4.9. SMART CAPACITY MANAGEMENT (TTR)

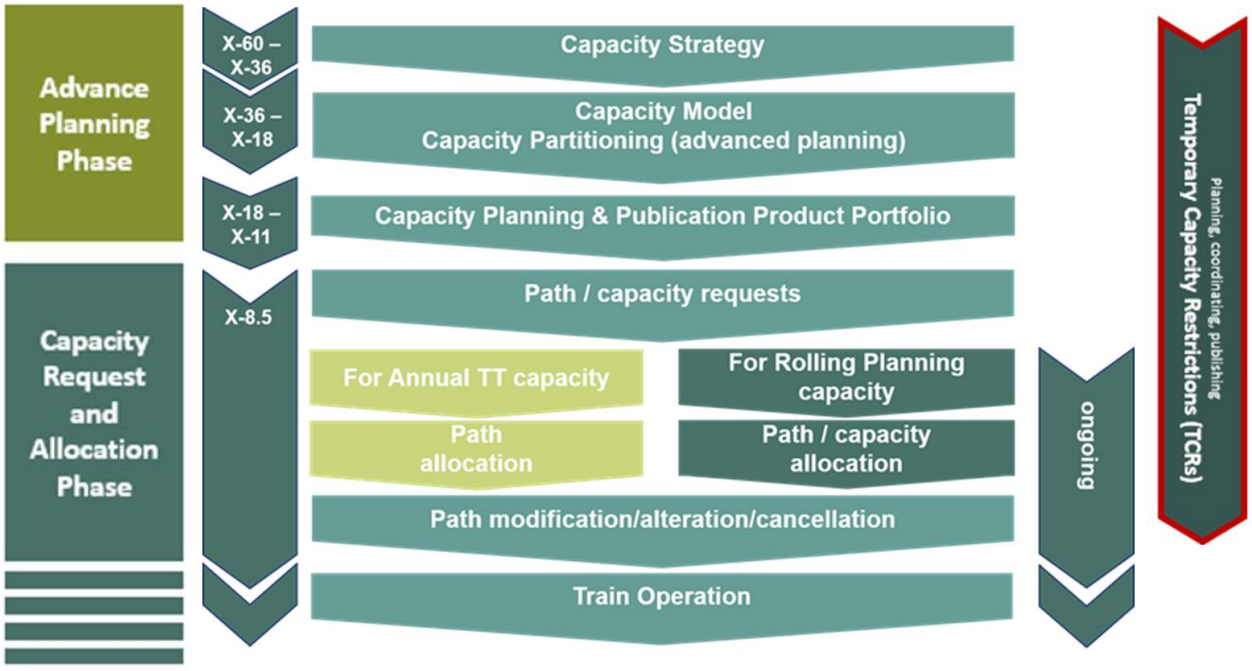
4.9.1 TTR introduction

Current timetabling practices no longer meet the requirements market and lead to a waste of capacity and resources. To overcome this situation and railways into a competitive position, the TTR project is reforming these processes. TTR therefore introduces a market-based oriented, efficient, digitised and competitive management process capacity to serve the needs of both the passenger and freight markets.

4.9.2 TTR Process Components

The TTR process is built around the following components:

TTR components and timeline



X-# = Number of months before the day of timetable change

General definitions:

• **Capacity Strategy (X-60 to X-36 months):** The capacity strategy is the long-term capacity planning of the IM for a selected line, a part of a network or entire network. The major aim of the capacity strategy is to provide a first overview of available capacity on the infrastructure in the future and of future capacity needs. It enables the IM to share future capacity needs with neighbouring IMs and applicants and agree on the main principles to be used in the construction of the capacity model.

• **Capacity Model (X * -36 to X * -18 months) with Capacity Partitioning:** The capacity model gives a more detailed definition of the demand forecast, and the partitioning of capacity into Annual Planning, Rolling Planning, and Temporary Capacity Restrictions and unplanned capacity (where available). Applicants have the possibility to give input into the capacity model by announcing their capacity needs and can provide their

reaction on the proposed capacity partitioning. The capacity needs announcements and the capacity model are described respectively in chapters 4.9.3.2 and 4.9.3.2.1.

• **International alignment on TCRs (Temporary infrastructure capacity restrictions):** may occur in case of maintenance, renewal, modernization or construction of railway infrastructure or other restrictions of use, which have an impact on the available capacity on a line. They refer to TCRs with major, high, medium and minor impact as well as to possessions (unavailability of paths due to e.g. maintenance). TCR are necessary to keep the infrastructure and its equipment in good condition and to allow infrastructure development in accordance with market needs (see chapter 4.3 for more information).

• **Train path feasibility study:** Train Paths Feasibility Studies are required by applicants to well understand and determine how train routes would fit within the planned infrastructure capacity of the annual timetable before they submit their formal train route requests. However, the response to the feasibility study is not binding on the IMs/Infrastructure Capacity Allocation Authorities/. Therefore, the outcome of the feasibility study is not a commitment to allocate train path capacity. Feasibility studies are described in chapter 4.9.3.4.

• **Types, deadlines for submission and allocation of requests for train path / RU capacity according to TTR:**

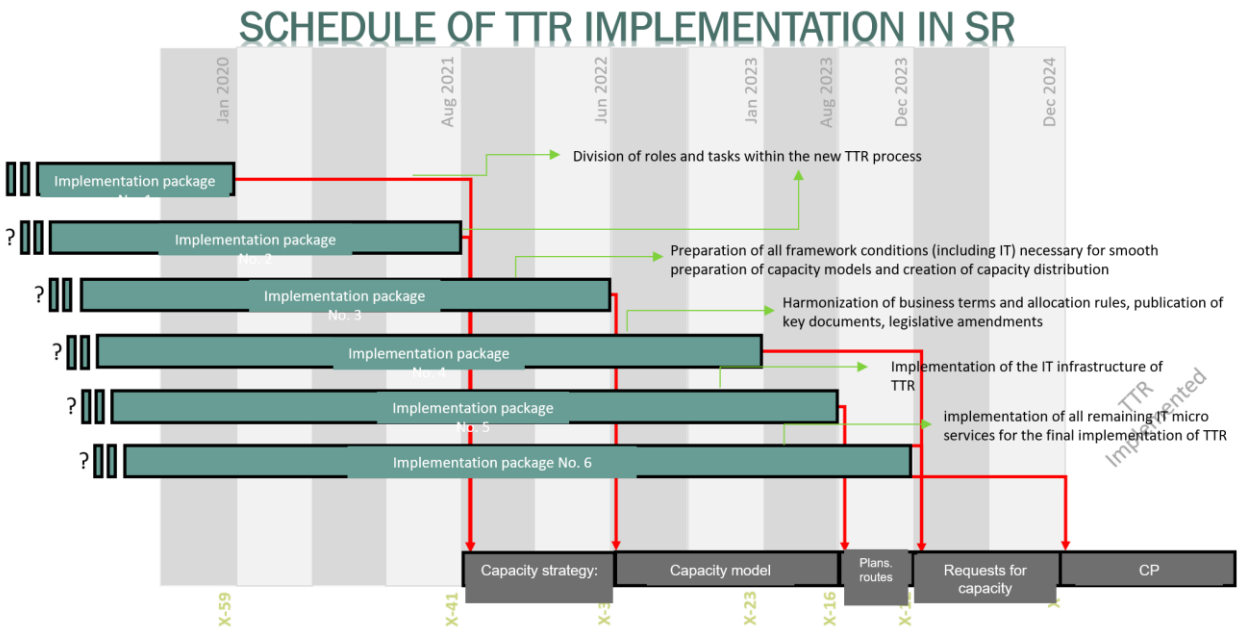
Element, activity in the TTR process	Timeline	Description
Types of for train path applications	until X-8.5 X-8.5 to X-2 M-4 to M-1 after X-2	***Applications to the Annual Timetable:*** New requests for train path: requests for RU capacity that are stable and requested for a full CP year or less, requests for RU capacity submitted by the deadline; Late requests for a train path: requests to the RCP submitted after the deadline for submitting the annual path request; the remaining RU capacity for annual timetable requests submitted on time or unscheduled capacity will be used for their application. ***Continuous planning:*** Applications will be processed on a first-come, first-served basis as long as the operational period begins between 1 and 4 months after the application is submitted. Interim planning has a multi-year validity of up to 36 months before the train is operational. ***Ad hoc short-term requests:*** Traffic for which published capacity cannot be used for the annual timetable and rolling planning (from X-2 onwards) or traffic requested at very short notice (short-term ad hoc requested after M-1 for all remaining capacity).
Allocation of train paths to annual timetable (applications submitted by the deadline)	X-8.5 X-6.5 X-5.5 X-5.25	Commencement of train path construction based on the published RCP assembly schedule or available RU capacity, which includes potential conflict resolution procedures. • offer proposal, start of the consultation phase • final offer, start of acceptance phase • final allocation - allocation (2 months earlier than today)
Allocation of train paths to annual timetable (applications	X-5.25 to X-1	Train path construction (based on remaining RU capacity for RCP applications or unscheduled RU capacity) starts after the allocation of RU capacity for RCP applications submitted on time. The allocation of RU capacity shall be completed no later than X-1.

Element, activity in the TTR process	Timeline	Description
submitted after the deadline)		
Continuous planning (path allocation)	Continuously	Request for rail infrastructure capacity for Continuous Planning response: • with an offer of a train path for the current period of validity of the RCP as soon as possible, but within 1 month at the latest. The first-come, first-served principle shall apply; • with a "capacity commitment" for the upcoming RCP period(s) to be transferred to the RCP train route each year.
Ad hoc train path allocation	from X-1	Request for HR capacity for the Ad hoc method, the response is given as soon as possible and on a first-come, first-served basis. However, the allocation of RU capacity shall not start until all requests to the RCP made after the X-1 deadline have been allocated.

X - represents the date of change of the annual timetable (RCP)
M - represents the date on which the train is expected to run

4.9.3 TTR Implementation / Realization in Slovakia

Schedule of TTR implementation in the Slovak Republic is presented in the Gantt table below:



ŽSR participates in the project implementation at national level according to the common timeline as described in the following graph. The TTR approach, especially the innovative process components are tested in pilots and / or through an approach based on minimum viable product - MVP (see chapter 4.9.4) with the goal of evaluating the system and provide possible adjustment or improvement to the project before national TTR process implementation (for more information see chapter 4.9.4).

As a first step of the national TTR process implementation, ŽSR introduced Capacity strategy for the annual timetable 2025 and the annual timetable 2026 and introduced Capacity model for the annual timetable 2025 through ECMT for the lines included in RFC 7 and RFC 5.

Timetable:

For more information, you may contact the TTR national implementation manager [ŽSR] in Slovakia (see contact details in Chapter 1.6).

4.9.3.1 Capacity Strategy

The planned scope of the Capacity Strategy for the Annual Timetable 2025 covers all current lines of the RFC 7 corridor, for the Annual Timetable 2026 the planned scope of coverage of the lines of the current RFC 7 and RFC 5 corridors, for Annual Timetable 2027 the planned scope of coverage of the lines of all current RFC corridors on the territory of the Slovak Republic. For RCP 2028 the coverage of all railway lines under the administration of ŽSR is planned.
In accordance with the common process set out in the "Guideline for the development of the Capacity Strategy in the conditions of the Railway Infrastructure Administration", the Railway Infrastructure Administration also provides access to the draft document via the Railway Infrastructure Administration's website and the RNE website https://rne.eu/. During the opinion-gathering phase, comments/notes can be sent to the draft Railway Capacity Strategy for the relevant RCP [see Chapter 1.6 Contacts].

4.9.3.2 Capacity model and the allocation of infrastructure capacity

The capacity model is used for transparent communication and more detailed discussion of expected volumes (not RU or TCR parameters) and identification of constraining line sections (RU capacity bottlenecks). Harmonisation with neighbouring infrastructure managers is mandatory for railway lines of international importance.

The Final Capacity Model published at time X - 18 is subject to an RU capacity allocation where the available RU capacity is allocated according to market needs. However, on lines where RU capacity is scarce, a more detailed allocation, for example to specific market segments, may be necessary.
The capacity models for the relevant RCPs will be published in the ECMT application (https://ecmt-online.rne.eu):

- in term X - 21 as a proposal
- by X - 18 in final form.

ECMT application (The European Capacity Management Tool) is a software tool for Infrastructure Managers (IMs)/Infrastructure Capacity Allocation Bodies (CABs) and applicants for RU capacity to help:

a) Infrastructure Managers and RU Capacity Allocation Bodies to coordinate and publish their Capacity Models and to bid for RU capacity,
b) applicants for the submission of the Railway Capacity Requirement Announcements (CNAs).

Access to the ECMT is free of charge. A user account can be requested via the following link: https://ecmt-online.rne.eu/user/register.

For more information, please visit https://ecmt-online.rne.eu/.

4.9.3.2.1 Notification of capacity requirements

Applicants can communicate their infrastructure capacity need announcements (CNA), which will be subsequently incorporated into the individual capacity models of the lines under the administration of ŽSR, within the deadline of X-24 months (December 2024) for the RCP 2026/2027 via the upcoming IT tool ECMT (https://ecmt-online.rne.eu/).

Applicants should include information in their CNA notifications in accordance with the Capacity Need Announcement Guidelines.

CNAs are considered to be non-binding indications by applicants of their expected future infrastructure capacity reservation needs.

In the event that ŽSR identifies notifications of overlapping capacity needs (notifications from multiple applicants for the same business case), it will discuss this with the relevant applicants in order to identify possible solutions. The information provided will be used by the RUs as input to the capacity model (see section 4.9.3.2 for further information on the capacity model). Under no circumstances can RUs guarantee the inclusion of all CNAs in the final capacity model. At the same time, CNAs cannot result in any priority in the subsequent process of allocating infrastructure capacity to annual timetables.

4.9.3.3 Infrastructure capacity provision

Based on the infrastructure capacity allocation at X-18, ŽSR will work to define the provision of infrastructure capacity through a combination of pre-planned train paths, system train paths, a band of rolling planning and consideration of continuous planning of multi-year capacity commitments, and allocated requirements under framework agreements from previous years, according to the results of practice with the aim to cover many different commercial needs. Infrastructure capacity supply may also include unscheduled infrastructure capacity.

In the case of cross-border train paths, these activities shall be coordinated with neighbouring IMs.

4.9.3.4 Train Path Feasibility Study

If the transport plan is known in sufficient time for in advance of the CP change, the applicant should not wait for the feasibility study process, but should submit their requirements via a Capacity Need Announcement (CNA) by the X-24 deadline.

Feasibility studies can be requested from X-15 to X+12. However, acceptance of a feasibility study request does not lead to a revision of the infrastructure capacity allocation for capacity models. Either the pre-constructed infrastructure capacity that satisfies the study request shall be used or, if it does not, the unplanned infrastructure capacity shall be used for the study.