



# Quality Circle Operation

Plattform to Optimize Cross-Border Procedures



---

17.03.2022 | Dennis Goll | DB Netz AG

# Quality Circle Operation eliminates border problems, reduces dwelling time and enables growth in international rail freight



## Problem



Border points can be defined as **Bottlenecks** have a negative impact on quality in rail transport



Implementation of the **European growth targets** in rail freight transport will worsen the situation at the borders



**High dwelling time:** Standing trains waste capacity at IM and RU



**All borders** are more or less strongly **concerned**



## Cause

**Border point is interface error-prone** for all processes of RU and IM.

Examples:

- RU: Trains block tracks due to uncoordinated train handovers (Train driver / loco Change)
- Timetable: The timetable as a work basis of the traffic controller is not coordinated, hence he has to puzzle together national trains at the border
- Operation: Traffic controller cannot manage trains correctly in cross-border section (no transparent IT view)



## Solution QCO

## Quality Circle Operation

**The target is a seamless border**

- **QCO** creates **solution platforms** (basic workshop & continuous improvement process) at the borders for the concerned parties (IM, RU, RFC)
- **Focus** lies on **reduction of the border barriers** for operational processes
- Become more effective and reliable through **central control** and **regional implementation**
- Focus is **reduction of dwelling time**

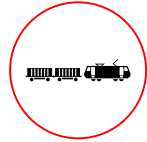


**KPI dwelling time**

# Reduced dwelling time at borders is an indicator of less capacity consumption and hence in the interest of the IM & the RU



## Meaning of dwelling time at borders



**RU**

- *Planned* standing trains consume valuable RU resources (locomotive, driver, wagons, etc.) and result in a prolonged train running time
- *Unplanned* standing trains additionally induce noticeable delays for the end customer



**IM**

- *Planned* standing trains consume track capacity
- *Unplanned* standing trains additionally induce disturbances and delays in the IM's network



**Core Network Corridor Orient/East-Med Coordinator Mathieu Grosch in 2019:**  
„Why should the EUCOM invest billions of Euro in the railway infrastructure in order to reduce train travel times if trains need to wait for hours at border points due to unnecessary cross-border processes?”

## Optimization goals

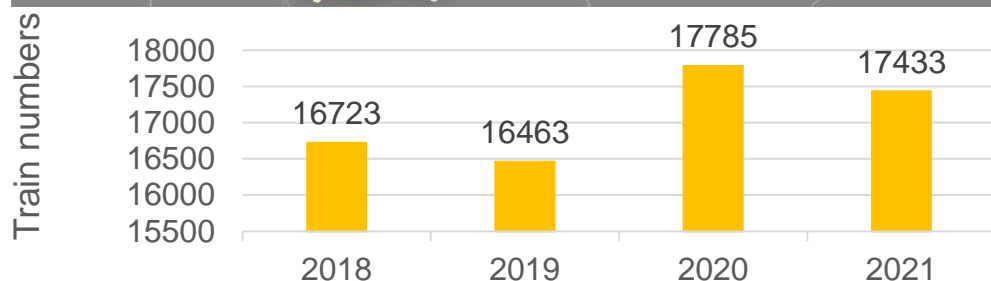
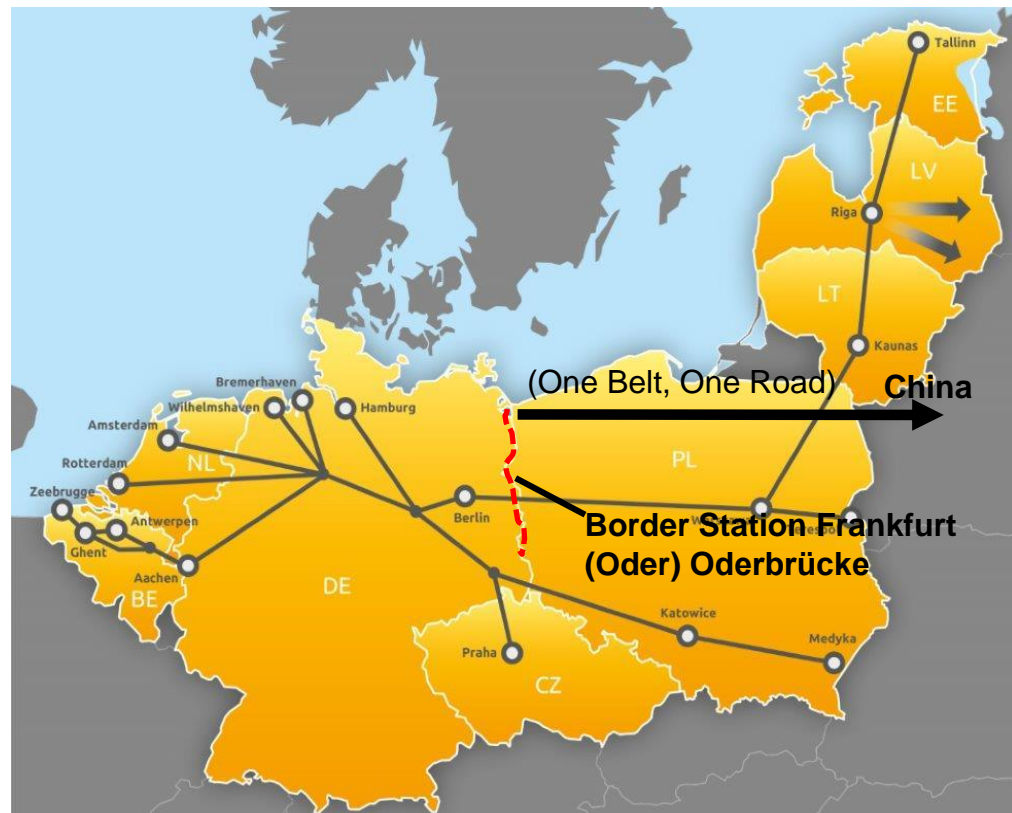
- **Reduction of PLAN & REAL dwelling time**  
Reduction of the planned dwelling time and during train operation
- **Reduction of percentage of trains stopping at the border**  
Reduction of the number of trains that stop at the border

## Effects on RU and IM

- **More efficient use of resources** of wagon material and track capacity.
- Creation of a simple and **transparent border**, because every stop at the border is a source of error



# Frankfurt (Oder) Oderbrücke is an important Bottleneck for Rail Freight Traffic between China and Western Europe



## Key Facts

- RFC8 is one of the most important european corridors
- More than **8.000km train tracks** (including main-, connecting- and detour routes)
- **Connection to 10 Ports** (Antwerpen, Rotterdam, Amsterdam, Wilhelmshaven, Bremerhaven, Hamburg, Ventspils, Liepaja, Paldiski, Muuga) and approx. **200 Terminals**
- **8 member states**



## Relevance

- Frankfurt (Oder) Oderbrücke was identified as one of the most important border crossings for **rail freight traffic between China and western Europe** and also as **bottleneck**
- Train numbers have risen despite COVID19 pandemic
- In 2019 cross border coordinator between PKP PLK and DB Netz was introduced to ease cross border traffic

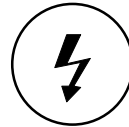
# Limited Capacity in Frankfurt (Oder) Oderbrücke can affect the whole corridor performance



## Frankfurt (Oder) Oderbrücke

Limited capacity for parking of trains

- 2 Main tracks 740m
- 6 side tracks 620m



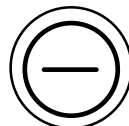
## Main problems

- Limited capacity in the train station for parking of trains
- Different train control systems (PZB, SHP) make stop necessary
- Language barrier requires change of personnel



## Risks

- Uncoordinated construction prevent efficient flow of traffic
- Exceeding of planned dwelling times reduces capacity
- Abandonment of wagons at the border block capacity



## Consequences

- Delays
- Traffic Jams
- Unpunctual trains
- Dissatisfied customers
- Negative market reaction
- Loss of revenue

Last november, a first QCO workshop was organised with 70 participants from DB Netz, PKP PLK and customers

## Need for action

- Frankfurt (Oder) Oderbrücke identified as Bottleneck with limited capacity
- Performance at the border affects the whole corridor
- Rising traffic figures can exacerbate the problem in the foreseeable future (The impact of the war in Ukraine on traffic figures is not yet foreseeable)
- Problems can be only fixed when IMs and RUs work closely together

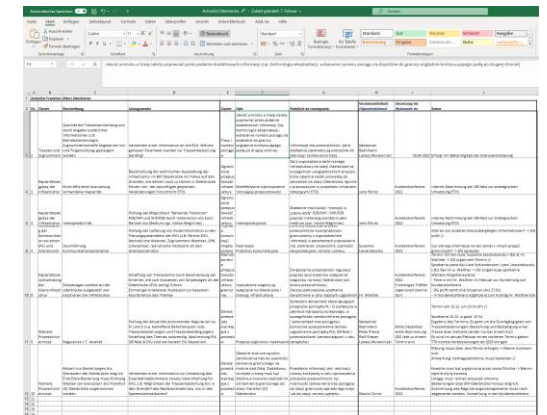


## Activities carried out


- On 9th november 2021 first QCO workshop (virtual) was organised between DB Netz AG, PKP PLK and Customers
- Approximately 70 participants
- **Addressed topics:**
  - **Requirements in path requests**
  - **Issues in border inflow traffic/Responsibilities of cross border coordinator**
  - **Abandonement of wagons at Oderbrücke**
  - **Customer topics**



Results and open tasks were documented in actionlist



The screenshot shows a spreadsheet with multiple columns and rows, likely representing the action list mentioned in the text. The columns include various details such as task descriptions, responsible parties, and deadlines. The rows list specific tasks and their progress.

 **QCO can be used as a platform to allow IMs and RUs to come together and work closely to solve issues at hand**

# 7 topics have been agreed on in the actionlist

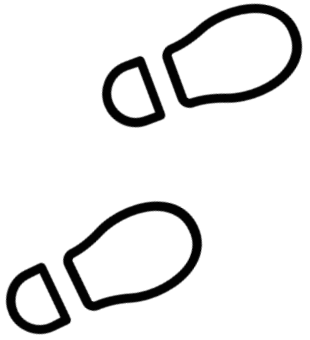
## Agreed topics in Actionlist

- 1. Development of minimum criteria for path requests in adhoc timetabling**  
Aim: Ensure relevant information are available in border inflow to prevent unnecessary stopping time
- 2. Description of reasons that require stopping of trains in Oderbrücke**  
Aim: Identify possible fields of action for efficient border crossing
- 3. Analysis of the possibility of a moving transition via Euro-Balise and information about further ETCS construction**  
Aim: Transparency in infrastructural expansion
- 4. Examination need of additional information for cross border coordinator**  
Aim: Identify additional information that support cross border coordinator and ensure quick border crossing
- 5. Analysis of reasons that lead to abandonment of wagons at Oderbrücke**  
Aim: Prevent unnecessary abandonment of wagons at Oderbrücke
- 6. Give information about possibility of ordering train paths at only one IM for the whole train run**  
Aim: Easing of path requests for RUs
- 7. Analysis of possibilities to simplify path requests in border area**  
Aim: Easing of path requests for RUs

Nr.	Cluster	Beschreibung	Umsatzsatz
1	Cluster	Beschreibung	Umsatzsatz
2	Cluster	Beschreibung	Umsatzsatz
3	Cluster	Beschreibung	Umsatzsatz
4	Cluster	Beschreibung	Umsatzsatz
5	Cluster	Beschreibung	Umsatzsatz
6	Cluster	Beschreibung	Umsatzsatz
7	Cluster	Beschreibung	Umsatzsatz
8	Cluster	Beschreibung	Umsatzsatz
9	Cluster	Beschreibung	Umsatzsatz
10	Cluster	Beschreibung	Umsatzsatz
11	Cluster	Beschreibung	Umsatzsatz
12	Cluster	Beschreibung	Umsatzsatz
13	Cluster	Beschreibung	Umsatzsatz
14	Cluster	Beschreibung	Umsatzsatz
15	Cluster	Beschreibung	Umsatzsatz
16	Cluster	Beschreibung	Umsatzsatz

## Task Status

1. Minimum criteria are currently being defined and will be presented as soon as possible
2. Reasons were collected and slide has been created. Slide will be attached to the invitation of next QCO meeting where further discussion is welcome
3. Discussions on further ETCS expansion and the possible installation of Euro Balises are still ongoing. Information will be provided as soon as possible
4. Further information needs have been assessed. Results and next steps will be discussed in the next QCO meeting
5. First meeting with VdV has been held in december to exchange views from both sides on the problem. Issue is still under investigation to clarify responsibilities and define possible solutions
6. Problem was clarified in a first meeting. For continous path requests PAPs can be used. In adhoc timetabling possible solutions are under investigation but no medium-term improvement expected
7. For reasons of clear responsibilities path requests have to be made at both IMs



**Next QCO Meeting** will take place virtually on 28 March 2022 to follow up on the topics the actionlist

**Agree on further QCO Meetings** this year to implement a continuous exchange format

**Actionlist:** Continuing the work on items of actionlist



An aerial photograph of a city, likely Hamburg, Germany, taken during the golden hour of sunset. The city is densely packed with buildings, and a large body of water, the Binnenalster, winds through the center. In the background, a large harbor area is visible with numerous cranes and ships. The sky is a warm, hazy orange. Overlaid on the image is the logo for DB NETZE, consisting of the letters 'DB' in white inside a red rounded square, followed by the word 'NETZE' in large, white, sans-serif capital letters.

**DB** NETZE

# Driver tree: Concrete measures reducing cross-border barriers lead directly/indirectly to reduced dwelling time

