

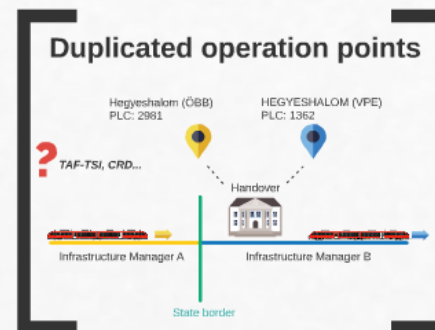
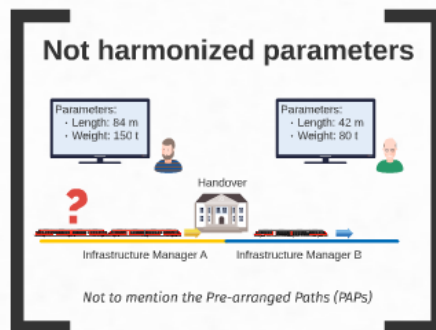
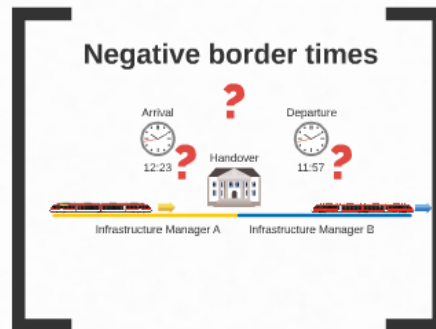
# Improvement of timetable harmonization on border areas with PCS developments



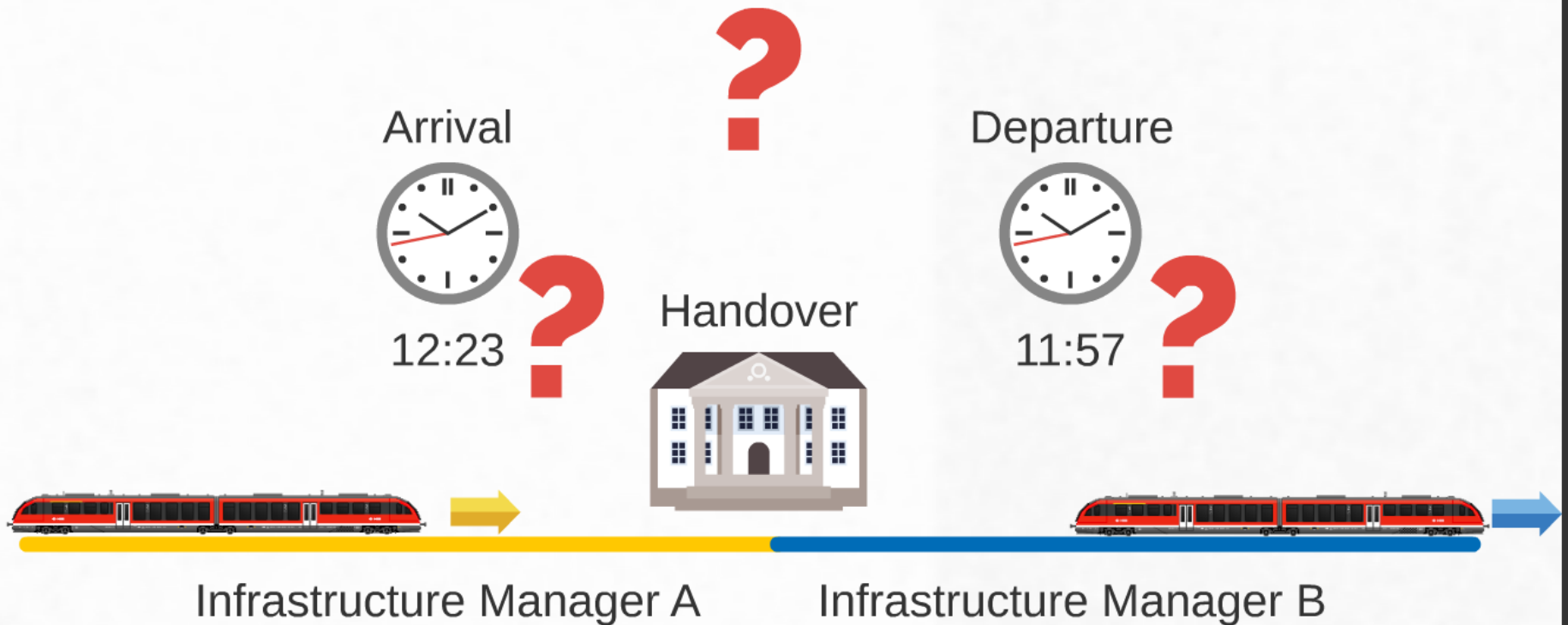
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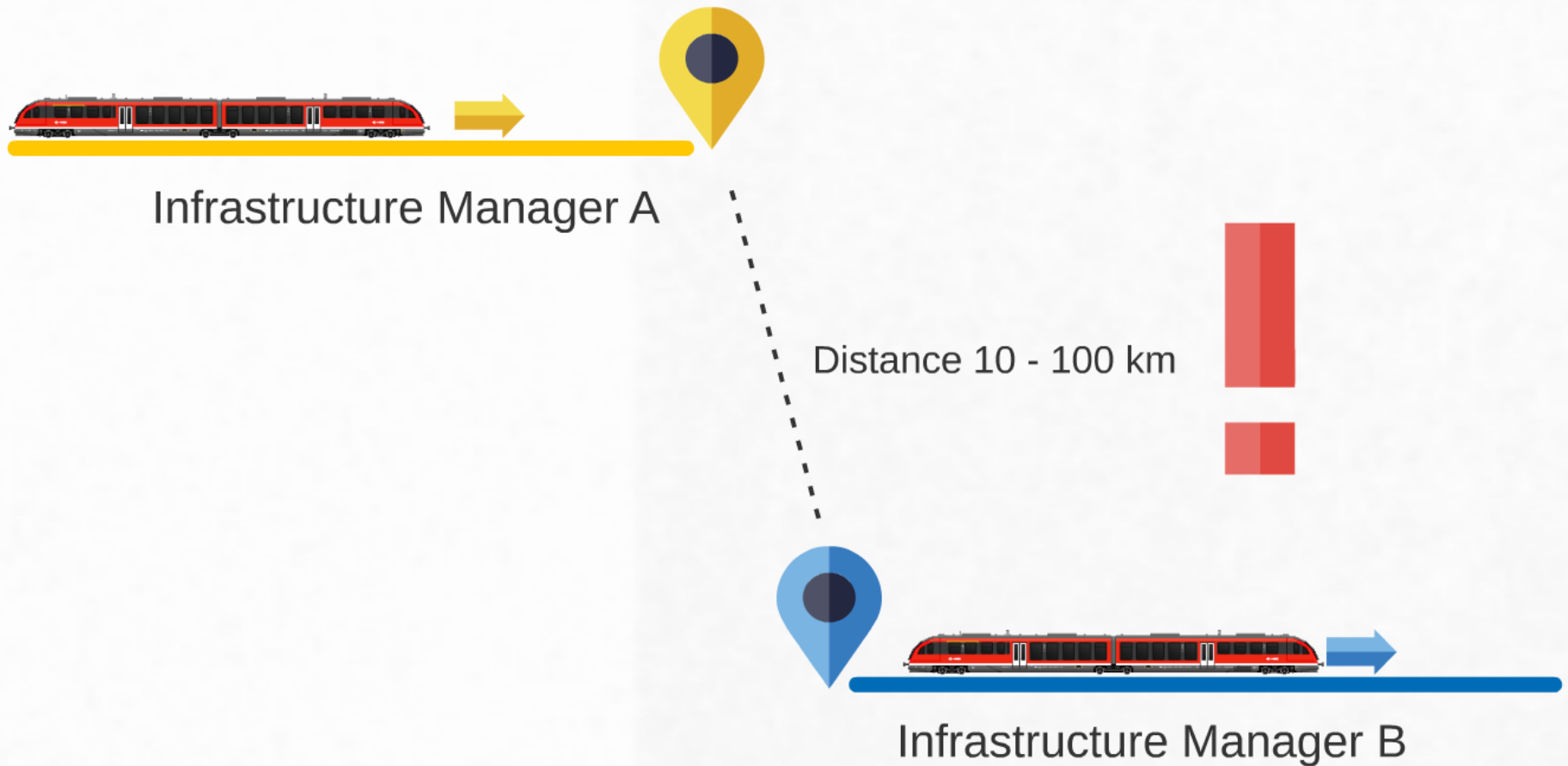
# Why do we need improvements?



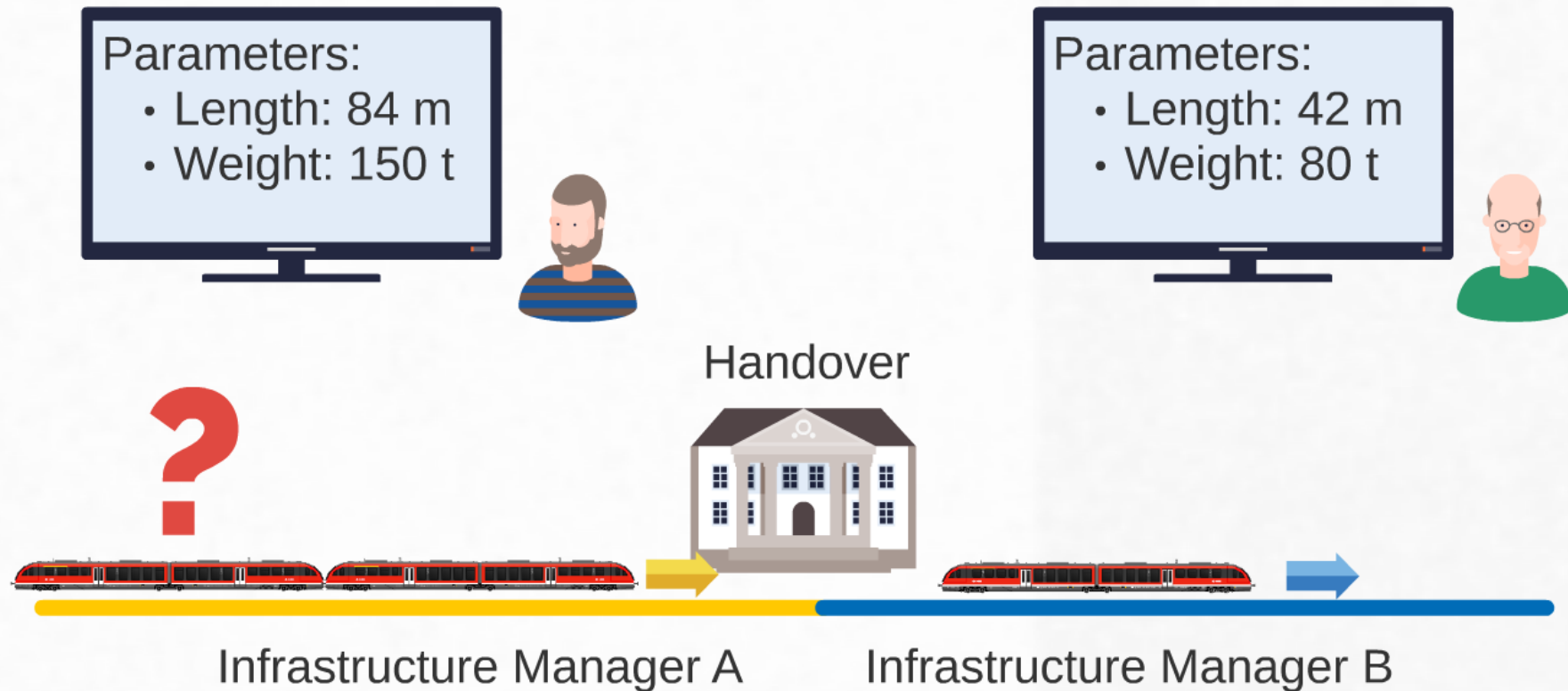
# Negative border times



# Wrong border pairs in the offer

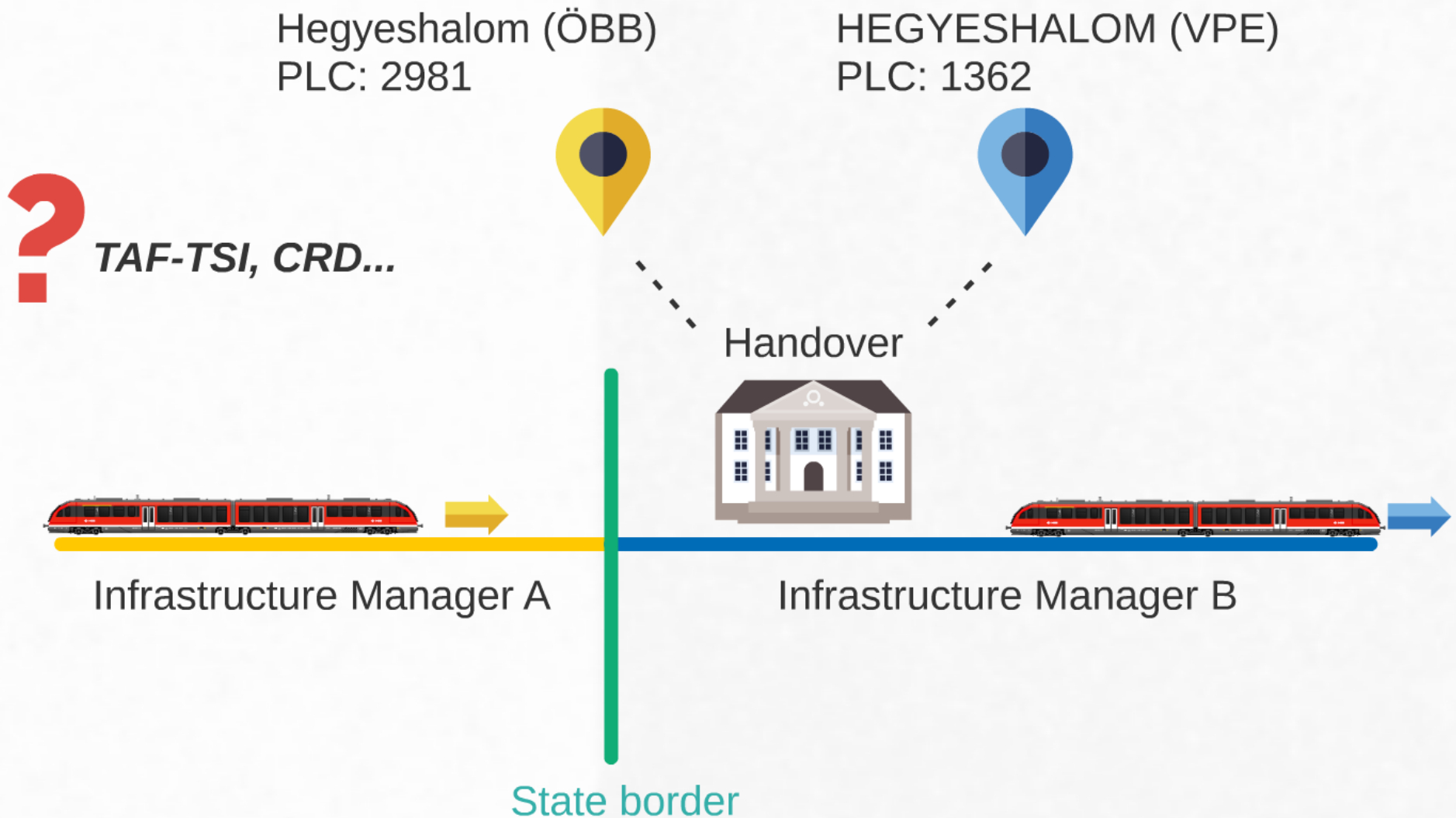


# Not harmonized parameters



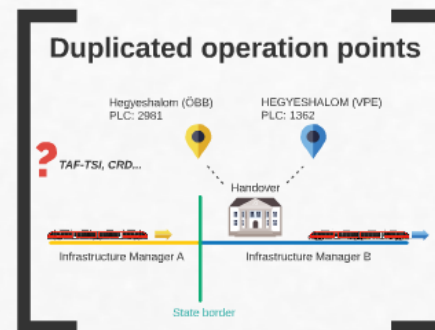
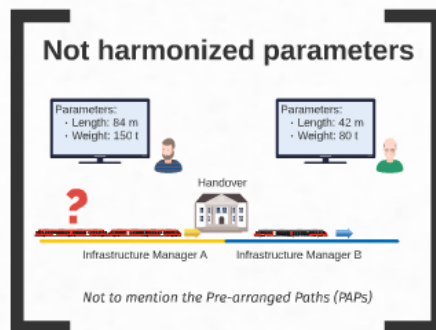
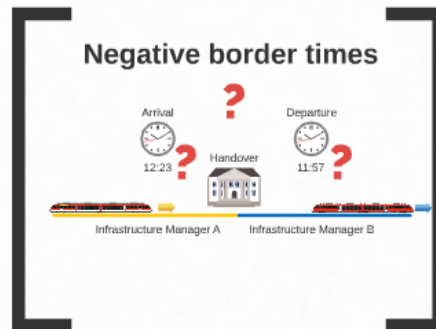
*Not to mention the Pre-arranged Paths (PAPs)*

# Duplicated operation points





# Why do we need improvements?





# ***Timetable Quality Task Force***

- Since January 2017
- Target: Improve the quality of the offers
- Define action plan and measures, like:
  - Handling of double requests (PCS and national)
  - Involve the C-OSS on the RNE Technical Meeting
  - Distinguish PaPs during planning and later in operation
- Necessary developments...

# Single Border Point Approach

## Definition of the border

A border (handover) is where the responsibility changes between two Infrastructure Manager/Allocation Body.

What kind of responsibility?

- Legal
- Changing
- Capacity allocation
- Operational
- Timetabling
- Etc.

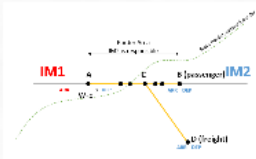


In PCS we (will) distinguish between the **timetable editor IM** and the **operator IM** who owns the operation point in practice.

## Example

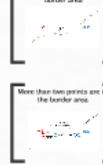
The border crossing between IM1 and IM2 in the direction of W-E is:

- For passenger trains: From "A" to "B"
- For freight trains: From "A" to "D"



## Use cases, example

One point is in the border area



Two points are in the border area



More than two points are in the border area

Solutions

## Additional timetable related development

Currently PCS is the system of "freedom"

Standard timetable structure from November 2018  
(International timetable is stored in national - BVA&B based - subsidiary timetables with strict calendar consistency check)



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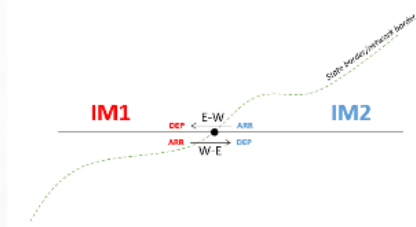
- Legal
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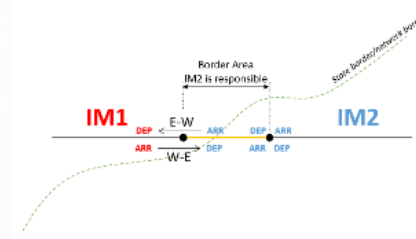
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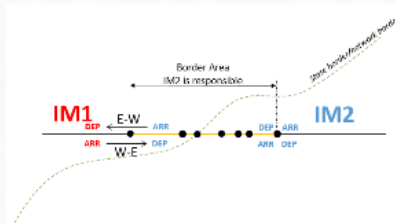
## One point is in the border area



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## Solution

### What would we store?

- Direction (N-S, S-N, E-W, W-E) of the train run
- Train type (passenger, freight)
- Operation points
- Partner IMs/ABs

### Validity period of the border area

No dedicated validity period for the border. Propagation from the included operation points' validity period.

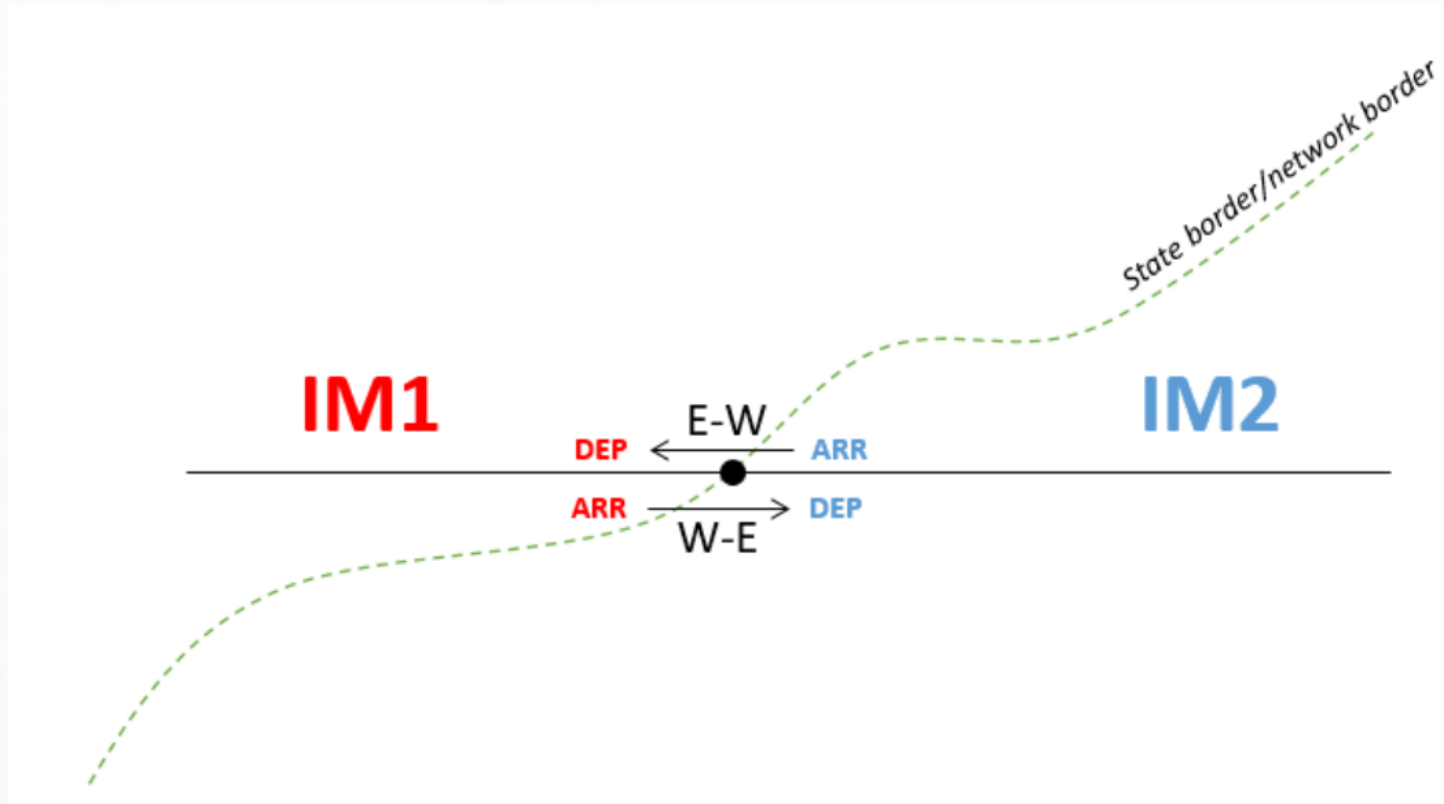
### National IM parameters (Network specific parameters)

On the border crossing area each IMs' national IM parameters will be required for edition either for the RUs or for the IMs/RFCs/ABs.

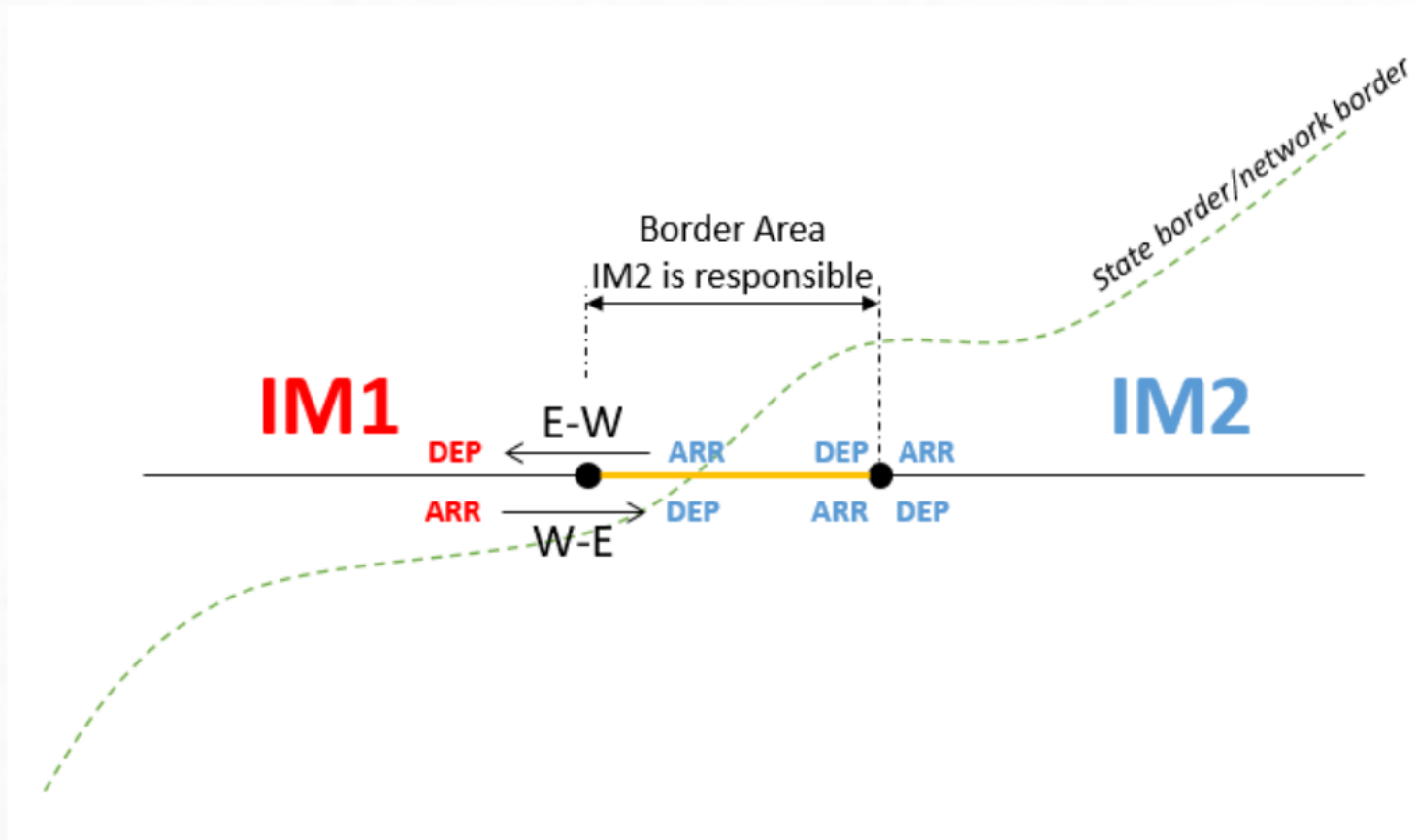
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On the path sections of the border crossing area the responsible IM's loco types will be available.

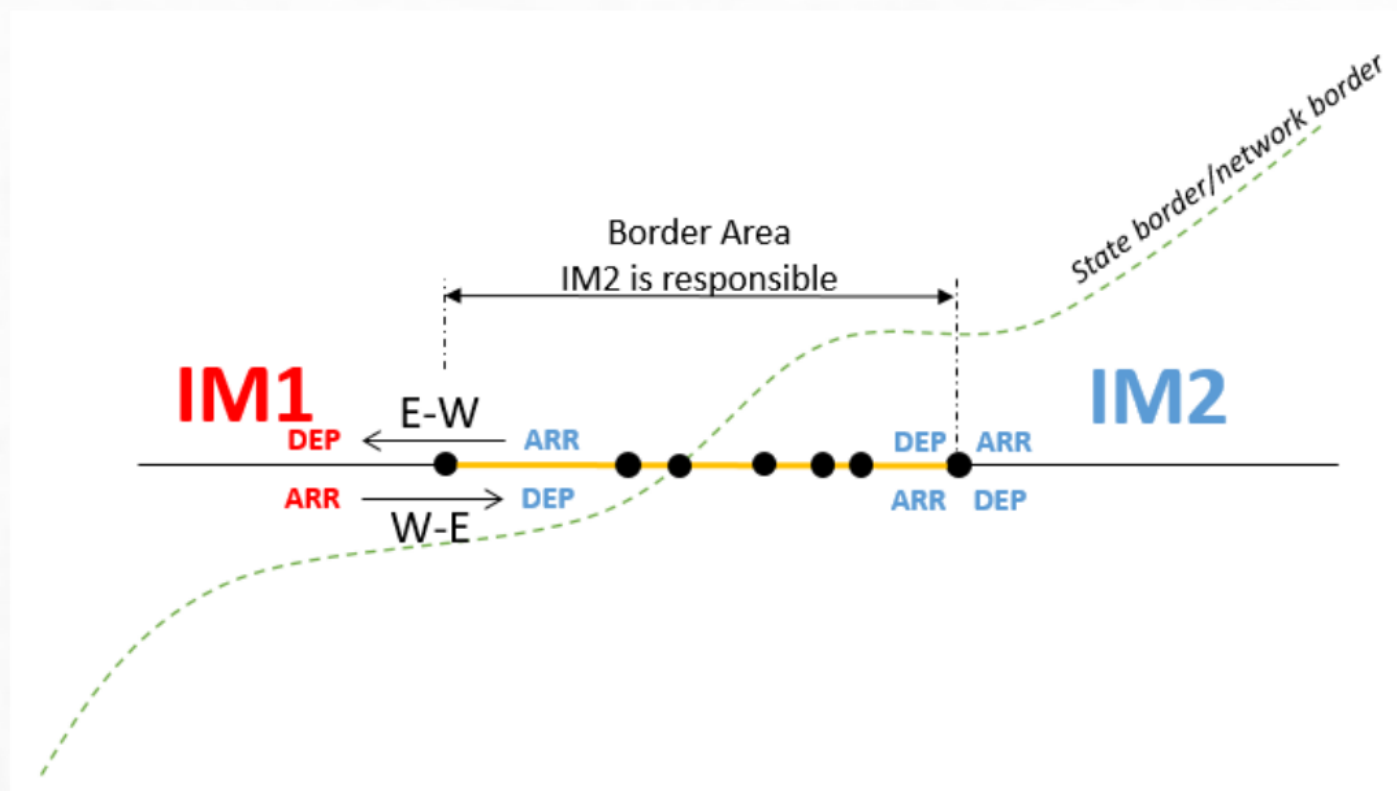
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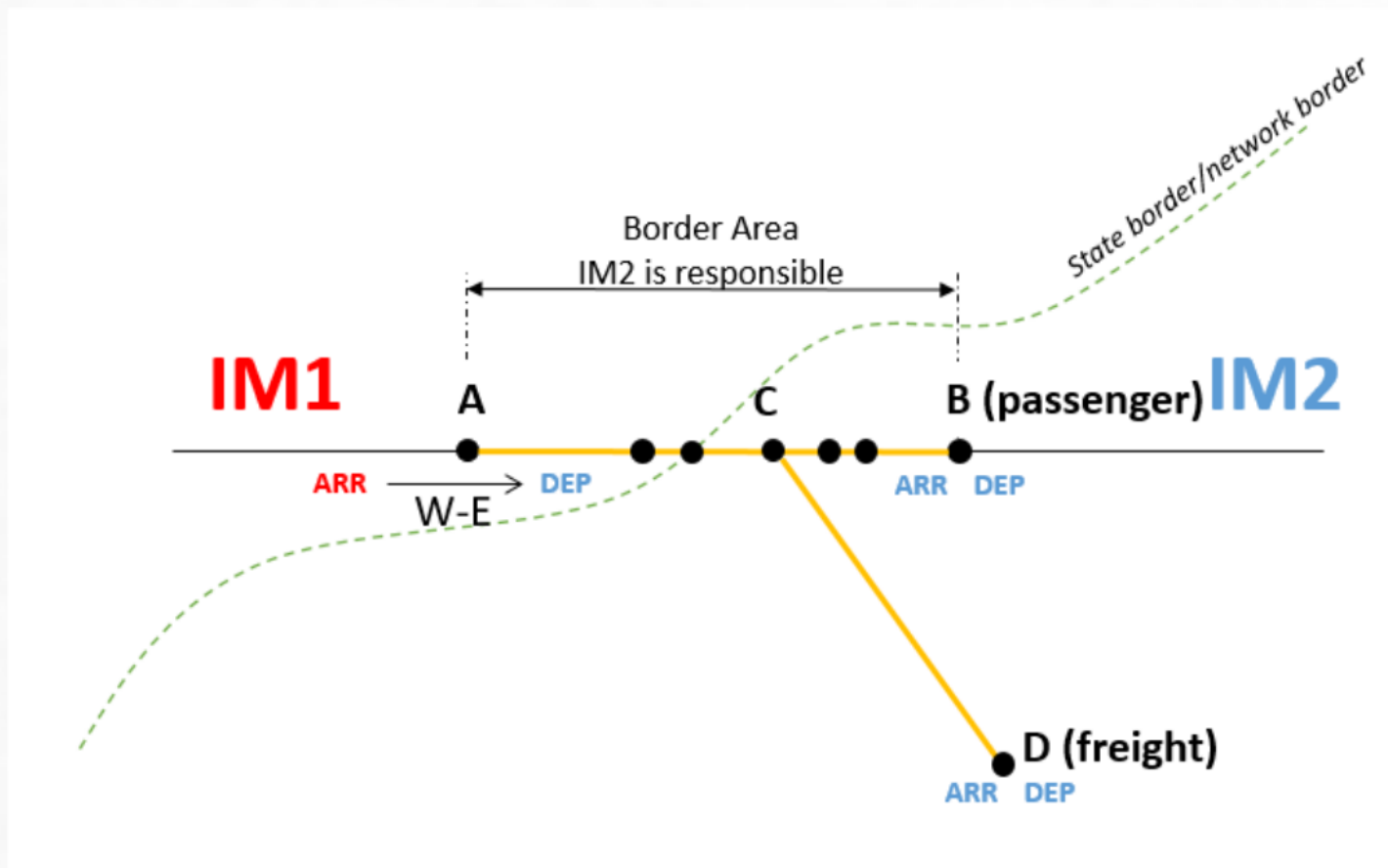
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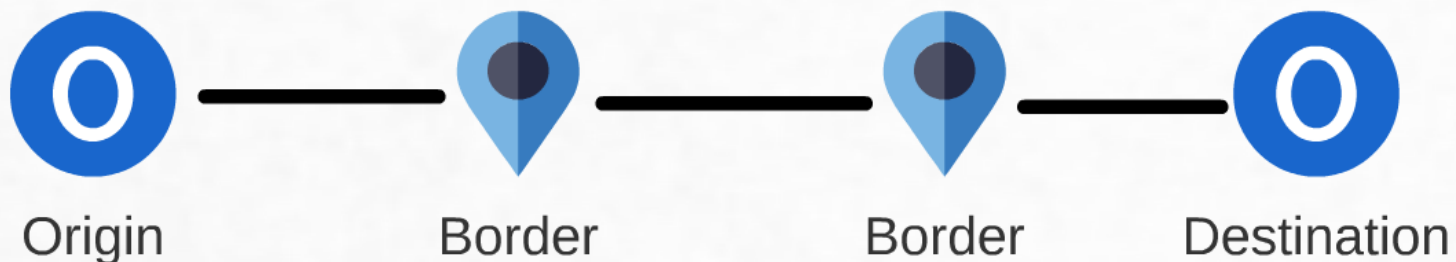


# Additional timetable related development

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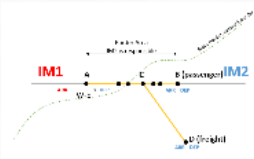
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# *Ideal state of border harmonization*

## Let's check some initial problems

Wrong border pairs in the offer



Operation points with PLCs are stored in the border crossing areas according to the example

Duplicated operation points



## What else could we do?

Identified border crossing areas

Standard IMIAB based timetable structure

Analysis/Monitoring



Warnings and notification the lack of harmonization

Key Performance Indicators



Negative border times

Not harmonized parameters



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***Thank you for your  
attention!***

**If you have any questions:**

- Máté Bak
- mate.bak@rne.eu
- +43 664 88 42 48 03
- <http://cms.rne.eu/pcs>

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