PRIME

Platform of Rail Infrastructure Managers in **Europe**

PRIME 14

13 June 2019

Feedback from PRIME KPI's and Benchmarking Subgroup

AGENDA

- **Annual PRIME KPIs Report**
- Punctuality – Deep Dive and Thematic Report
- KPI & Benchmarking Business Process for 2019/20

The season 2018/19 is almost closed and all activities were grouped in 5 main tasks

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Tasks

1 Analysis	2 KPIs	3 IT tool	4 Benchmarking	5 Report
• Manage data collection 2018 • Assist in closing data gaps • Assist new members • Prepare annual bench-marking report	• Continue to improve definitions of the catalogue • Develop new indicators • Modify the scorecard system	• Collect user feedback • Develop specifications for version 3.0 • Test of version 3.0 • Provide data definitions • Update user manual	• Select topic • Prepare and present the-matic report • Conduct thematic workshop • Propose further studies	• Prepare Technical Report on – Database – KPI framework – IT Tool
• Benchmarking report	• Updated KPI catalogue	• Technical specifications • Updated user manual	• Thematic report	• Final technical status report

15 participants contributed to this report - 7 new members have joined PRIME's KPI benchmarking subgroup

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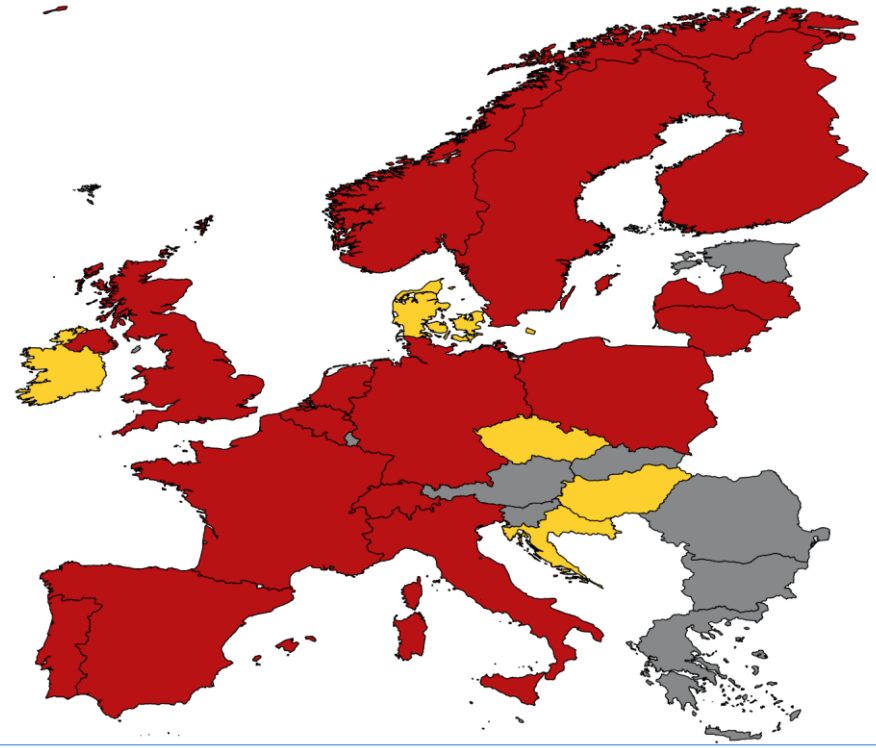

Observers:

Participants in PRIME KPI Report

New subgroup members in transition phase

PRIME members

The KPIs presented in this report include 12 high level industry and 32 benchmarking KPIs across six dimensions

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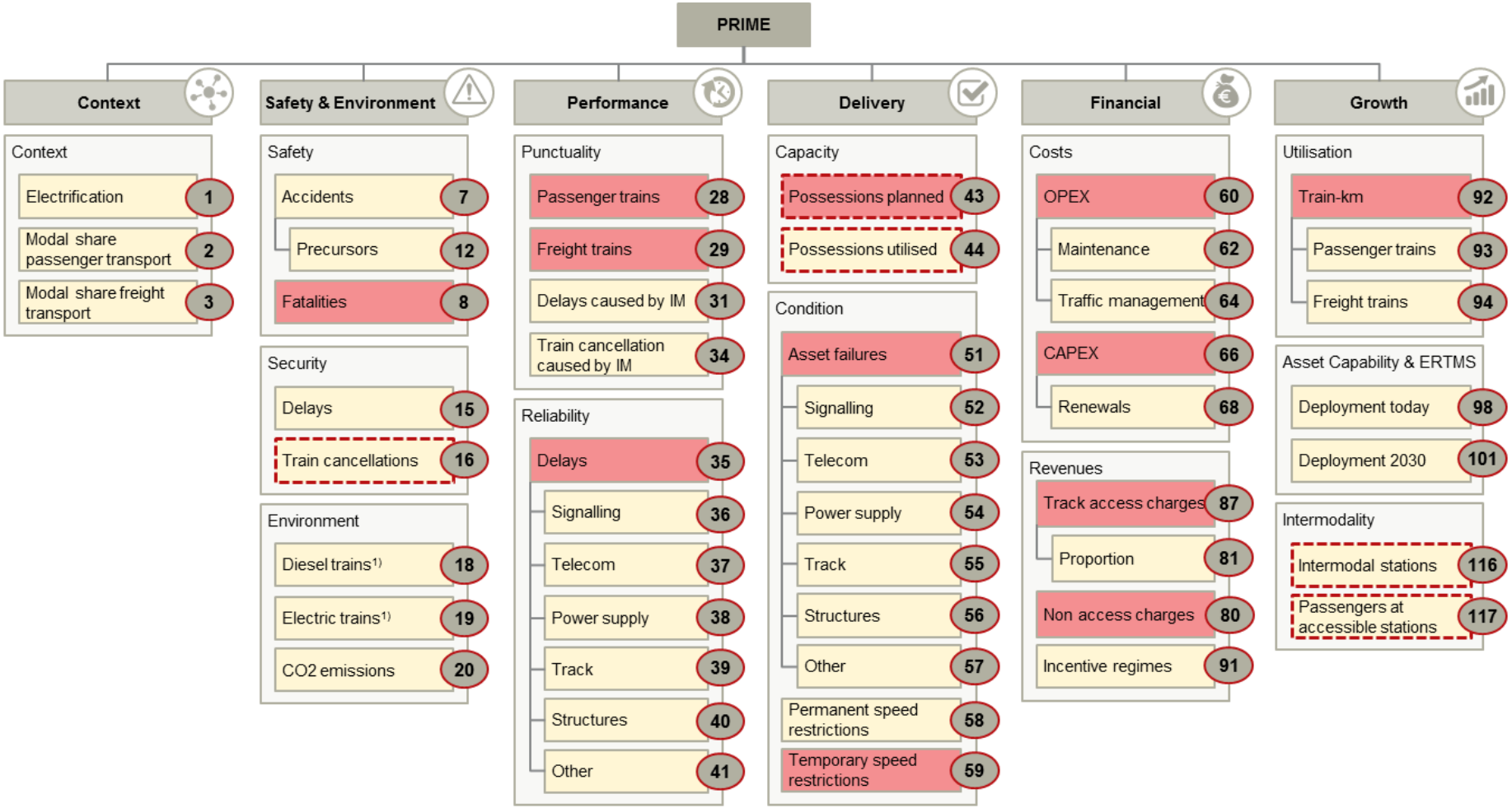

High Level Industry KPI Benchmarking KPI KPI under review

1) For the purpose of this report "Share of train types" (combination of KPI 18 & 19) is considered as a high level KPI

Compared to previous years there is a remarkable increase in data provision for high level and benchmarking KPIs

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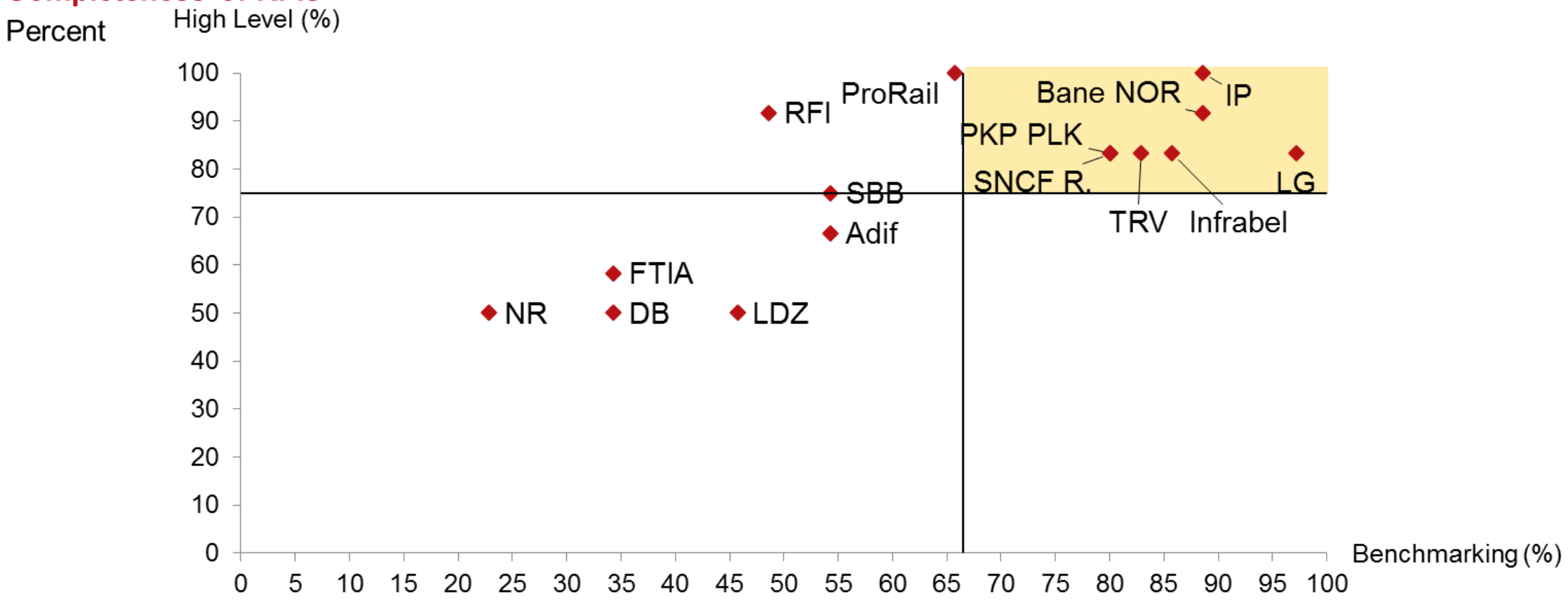
Completeness of KPIs



Source: civity calculations using data as provided by the infrastructure managers until 29 January 2019

'Benchmarking Zone'

Average Punctuality for Passengers has been stable between 2012 and 2017

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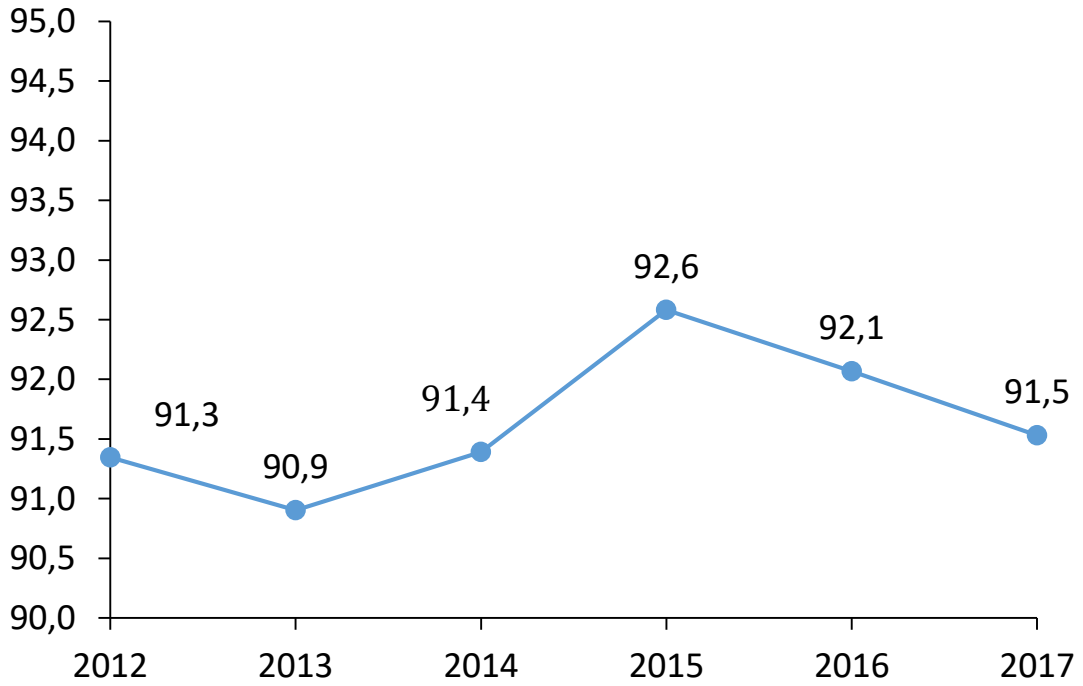
KPI 28

Passenger trains punctuality

% of trains



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- Latvijas dzelzceļš
- PKP PLK
- ProRail
- RFI
- SNCF Réseau
- Trafikverket

Average Punctuality for Freight has been decreasing since 2012

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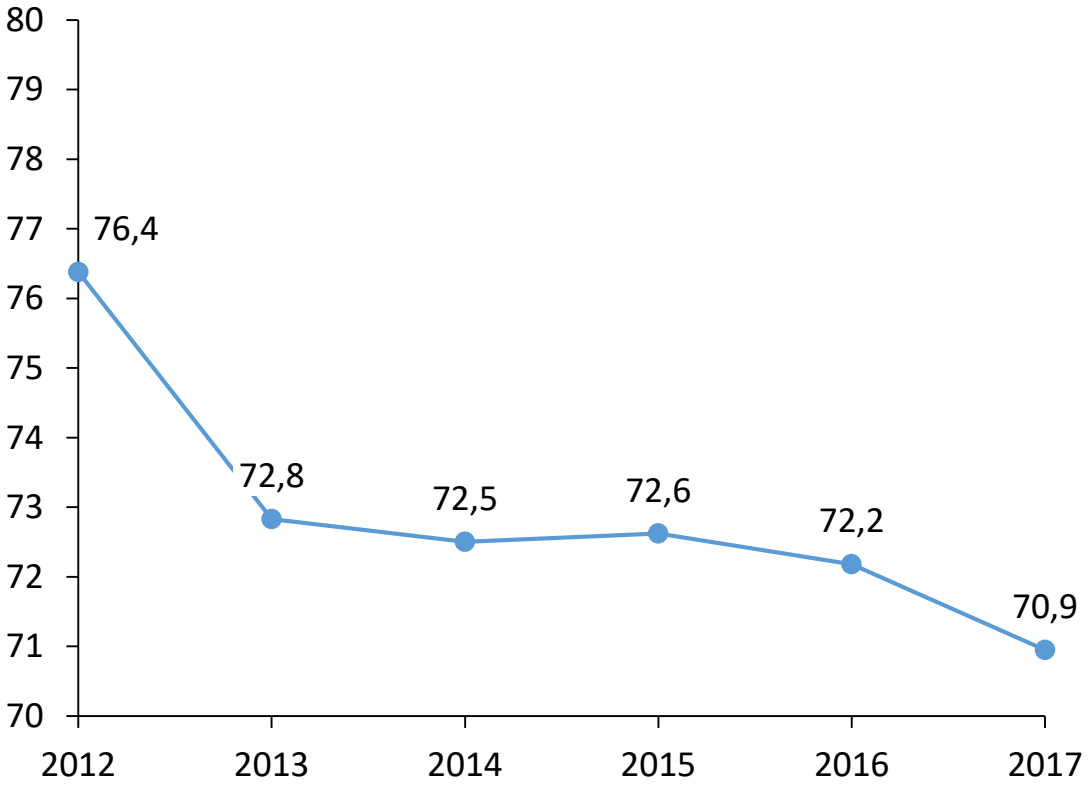
KPI 29

Freight trains punctuality

% of trains



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After four years of decrease, the number of serious injuries and fatalities increased in 2017

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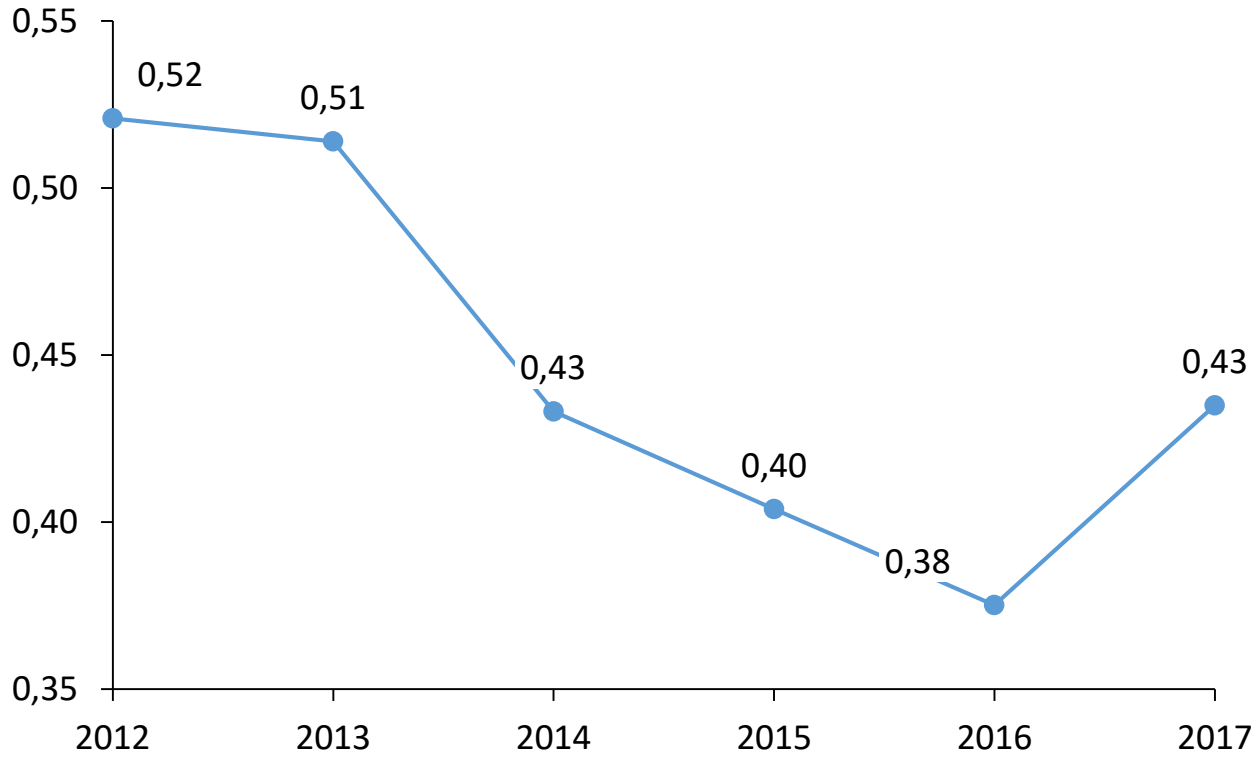
KPI 8

Persons seriously injured and killed

Number per million train-km



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Average assets failures have been decreasing since 2014

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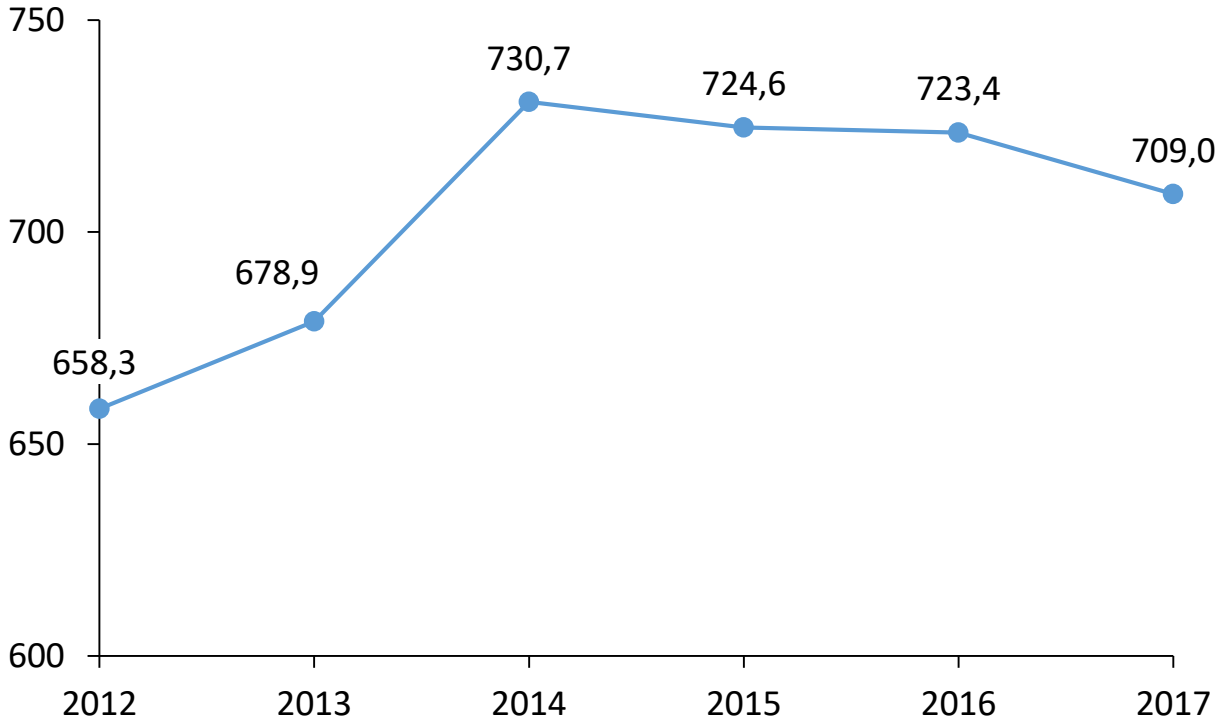
KPI 51

Assets failures in relation to network size

number per thousand main track-km



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After 2 years of increasing OPEX, costs have been decreasing since 2015

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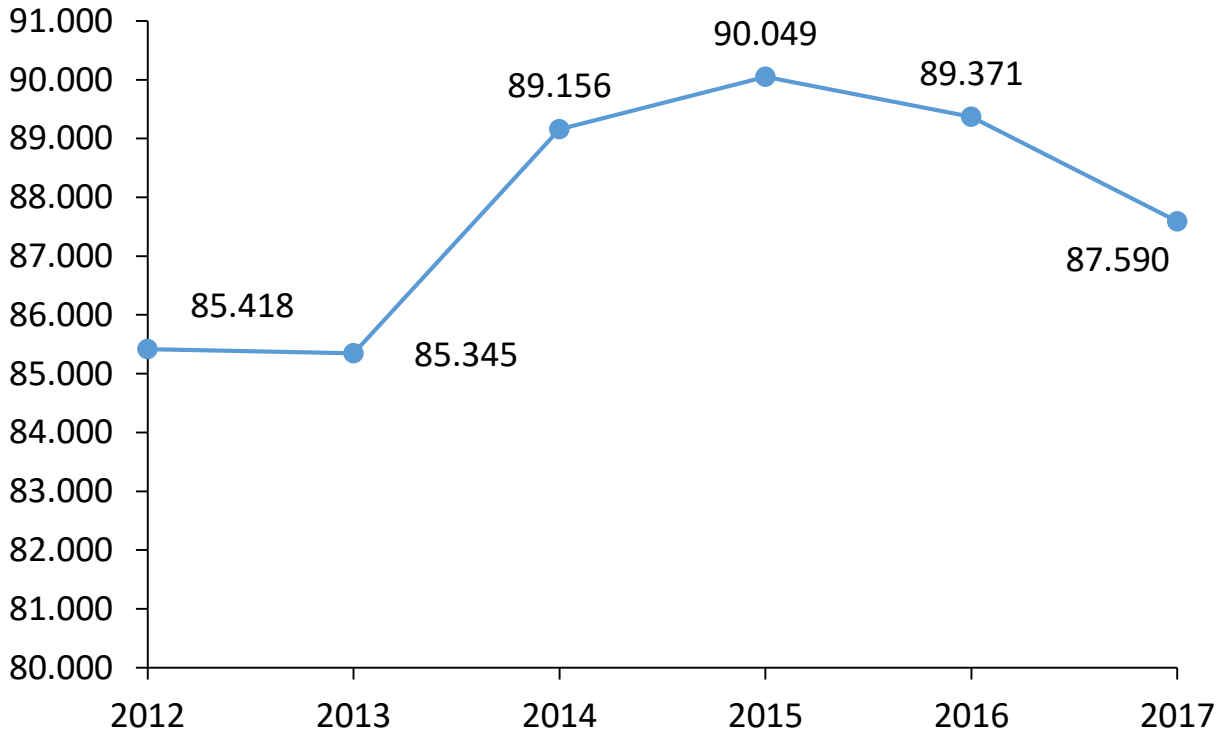
KPI 60

OPEX – operational expenditures in relation to network size

Euro per main track-km



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Overall, investment level have been decreasing over last 6 years

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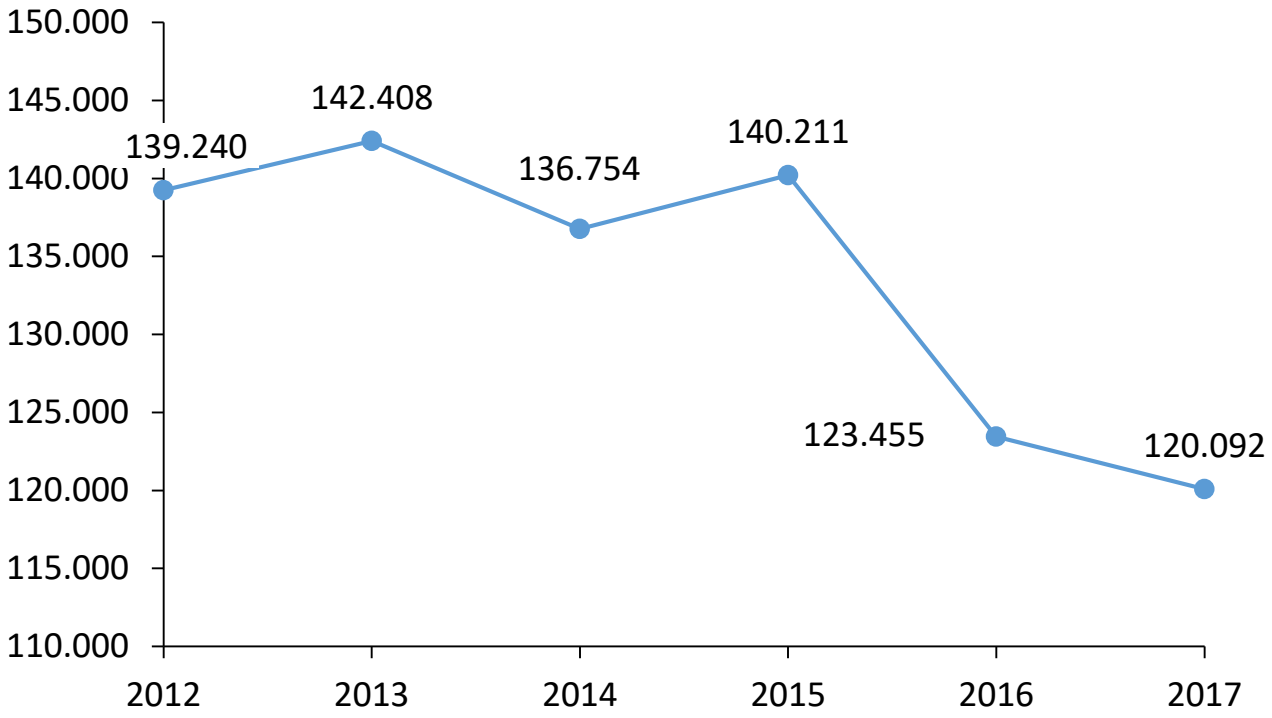
KPI 66

CAPEX – capital expenditures in relation to network size

Euro per main track-km



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TAC revenues have a tendency to increase over the last 6 years

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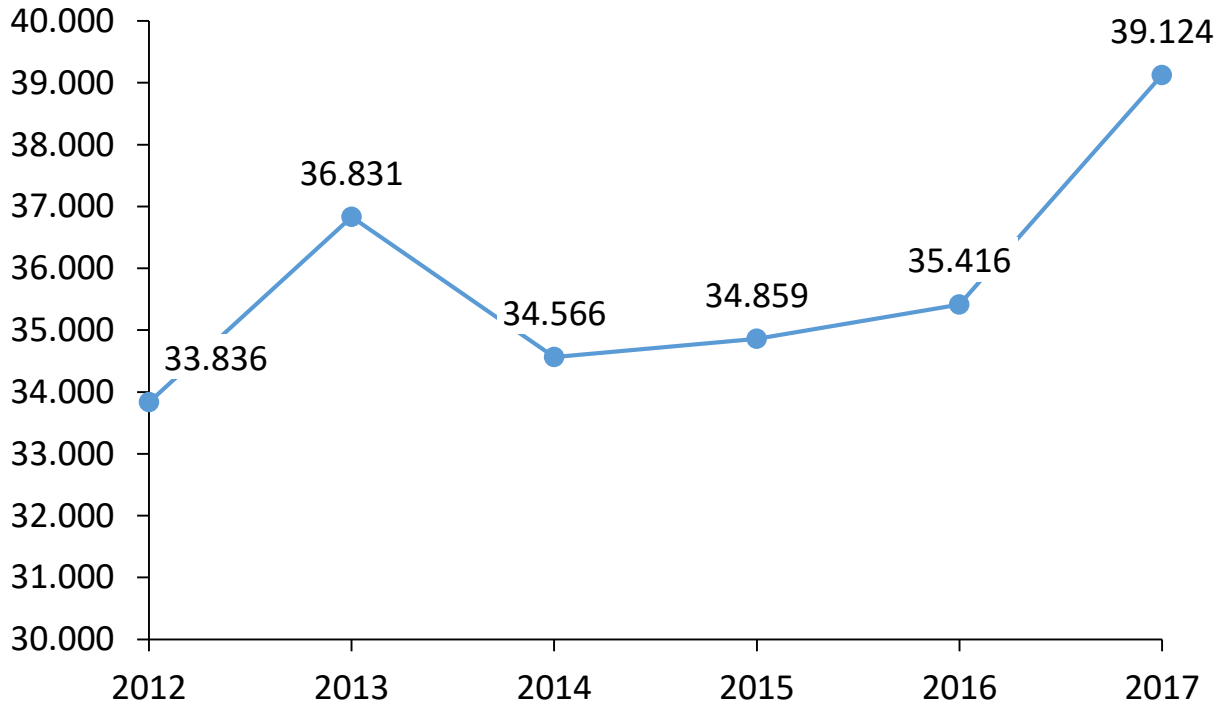
KPI 87

TAC revenue in relation to network size

Euro per main track-km



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Further analysis should account for underlying root causes and identify opportunities for improvement

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- In order to improve safety performance it would be valuable to investigate the root causes and the programmes that IMs initiated to mitigate them
- Further work is required by the IMs to collect data according to the PRIME definition in order to make punctuality and delays more comparable across the peer group, anyway results are already satisfactory.
- Improving Asset Condition KPIs is one of major technical challenges in current benchmarking.
- Still further work is required by IMs to collect data on possessions, speed restrictions and its impact on train operations.
- Different operational conditions need to be taken into account when identifying financial good practices.
- The utilisation of European railway infrastructure varies significantly, even at national level, and a drill-down into utilisation density in different segments would be valuable for benchmarking purposes.

AGENDA

- Annual PRIME KPIs Report
- **Punctuality – Deep Dive and Thematic Report**
- KPI & Benchmarking Business Process for 2019/20

The analysis on punctuality is divided into five sections

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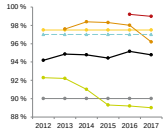
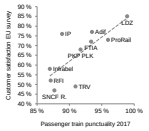
Overview



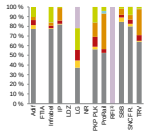
Targets and punctuality achieved

This section provides developments of targets and actual levels of punctuality achieved over time and explores the practices of target setting.



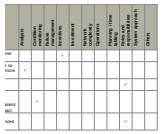
Influencing factors and measurement complexity

Selected factors forming the concept of measurement are explained. The level of punctuality achieved is seen as a result of a complex environment.



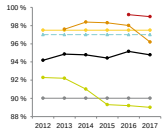
Infrastructure related root causes

Various time series demonstrate the infrastructure managers trends in technical failures, the delay minutes associated and the time to repair.



Infrastructure managers' initiatives

An overview is provided on infrastructure managers' initiatives to improve performance. They are described in detail and complemented by three presentations.



Punctuality in rail freight

The section includes actual and target values for rail freight. Additional information has been provided by Rail Net Europe.

Two out of six infrastructure managers usually reach their overall target level or perform better

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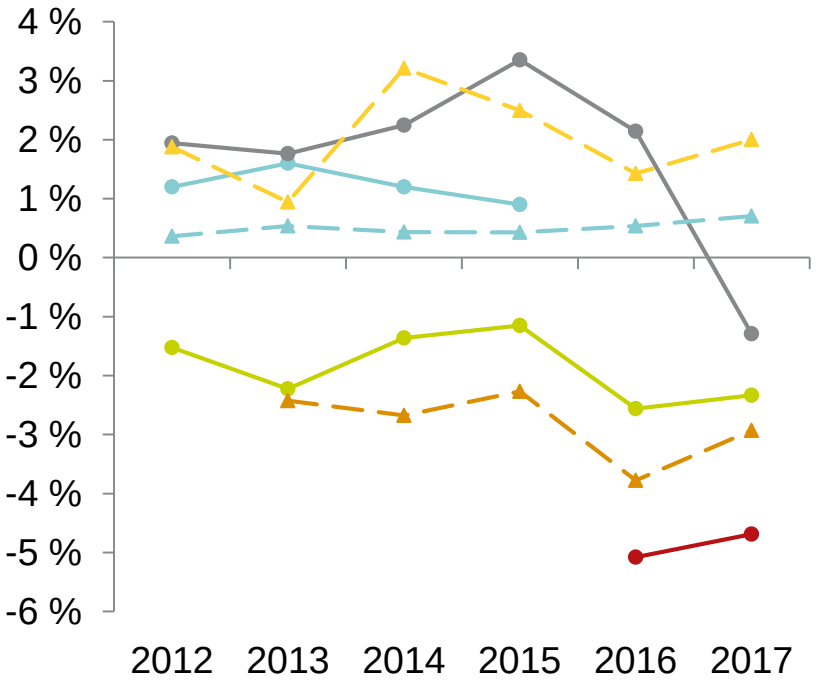
Passenger trains punctuality – actuals compared to targets for all services

% of trains



- The graph illustrates the difference between the actual and the targeted levels of punctuality
- A negative value indicates that the infrastructure manager has not reached the target value
- The range by which infrastructure managers miss target values is approximately +/- 5% - with one outlier and some fluctuation over the years

Source: PRIME punctuality questionnaires from IMs to civity & PRIME KPI data as per 19/02/2019

1) Aggregated as weighted average of Passenger trains punctuality compared to targets for long-distance, regional and commuter

Over the years average punctuality in rail freight has declined

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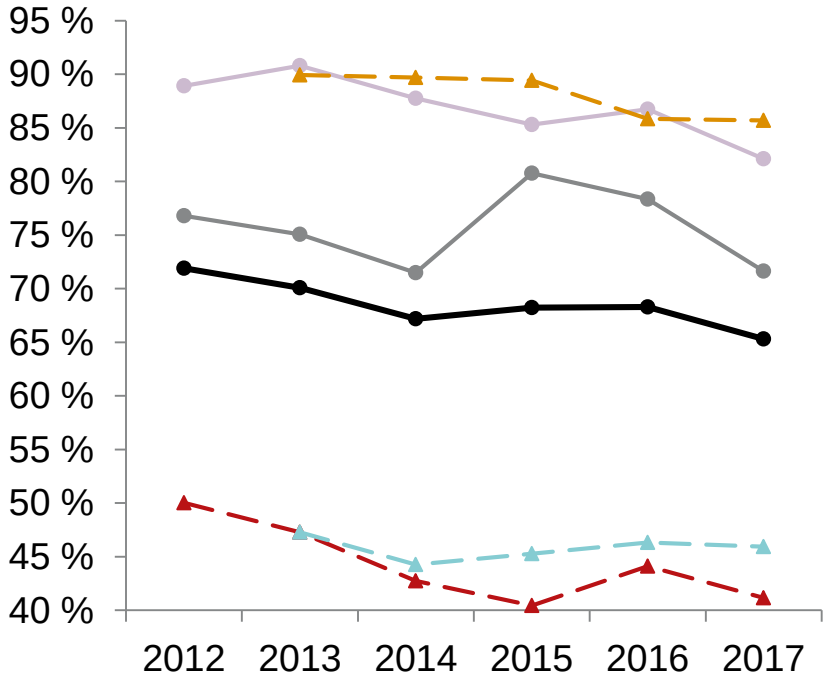
Freight trains punctuality – actual values

% of trains



- Punctuality in rail freight has been calculated on the basis of trains operated and the number of trains on time in this category
- Values are based on the thresholds defined by each infrastructure manager
- Hence, the analysis is useful to show individual trends but not to compare data between IMs
- Several infrastructure managers faced a decrease of punctuality

Source: PRIME punctuality questionnaires from IMs to civity & PRIME KPI data as per 19/02/2019

A significant share of freight trains already leaves its origin with a delay

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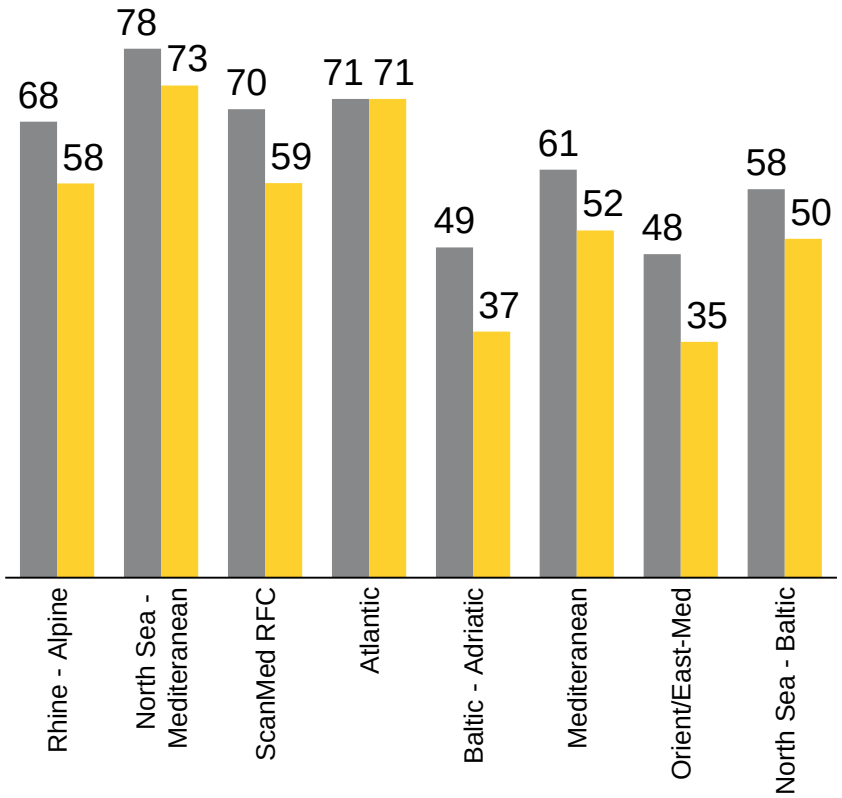
Punctuality on rail freight corridors

% of trains on time



- Rail Net Europe is collecting and publishing performance KPIs for European rail freight corridors
- Values represent averages of up to three years (2016 – 2018)
- The operational KPIs describing the performance on each corridor include the punctuality measured at origin as well as the punctuality measured at destination (both applying a threshold of <= 30 minutes

Source: RNE, Commonly applicable RFC KPIs, Figures 2016-2018

A wide array of factors influences punctuality – only a selected number can be considered in this analysis

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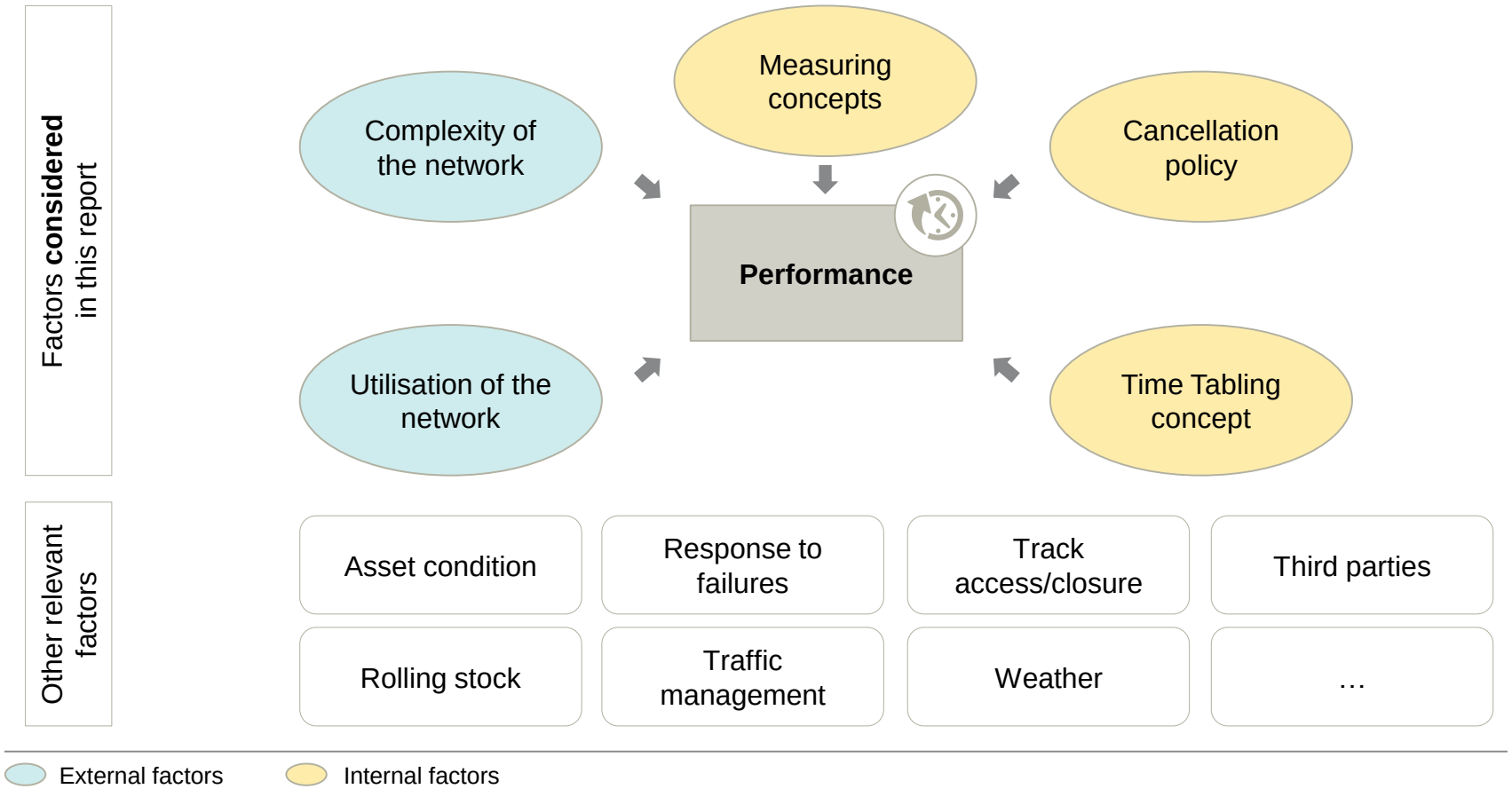
Overview on factors



An infrastructure manager with a high density of measuring points will probably count more delays

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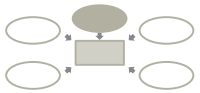
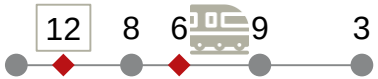
Impact of different measuring point densities



Density of measuring		Delay minutes at measuring points
High	Punctuality is measured at every departure / arrival and at additional measurement points	
Medium	Punctuality is measured at every departure / arrival	
Low	Punctuality is measured at arrival	

Consequences

- Delay minutes per train are captured at every point as illustrated in the graph, depending on the density of measuring points
- In principal, the highest delay is considered in the infrastructure managers' statistics
- Trains can build up delays on the way but make good for it at their destination
- The likelihood that a delay is counted decreases with a reduction of measuring points

Thresholds set by infrastructure managers mostly range between 2:59 and 5:59

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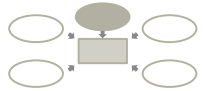
Delay measurement thresholds

Minutes:seconds



Passenger train categories	2:29	2:59	…	4:59	5:29	5:59	--->>>
Long distance[1)]		SBB CFF FFS, LDZ, ProRail		adif, Infraestruturas de Portugal	VÄYLÄ, POLSKIE LINIE KOLEJOWE	INFRABEL, LIETUVOS GELEŽINKELIAI, SNCF RÉSEAU, TRAFIKVERKET	NetworkRail, RFI
Regional		SBB CFF FFS, LDZ, ProRail		NetworkRail, adif, Infraestruturas de Portugal	RFI, POLSKIE LINIE KOLEJOWE	INFRABEL, LIETUVOS GELEŽINKELIAI, SNCF RÉSEAU, TRAFIKVERKET	
Commuter	VÄYLÄ	SBB CFF FFS, adif		NetworkRail, Infraestruturas de Portugal	RFI, POLSKIE LINIE KOLEJOWE	INFRABEL, LIETUVOS GELEŽINKELIAI, SNCF RÉSEAU, TRAFIKVERKET	

1) Long distance thresholds: Network Rail: 9:59, RFI 15:29

Punctuality is influenced by a large number of factors – some of them are in control of the infrastructure manager

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- Punctuality is complex and driven by a large number of factors, such as:
  - utilisation and complexity of the network,
  - weather and rolling stock in use,
  - investment levels,
  - Infrastructure Condition,
  - Management of assets,
  - and many more – inside and outside IM's scope.
- Furthermore, infrastructure managers achieve punctuality in very different environments: the utilisation and complexity of networks range from smaller networks with lower degrees of utilisation to networks with very high densities of assets and train frequencies

AGENDA

- Annual PRIME KPIs Report
- Punctuality – Deep Dive and Thematic Report
- **KPI & Benchmarking Business Process for 2019/20**

The PRIME KPI subgroup will start season 2019/20 in a couple of months with an ambitious agenda

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What's next in PRIME KPI's Subgroup agenda?

- ✓ Proceed improving the annual PRIME KPIs Report
- ✓ Upgrade and Review existing KPIs
- ✓ Improve IT Tool usability and utility to members
- ✓ Deliver a Thematic Report on "IM's Financing Mechanisms" in cooperation with PRIME Finance and PRIME Charges Subgroups

The PRIME KPI subgroup will start season 2019/20 in a couple of months with an ambitious agenda

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Annual Business Process