TTR
For Smart Capacity Management

RNE
RailNetEurope

FTE
FORUM TRAIN EUROPE

Co-funded by the European Union

WHY TTR?

A reform of the timetabling and capacity management process is essential for the future of European railways

Rail is nine times less CO2- intensive than road for freight and air travel for passengers. Therefore, increasing the modal share of rail is crucial for the achievement of the EU Green Deal target of reducing transport-related greenhouse gas emissions.

However, the current timetabling and capacity management process does not sufficiently meet market needs, thus being an obstacle to further expanding the market share of rail. To achieve its full potential, a new and innovative process for Europe is necessary: Timetable Redesign (TTR) for Smart Capacity Management.

With this joint initiative, both Infrastructure Managers and Railway Undertakings aim at improving the usage of the railway infrastructure for the benefit of the entire railway sector and the general public interest.

The shortcomings of the current timetabling and capacity management...

… and how TTR will overcome them

Temporary Capacity Restrictions (TCRs) are inevitable – but require better planning, communication and harmonisation in order to not be a major obstacle to a competitive rail sector. Today, TCRs lead to unexpected costs, even loss of business for RUs, reduced reliability towards the market and unnecessary unavailability of lines.

With the Capacity Strategy and a Capacity Model, IMs allocate capacity to various needs (freight, passengers, TCRs) from the beginning. These deliverables contribute to safeguarding commercial capacity of good quality, in particular for long distance traffic. On top of that, with improved RU consultation, the needed clustering of TCRs by their impact, and last but not least, the TCR Tool for optimised communication and planning, TTR provides solutions for an internationally coordinated approach to minimise negative impacts.

With the final timetable being published in September, passenger RUs cannot sell their tickets well in advance of the timetable change in December – adding competitive disadvantage in relation to road and air

Through advanced planning with Capacity Models, leading to an acceleration of the allocation process, passenger RUs can sell their tickets several months in advance, thus becoming more competitive.

The current timetabling process focusses strongly on annual requests. This early placement of path requests is lacking the dynamic and agility some businesses, especially rail freight, need to remain competitive, eventually leading to redundant bookings, high cost and loss of capacity.

Differentiated timetabling products – several of which will build on safeguarded capacity – will serve the diverse market needs: annual timetable requests will be complemented by possibilities to request capacities shortly before the train run through high-quality, nationally and internationally harmonised capacity products.

International path harmonisation is often impeded by national processes and behaviours that are not aligned internationally.

TTR stands for the Europe-wide and cross-border harmonisation of all relevant timetabling processes to facilitate international rail traffic and make work easier for both Infrastructure Managers and Railway Undertakings. Specifically, a common IT infrastructure and the adaptation of a TTR-supportive legal framework will be key.

Prerequisite for internationally harmonised timetabling processes is a high degree of synchronised digitalisation and corresponding national IT systems. Too often, this is not yet the case. Also, stronger attention to fast, digitalised ad hoc request handling is rightfully demanded.

Digital Capacity Management (DCM) as integral IT-part of TTR will connect a multitude of national IT systems to a central business layer, thus ensuring compatibility. It will allow quick communication and enable easier amendments – no matter the type of traffic, domestic or international, passenger or freight.
Digitilsation of national and international layers will minimise manual work load and lead times in capacity planning and path allocation. It will assist in optimisation and will benefit both RUs and IMs.

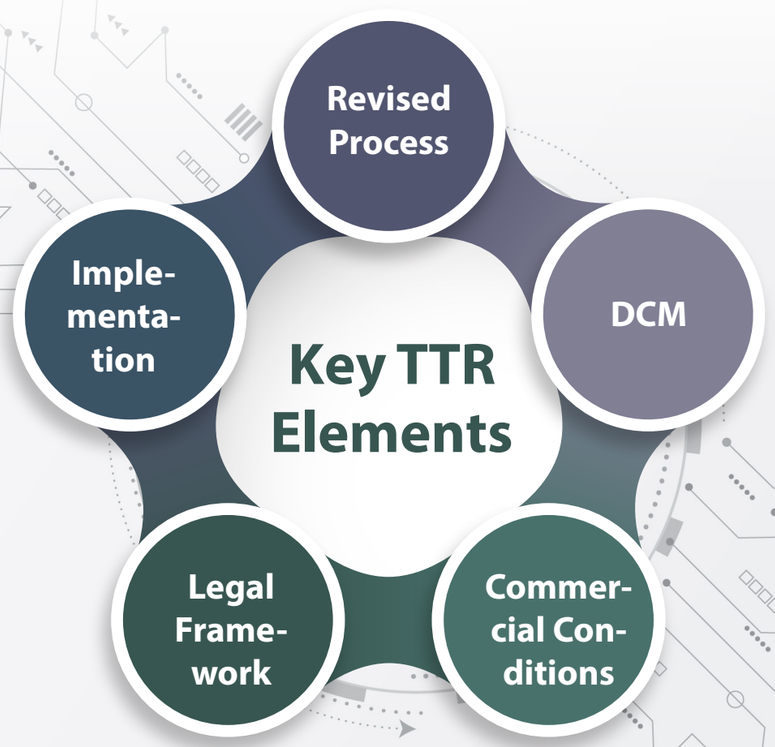
KEY TTR ELEMENTS

As outlined on the following pages in more detail, the success of TTR and its timely rollout will very much depend on the composition of five key elements, which constitute the core of the programme.

Only the synchronised orchestration of

- **revising outdated timetabling processes**
- **setting up a process-supporting Digital Capacity Management**
- **implementing process-supporting commercial conditions**
- **giving input to legislative bodies to eliminate obstacles, which endanger full implementation**
- **coordinating all involved stakeholders in their transition from testing to implementation**

will ensure that TTR can achieve its full potential.



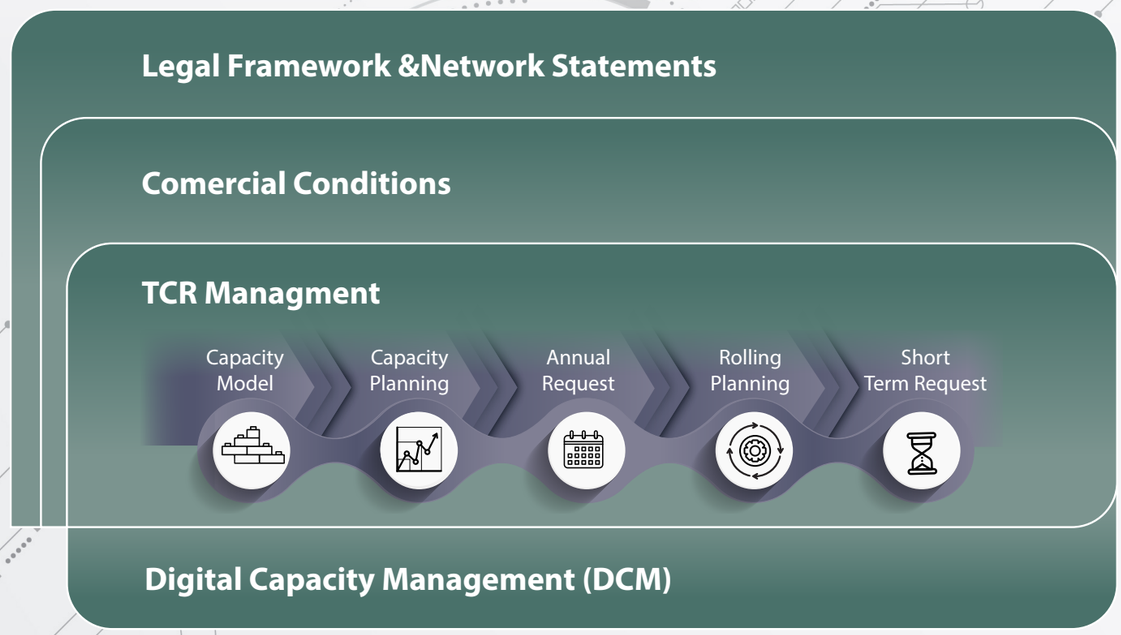
REVISED PROCESS

The revised timetabling and capacity management process builds on new and innovative components. It reaches from early strategic planning to short-notice capacity requests and focuses on efficient international coordination to best balance the different rail capacity needs.

Three years before the timetable change, the **Capacity Strategy** is decided upon, including the input from all stakeholders. It feeds into the **Capacity Model** together with the **Capacity Needs Announcements** from applicants, and the IMs' experience. In the **Capacity Model**, the capacity will be partitioned according to the market needs, already including capacity being required by TCRs.

Starting eleven months before the timetable change, the **Capacity Supply** will be published which is expressed in **capacity products: Annual Requests** offer the possibility of early booking and early response, **Rolling Planning and Short-term Requests** will meet the market's demand for more flexibility. With all components implemented, the entire rail sector will benefit

Freight RUs can request shortly before the train run, knowing all path details and being assured to receive high-quality paths
Passenger RUs will have earlier stable paths and thus can open their booking system six months prior to the timetable change
IMs can stabilise their plans, reduce redundancies in the timetabling process, make better use of the available infrastructure capacity and provide harmonised highquality offers
All Stakeholders will benefit from increased efficiency through the reduction of peak loads



DIGITAL CAPACITY MANAGEMENT

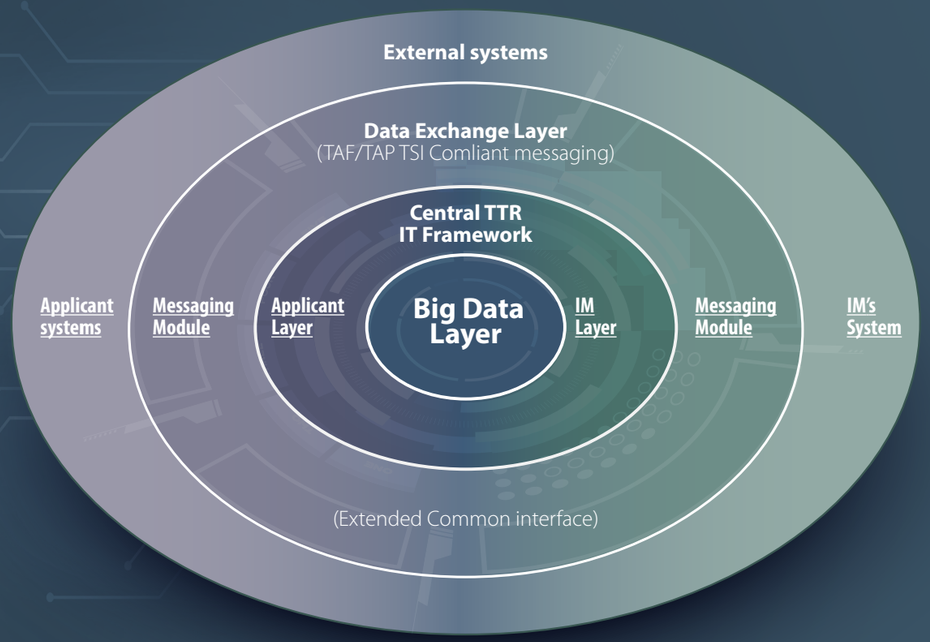
The goal of implementing a revised process and achieving efficient communication at European level among all stakeholders can only be reached through synchronised digitalisation and the joint usage of dedicated IT systems that are specifically designed and customised to the TTR process.

Digital Capacity Management aims to

- **increase the quality of information** exchanged between all stakeholders,
- **accelerate process steps** by allowing for a certain extent of automation and optimisation
- **provide easy access to all stakeholders**, either via interfaces or via web browsers.

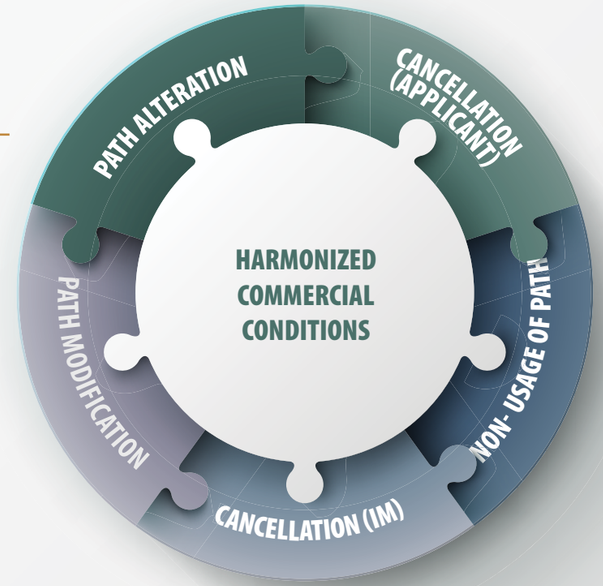
DCM consists of **two main blocks:** the central IT framework developed by RNE and **national and external systems**, which will communicate with the central IT framework.
The communication will be **based on TAF/TAP TSI standards.**

Several important functions for applicants and IMs (like capacity needs announcmenents, pre-planning, TCRs, capacity models, capacity supplies, path requests and path handling) will be **combined in one common IT eco-system.**



COMMERCIAL CONDITIONS

To encourage stakeholders to use the process and capacity products as efficiently as possible, certain commercial conditions must be agreed and applied to avoid loss of capacity and ensure consistency across borders at European level.



Rail capacity is wasted, mainly due to

- **capacity blocked but eventually not used** by RU stakeholders
- **constantly changing** planning parameters (both RU and IM)

Commercial Conditions shall steer the behaviour of stakeholders towards making the best use of available capacity on the rail network.

The following **process elements** require steering through commercial conditions:

Path modification, cancellation and non-usage by Applicant
due to commercial or operational needs

Path alteration and cancellation by IM
in connection with TCRs
(late TCRs, changes in planned TCRs)

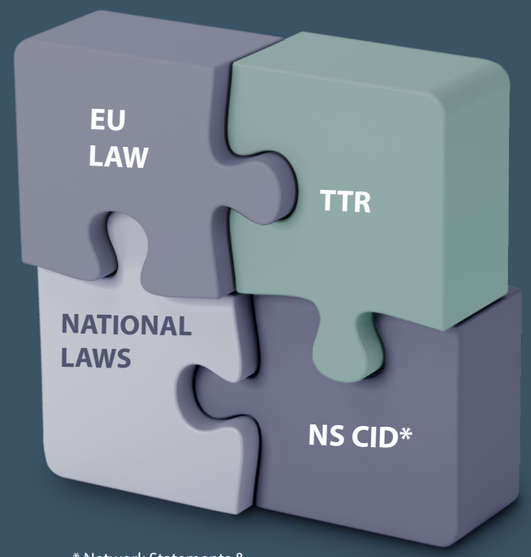
Commercial Conditions are part of the focused projects to find consensus among IMs and RUs.

LEGAL FRAMEWORK

Due to its innovative nature, TTR is not fully compatible with existing EU and national legal frameworks reflecting current, outdated processes. The European Commission proposed a new Capacity Regulation, which is expected to enable most parts of the TTR process.

While a number of innovative TTR components could be implemented immediately, other parts are surrounded by a high degree of legal uncertainty.

Particularities of national legal frameworks and Regulatory Bodies' decision-making practice have also been identified as potential obstacles to a harmonised implementation of TTR. The new draft Capacity Regulation aims to mitigate these obstacles and level the playing field for a new, innovative and seamless Capacity Management in Europe.



* Network Statements & Corridor Information Documents

The sector has made available an in-depth analysis of potential legal obstacles to TTR implementation stemming from EU law and national legal frameworks ('TTR Obstacles roadmap'). The European Commission also conducted an Impact Assessment, leading to the provision of the new Capacity Regulation.

Still, joint efforts of the sector and decision-makers and a mix of measures are needed to overcome these obstacles and facilitate a successful TTR rollout. The implementation of a seamless and market-oriented Capacity Management process requires a more European approach of all actors. Based on the expected new EU legal framework, the sector must move to a commonly applied set of rules.

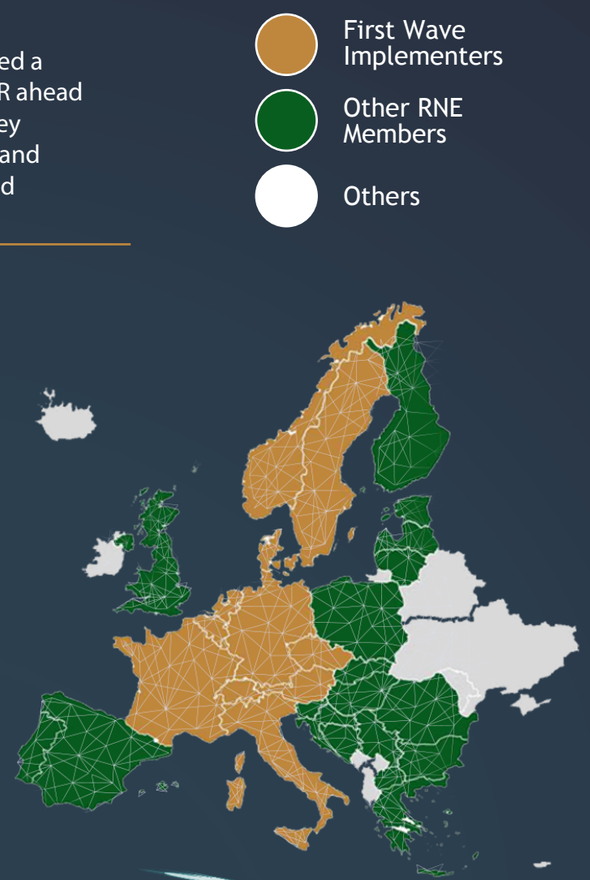
IMPLEMENTATION

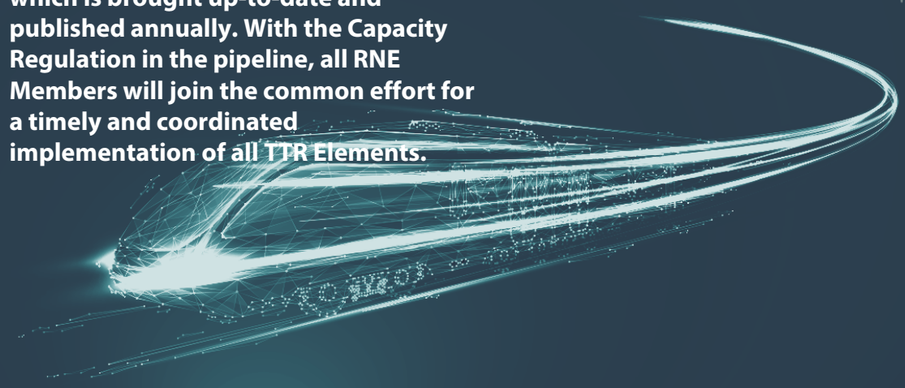
Implementation of the re-designed process and all its components is finally the most important step, in which the commitment and efforts of all players will be key to the success of the programme. Process components and IT systems are already being rolled out and overall implementation is spearheaded by a group of 'First Wave Implementers', IMs who will be front-runners, paving the way for the re-designed approach.

While all members of RNE have committed to implementing TTR, some countries experienced a more pressing need to implement parts of TTR ahead of schedule to meet market requirements. They represent the first wave of TTR implementers and accelerate implementation through earlier and increased investments.

The learnings of the first wave implementers were used to gradually improve TTR components and will be further used to design the central Digital Capacity Management systems. First deliverables encompass Capacity Strategies and Models starting with timetable period 2025, and already extend beyond the scope of first wave implementers.

Considering the range of changes and scope of TTR, RNE conducts a well-orchestrated programme together with partner associations. For that purpose, RNE provides a plan covering the scope of implementation on central and national sides for each timetable period starting from 2025 - the "Railroad Map" - which is brought up-to-date and published annually. With the Capacity Regulation in the pipeline, all RNE Members will join the common effort for a timely and coordinated implementation of all TTR Elements.





MORE INFORMATION ON TTR

For more detailed information on the **TTR Programme**, please visit the TTR website at

Visit website

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