

FTE view on optimizing TCR Planning

technical input elaborated by business experts

Improved selection of TCRs to be included in Advanced Capacity Planning

Currently, following Annex VII leads to selection of 'Major' and 'High' TCRs to be included in the Advanced Capacity Planning (ACP, the so called products Capacity Model and -Supply) which are used as basis for the Annual Timetable Process. This approach is based on the *percentage* of capacity being unavailable and the *duration* of the TCR; but these criteria do not fully match the real business needs regarding planning of trains for both IMs and RUs during TCRs.

Annex VII criteria also being the basis for the Law Revision process, we noticed several weaknesses:

- The categorizations do not take the **stability** of the TCRs into account. There is a high risk that a lot of effort deployed in the ACP phase turns out to be in vain, when TCRs are modified or removed.
- Some 'Major' or 'High' TCRs do **not have a really big impact on the traffic** - and therefore there is no necessity of including them in the Capacity Model or -Supply. For instance, the development of alternative traffic solutions for a secondary, low utilized line with a full closure for a month could generate less efforts in re-planning - and could be realized in running timetable.

Otherwise, some 'Medium' or 'Small' TCRs do have a serious impact on traffic – especially on saturated lines. Taking up these TCRs already in the ACP process would give substantial benefits.



100% closure for two months of a hardly used line has far less impact than a 20% reduced capacity for one week on a heavily used line

Alternative criteria can help selecting the really useful TCRs for ACP

To take better account of the needs of both, IMs and RUs have developed an alternative approach: it consists of using **alternative criteria** for selecting TCRs to be integrated in the ACP process. The criteria are envisaged to select TCRs that really have a large impact on the ACP timetable products, and also takes into account the stability of the TCRs - avoiding rework to be done at later stages. As the amount of TCR-variants to be developed for ACP products is to be guarded, the proposal also foresees the possibility to add or remove TCRs from the gross list (based on the alternative criteria). These exceptions should be in- or excluded on the basis of mutual agreement between involved IMs and RUs.

The alternative approach could be executed regardless maintaining the current Annex VII criteria for *publication* of TCRs.

A proposal for these specific alternative criteria is being developed.

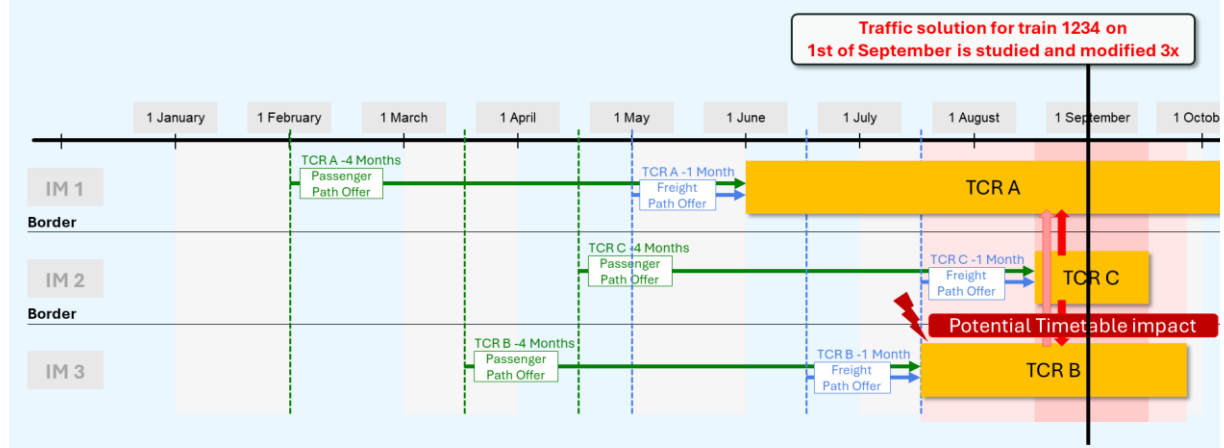
Harmonized and ‘one-time-right’ approach of TCR planning needs improvement

Currently, the process described in Annex VII is based on an individual approach per TCR: 4 months upfront of the start of each TCR, an alternative timetable solution is offered for Passenger RUs. 1 month upfront, Freight RUs are being offered alternative slots. As this is defined per TCR, multiple changes per train might occur – leading to intensive re-work (both for IMs and RUs) and an uncertain offer to the end customer, both freight and passengers.

Example for Passenger train 1234:

Due to TCR A starting on 1st of June, IM1 creates timetable solutions for all passenger trains for all involved trains on 1st of February - including an international train 1234 running through 3 countries on 1st of September.

15th March, IM3 makes solutions for TCR B starting 15th of July. This involves this same train 1234, leading to a second modification. Another month later, IM2 re-starts the process for TCR C starting mid-August, and train 1234 is modified a third time.



Solution for avoiding double work: use Timetable Slices

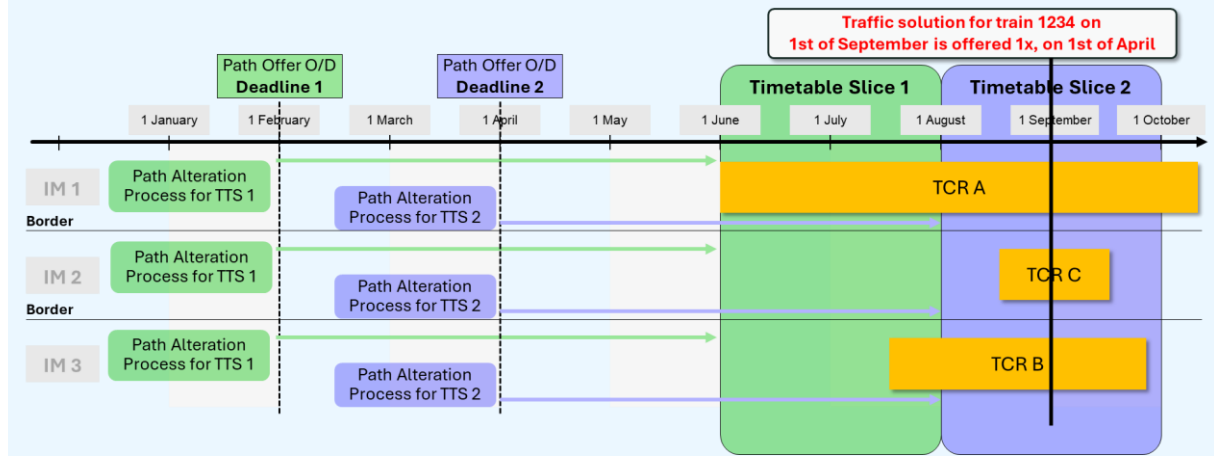
The proposal contains a treatment of all TCRs for a time block (called ‘TimeTable Slice’) to be treated at one time. In this approach, all involved IMs develop internationally harmonized timetable solutions at a fixed deadline i.e. 4 months before the start of the TimeTable Slice, thus offering a ‘one-time-right’ solution for all trains.

Concretely, the traffic solutions for **all TCRs** taking place within that time frame are elaborated in a **synchronized** way for all affected trains from **Origin to Destination** on the **international** network.

Example for passenger train 1234:

For TimeTable Slice 2¹, involved IMs make alternative offers for all involved trains during the period. This involves various variants, taking into account the combinations of all occurring TCRs.

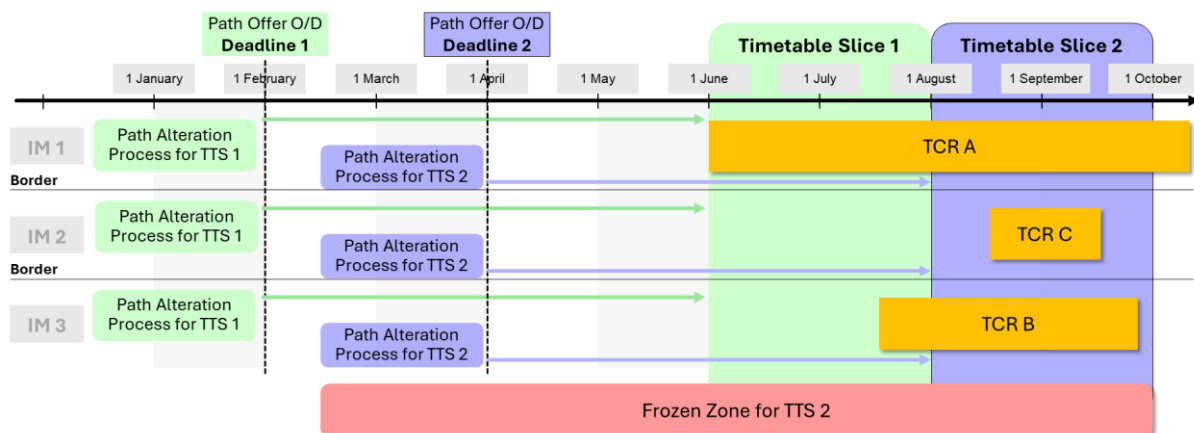
For train 1234 on 1st of September, this means that ultimately 1st of April an integrally harmonized alternative timetable solution is offered – which can be communicated to the customer.



Avoid late adaptations due to TCR modifications: creation of a Frozen Zone

In order to safeguard the developed solution, the proposal contains a freeze on adding new or modifying already planned TCRs with a commercial impact on already developed alternative traffic solution.

This 'Frozen Zone' should at least start from the beginning of the Path Alteration Process, and last until the end of the timetable slice – thus preventing that already developed solutions have to be reworked.



¹ In this example a 2 month Timetable Slice is assumed. The ideal length of the TTS is to be decided.