e.g., km). It is capitalised at the time it is carried out, and then depreciated. Renewals include planning (incl. portfolio prioritisation, i.e. which renewal projects are realised when and where), tendering, dismantling/disposal of old equipment, construction, testing and commissioning (when track is opened to full-speed operation). Renewals are generally looked at on the level of annual spending from a cash-flow perspective, i.e. no depreciation or other imputed costs are taken into account. Excluded are definitely construction of new lines (new systems) or measures to raise the standard of existing infrastructure triggered by changed functional requirements (and not triggered by lifetime!) or "forced" investments when acting on regulations. It includes its proportion of overhead (such as financials, controlling, IT, human resources, purchasing, legal and planning), labour (operative, personnel), material, (used/consumed goods), internal services (machinery, tools, equipment including transport and logistics) and contractors (entrepreneurial production) as well as investment subsidies.	PRIME KPI subgroup on the basis of Regulation (EU) 2015/1100 (RMMS), Article 2
Reuse	Reuse of 'waste' is any operation where products or materials that are not waste are used again for the same purpose for which they were intended. Reusing waste often requires collection but relatively little or no processing. It involves checking, cleaning, repairing and/or refurbishing entire items or spare parts	
Road	Line of communication (travelled way) open to public traffic, primarily for the use of road motor vehicles, using a stabilized base other than rails or air strips. Included are paved roads and rother troads with a stabilized base. Roads also cover streets, bridges, tunnels, supporting structures, junctions, crossings and interchanges. Excluded are dedicated cycle lanes.	Glossary for Transport Statistics, B.I-01
Running track	➢ Main Track	
Sabotage	Acts of deliberately destroying or damaging railway infrastructure or rolling stock with the intent to disrupt railway operations.	
Security incidents	Intentional acts as terrorism, sabotage, cyber-attacks, vandalism, thefts, espionage, unauthorized persons and other acts of aggression or hooliganism. System and personal events occurring on transport property to individuals or/and affecting a railway system: System security events include arson, burglary, vandalism, intrusion/trespass on network, sabotage, hijacking, suspicious packages and objects, cyber security events, bomb threats, bombings, and chemical, biological and nuclear / radiological releases. Personal security events include assault, robbery, rape, attempted suicide, suicide, theft, motor vehicle theft, larceny, and homicide.	PRIME KPI subgroup

Name	Description	Source
Serious injury (seriously injured person)	Any person injured who was hospitalised for more than 24 hours as a result of an accident, excluding any attempted suicide.	Glossary for Transport Statistics, A. VII-10 Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.19
Side Business	E.g., Advertising, real estate letting, power supply for commercial uses, consultancy services, parking facilities.	
Significant accident	Any accident involving at least one rail vehicle in motion, resulting in at least one killed or seriously injured person, or in significant damage to stock, track, other installations or environment, or extensive disruptions to traffic, excluding accidents in workshops, warehouses and depots.	Glossary for Transport Statistics, A.VII-04 Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.1
Significant damage	Damage that is equivalent to EUR 150 000 or more.	Glossary for Transport Statistics, A.VI-04 Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.2
Station	Railway establishment used for loading and unloading of passenger and/or goods, for formation, dispatch, reception and temporary stabling of trains and/or for stabling and marshalling of rolling stock. Halts are excluded. Sometimes also referred to as rail or railway station.	Glossary for Transport Statistics, A.I-12
Strategic points	The strategic points are agreed with the government and railway undertakings each year. The strategic points reflect the following criteria: 1. End stations 2. Main interchange stations 3. Stations according to the railway undertakings wishes 4. National coverage 5. Historical determined	Example from ProRail
Suicide	An act to deliberately injure oneself resulting in death, as recorded and classified by the competent national authority	Glossary for Transport Statistics, A.VII-02 Directive (EU) 2016/798 on railway safety, Annex I, Appendix 3.1
TAC Total	Includes charges for minimum Track Access Charges for the passenger, freight and service train path. No other charging components is included	
Temporary restrictions	Restrictions that occur during the year, not included in the yearly timetable.	
TEN-T requirements	Infrastructure requirements as set in Article 39 of the Regulation (EU) No 1315/2013 on Union guidelines for the development of the trans-European transport network. http://publications.europa.eu/resource/cellar/f277232a-699e-11e3-8e4e-01aa75ed71a1.0006.01/DOC_1	Regulation (EU) No 1315/2013 (TEN-T)

Name	Description	Source
Terrorism	Acts defined as crimes or offences under national law carried out on railway infrastructure or rolling stock and committed with the aims: a) attacks upon a person's life which may cause death; b) attacks upon the physical integrity of a person; c) kidnapping or hostage-taking; d) causing extensive destruction to a government or public facility, a transport system, an infrastructure facility, including an information system, a fixed platform located on the continental shelf, a public place or private property likely to endanger human life or result in major economic loss; e) seizure of aircraft, ships or other means of public or goods transport; f) manufacture, possession, acquisition, transport, supply or use of explosives or weapons, including chemical, biological, radiological or nuclear weapons, as well as research into, and development of, chemical, biological, radiological or nuclear weapons; g) release of dangerous substances, or causing fires, floods or explosions, the effect of which is to endanger human life; h) interfering with or disrupting the supply of water, power or any other fundamental natural resource, the effect of which is to endanger human life; i) illegal system interference, as referred to in Article 4 of Directive 2013/40/EU of the European Parliament and of the Council (19) in cases where Article 9(3) or point (b) or (c) of Article 9(4) of that Directive applies, and illegal data interference, as referred to in Article 5 of that Directive in cases where point (c) of Article 9(4) of that Directive applies; j) threatening to commit any of the acts listed in points (a) to (i).	Directive (EU) 2017/541 on combatting terrorism, Article 3(1)
Thefts	Acts of dishonestly taking another person or company's property without that person or company's permission or consent with the intent to permanently deprive the rightful owner of it carried out on railway infrastructure, including stations, or in railway rolling stock.	
Timetable	➢ Working timetable	
Track	A pair of rails over which rail borne vehicles can run maintained by an infrastructure manager. Metro, Tram and Light rail urban lines are excluded. Excluded are: - Lines solely used for operating touristic trains and heritage trains; - Lines constructed solely to serve mines, forests or other industrial or agricultural installations and which are not open to public traffic; - Private lines closed to public traffic and functionally separated (i.e. stand-alone) networks; - Private lines used for own freight transport activities or for non-commercial passenger services and light rail tracks occasionally used by heavy rail vehicles for connectivity or transit purposes.	Glossary for Transport Statistics, A.I-01
Track buckle or other track misalignment	Any fault related to the continuum and the geometry of track, requiring track to be placed out of service or immediate restriction of permitted speed.	Directive (EU) 2016/798 on railway safety, Annex I, Appendix 4.2
Track km	A cumulative length of all tracks maintained by the infrastructure manager; each track of a multiple-track railway line is to be counted	PRIME subgroup, based on Glossary for Transport Statistics
Trackside	Area adjacent to a railway track such as embankments, level crossings, platforms, shunting yards. Workshops, warehouses and depots are excluded.	PRIME KPI subgroup
Traction electricity cost	Direct cost incurred to provide traction electricity to railway undertakings. Only "pure" energy costs have to be included while overhead and other indirect costs have to be excluded.	PRIME KPI subgroup

Name	Description	Source
Train	One or more railway vehicles hauled by one or more locomotives or railcars, or one railcar travelling alone, running under a given number or specific designation from an initial fixed point to a terminal fixed point, including a light engine, i.e. a locomotive travelling on its own. In this document we define trains as the sum of passenger's trains and freight trains.	Glossary for Transport Statistics, A.IV-05 and A.IV-06
Train is affected	➢ Affected train (by an asset failure)	
Train-km	The unit of measure representing the movement of a train over one kilometre. The distance used is the distance actually run, if available, otherwise the standard network distance between the origin and destination shall be used. Only the distance on the national territory of the reporting country shall be taken into account.	Glossary for Transport Statistics, A.IV-05 Directive (EU) 2016/798 on railway safety, Annex I, Appendix 7.1
Traffic Management Cost	Costs of functions: Traffic management comprises the control of signal installations and traffic, planning as well as path allocation. Types of costs: Traffic management includes planning, its proportion of overhead (such as financials, controlling, IT, human resources, purchasing, legal and plan-ning), labour (operative, personnel), material, (used/consumed goods), internal services (machinery, tools, equipment including transport and logistics) and contrac-tors (entrepreneurial production).	PRIME KPI subgroup on the basis of UIC studies (CENOS and OMC)
Trespasser	Any person present on railway premises where such presence is forbidden, with the exception of a level crossing user	Directive (EU) 2016/798 on railway safety, Annex I, Appendix 1.15
Vandalism	Acts of deliberate destruction of, or damage to railway infrastructure or rolling stock including defacement by graffiti, without the intention of disrupting railway operations or causing bodily harm.	
Working capital	Current assets minus current liabilities. 2. Accounting: Net liquid assets computed by deducting current liabilities from current assets. The amount of available working capital is a measure of a firm's ability to meet its short-term obligations. Sources of working capital are (1) net income, (2) long-term loans, (3) sale of capital assets, and (4) injection of funds by stockholders. Is the amount of current assets minus the amount of current liabilities as of specific date. These amounts are obtained from your company's balance sheet. For example, if your company's balance sheet reports current assets of $450,000 and current liabilities of $320,000 then your company's working capital is $130,000.	
Working timetable	The data defining all planned train and rolling-stock movements which will take place on the relevant infrastruc-ture during the period for which it is in force	Directive 2012/34/EU (SERA), Article .3(28)
Wrong side signalling failure	Any technical failure of a signalling system (either to infrastructure or to rolling stock), resulting in signalling information less restrictive than that demanded	Directive (EU) 2016/798 on railway safety, Annex I, Appendix 4.3

Appendix 7: Links to source documents

Source document	Link
Directive (EU) 2016/798 on railway safety	https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uris-erv:OJ.L_.2016.138.01.0102.01.ENG&toc=OJ:L:2016:138:TOC
Directive 2012/34/EU (SERA) establishing a single European railway area	https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32012L0034
Regulation (EU) No 1315/2013 (TEN-T)	https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32013R1315
Regulation (EU) 2015/1100 (RMMS)	https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1554976598498&uri=CELEX:32015R1100
Regulation (EU) 2016/796 (ERA)	https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1554976730834&uri=CELEX:32016R0796
Directive (EU) 2017/541 on combatting terrorism	https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32017L0541