PRIME Digital subgroup

November 2021

PRIME Digital Subgroup Strategy & Vision

Topics related to Strategy & Vision

- Digitalisation as enabler for a more competitive railway
  (by setting transparent harmonised processess for railway needs and standards for railway data exchange within Europe)

- Strategy & Vision based on

  - Digital Infrastructure Information

  - Digitalisation of Capacity Management

  - Digital Train Information

- High Level IT and Systems Overview

  - Enable connectivity between the different digital enabler

  - Special focus on „Digital Infrastructure Information" as the common ground

  - Survey on Infrastructure data

Cooperation with external forums

The following topics have been already identified:

- **Issues Logbook** (including braking rules, train composition and real-time communication): PRIME members will follow up and support the initiative to overcome cross-border operational and technical barriers affecting interoperability, and assists in building commitment, where relevant;

- **Timetable Redesign Project (TTR):** PRIME and RUD will cooperate and follow with RNE and FTE the TTR project and promote implementation of pilots for timetable 2020. The cooperation will also involve the upcoming revision of Annex VII.

- **European Rail Facilities Portal**: PRIME members together with RUD members will follow on the implementation of the European Rail Facilities Portal.

- **Estimated Time of Arrival and efficient capacity**: in cooperation with RU Dialogue and other stakeholders

- **Shift2Rail:** A cooperation is established and a S2R represent is invited to the meeting of the PRIME digital subgroup and a participation from RNE to S2R groups is under discussion and proposed (system pillar)

PRIME Digital Subgroup: Three digital enablers for a better railway

PRIME
Platform of Rail Infrastructure Managers in Europe

Digitalisation of Capacity Management

European wide capacity strategy and a digital capacity model including already capacity restrictions (TCRs).

Available capacity should be offered on short term European wide. Based on the **Timetable Redesign Project (TTR)** project

Digital Train Information

Real-Time information about the position of the train, locomotion and wagon (container) with reliable forecast information.
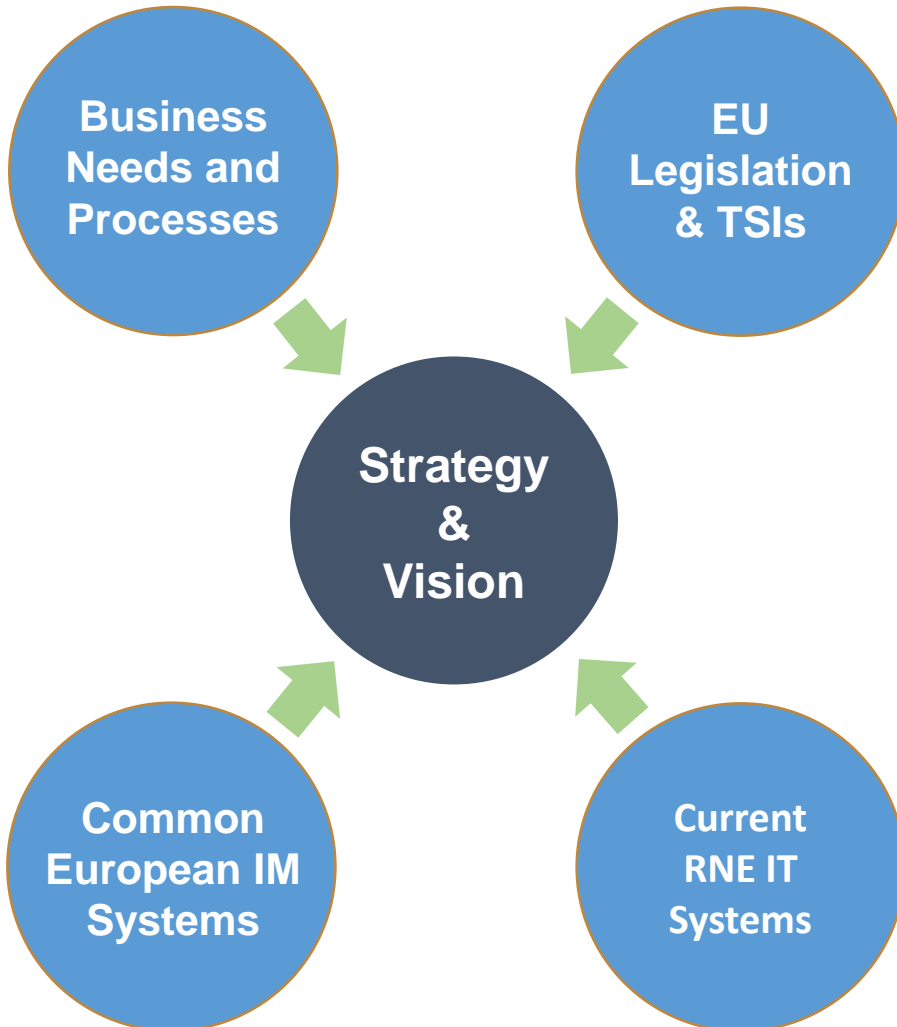
Combination with train composition and first and last mile information.

Digital Infrastructure Information

To check interdependence between European Reference Files as RINF, TAF and TAP TSI and Rail Facility Portal.

One common digital rail infrastructure platform.
From planning to operation
From building to maintaining.

Strategy and Vision – High Level

Business Needs and Processes

EU Legislation & TSIs

Strategy & Vision

Common European IM Systems

Current RNE IT Systems

Business Needs and Processes

IT is following business needs. The business is defining the requirements.

Common Systems are just the enabler to support business needs

EU Legislation & TSIs (TAF&TAP)

Common and national systems have to be in line with EU legislations

Common and national systems are enabler to fulfil EU legislations

Common European IM Systems (Services for Sector)

Common Systems shall use national information as much as possible

Common Systems have to be connected to existing legacy systems **via standardised interfaces**

Common Systems shall be able to act as data exchange platform

Current IT Systems

Common Systems shall be able to use functions from other systems

Common Systems shall use the same reference files (locations, segments)

High Level IT and Systems Overview

PRIME
Platform of Rail Infrastructure Managers in **Europe**

TIS
- Digital Train 2.0
- Train Performance Management

PCS
- PCS Mandatory Interface
- Capacity Broker (Ad-Hoc Request)

TCR
- European Capacity Model Tool
- Capacity Supply

CIP / CCS
- Digitalisation of the Network Statement
- Rail Facilities Portal
- Digital Infrastructure Data Big Data 2.0

Train Run

Annual Request → Late Request → Rolling Planning → Short term Request

Capacity Allocation

Capacity based on Topology

Ground Topology

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High Level IT and Systems Overview

PRIME
Platform of Rail Infrastructure
Managers in Europe

TIS
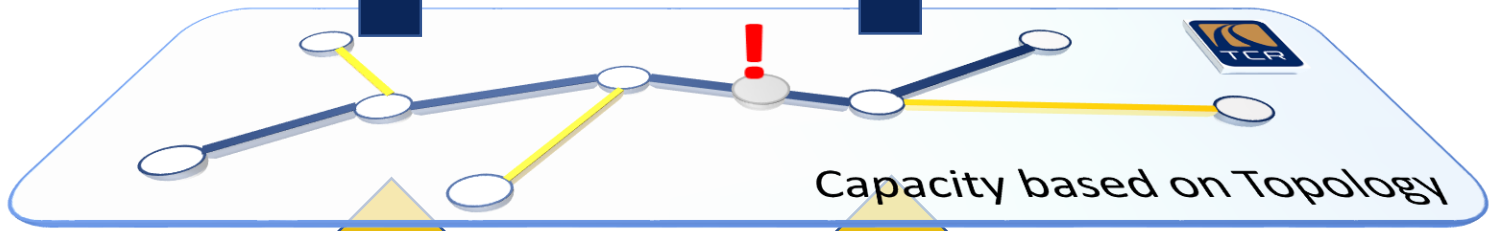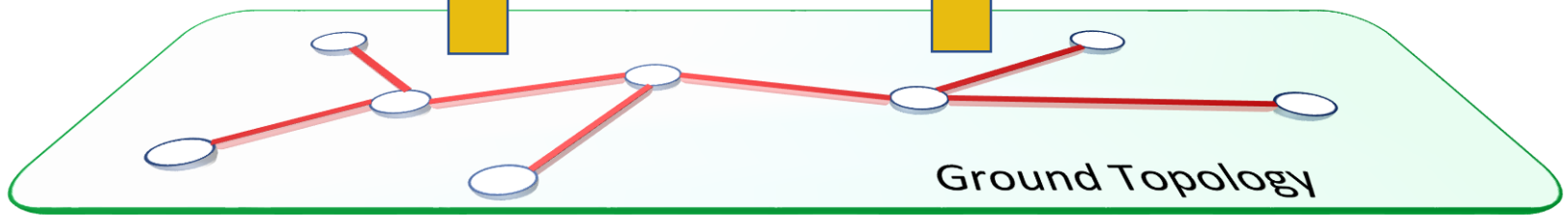
| Digital Train 2.0 |
| Train Performance Management |

Digital Train Information

PCS

| PCS Mandatory Interface |
| Capacity Broker (Ad-Hoc Request) |

| Annual Request | Late Request | Rolling Planning | Short term Request |

Digitalisation of Capacity Management

TCR

| European Capacity Model Tool |
| Capacity Supply |

TCR LIS

| Capacity Supply |

CIP **CCS**

| Digitalisation of the Network Statement |
| Rail Facilities Portal |
| Digital Infrastructure Data Big Data 2.0 |

Digital Infrastructure Information

Digital Infrastructure Information

The aim is to provide an **up-to-date and complete description of the infrastructure** required on **European level**. Starting with the information regarding the first and last mile (Terminals - Rail Facility Portal), a clear definition of the points used for data exchange (TAF/TAP TSI -- CRD) and an overview of the routes (RINF). A feasibility study is carried out on these European reference files such as RINF, TAF and TAP TSI and Rail Facility Portal. Using the same digital Infrastructure Information from planning to operation – from building to maintaining.

Deliverables 2021:

- Feasibility Study about European Reference Files.
- Concept of aligning existing sector applications dealing with reference files (CRD, CIP and RFP)

Outlook 2022:

- Aligning existing sector applications dealing with reference files (CRD, CIP and RFP)
- Concept if and how data from RINF can be used for business purpose

Digital Capacity Management (TTR)

Based on the clearly defined infrastructure information, a **Europe-wide capacity strategy** and a digital capacity model will be developed, which already includes capacity restrictions. Within the framework of the timetable redesign project (TTR - Smart Capacity Management), IMs and RUs are working together **to redesign the current way of capacity allocation**. Available capacity is also to be offered Europe-wide at short notice.

Deliverables 2021:

- Setting up MVPs (Minimum Viable Products) for the TTR implementation
- Organising common implementation projects including European co-financing

Outlook 2022:

- Starting with the first implementation projects like
    - short-term ad-hoc path request for single train runs
    - Temporary Capacity Restriction coordination
- Coordinating European co-financing project for implementation.

Digital Train Information

Tracking & tracing of trains is already available throughout Europe. In **Digital Train 1 & 2, train tracking and tracing** information as well as **reliable forecasting information** has already been combined with train composition to capture locomotive, wagon and possibly in the future container movements. All information is based on a common reference date and must include information about the **first and last mile,** such as terminals and other railway facilities.

Deliverables 2021:

- Implementing Train Composition Information in TIS (Mapping between HEMES 30 V2 and TAF TSI TCM)
- Including and measuring ETAs from different suppliers.
- Including first and last mile information (Mapping between EDIGES and TAF TSI messages)

Outlook 2022:

- Including a possible view of trains and wagons.
- Providing distance information for trains and wagons
- Increasing the number of participants to include TCM information and of terminals