

Support for Implementing Measures for the South East Core Regional Transport Network Multi Annual Plan (EuropeAid/125783/C/SER/MULTI)

Improving the handling at railway border crossing

Regional approach for electronic data interchange systems

findings, proposals and application examples...

prepared by

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Background

Task A2: Reduce Border Delays for Railway Passengers & Freight trains

- Electronic data interchange system (EDI)

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Reasons for delays at border crossing

- GEOlocation: formerly NO border
 - Tracks and sites not prepared for being a „border“
- Technically: no or insufficient IT-equipment available
 - No IT-equipment at borderstations
 - Missing data interchange links (physically&organisationally)
- Organisationally: double work done
 - No coordination among border authorities
 - Waiting/Delays for next traction to be available
 - No „trusted hand-overs“ used

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Concerned Parties

- ✓ The railway undertakings (RU)
- ✓ The infrastructure managers (IM)
- ✓ Border authorities (Customs, Border Police)

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Definitions

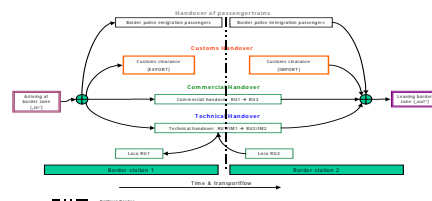
- ✓ **Border ZONE**
The Zone where border crossing takes place
- ✓ **Border Crossing point**
The physical area where border crossing is handled
- ✓ **Border station**
Physical building where border crossing personnel is located

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Procedures

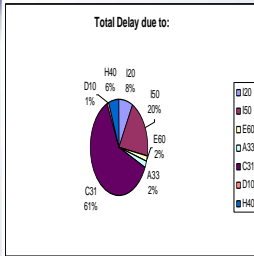
Procedures for the Handover a train at a border



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Delays

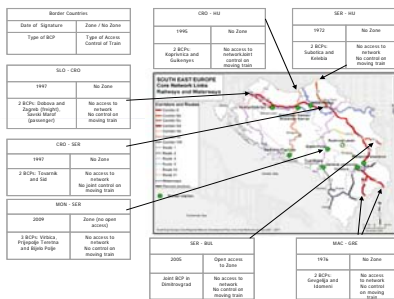


I20 = Customs (6%)
I50 = Radiological control (20%)
E60 = Documentation – no further specification (2%)
A33 = Train routing - Delay due to other (accumulated) delays (2%)
C31 = Late arrival of locomotive (4.13%)
D10 = Train formation (1%)
H40 = Personnel – shunting and station personnel (6%)

Criteria for keeping the timeschedule

- ✓ Timing of arrival at the border
 - ✓ Receiving PRE-arrival aviso
 - ✓ Automatic Train Recognition Systems supporting technical hand-over
- ✓ Coordination of work
 - ✓ Exchange of information,
 - ✓ JOINT OPERATIONS (joint border station)
- ✓ Reliable and proper information flow
 - ✓ Proper technical (IT-)equipment at border station
 - ✓ Proper train tracking equipment
 - ✓ Proper information exchange

Geographical Situation (border zones)

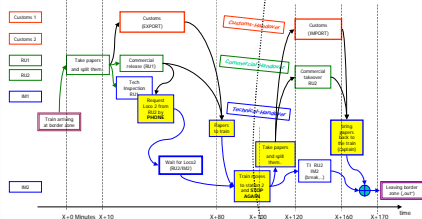


Urgent needs to overcome the actual situation

- ✓ **IT equipment available and in use at the border crossing points**
- ✓ Electronic Data Interchange (EDI)-link between the border crossing's IT
- ✓ Customs clearance in advance using e-consignment notes
- ✓ **Accurate advance information** (pre-arrival aviso) from current infrastructure manager on train position and estimated arrival time
- ✓ **Based on advance information traction for ongoing trip (on IM2 network) available for exchange in real time**

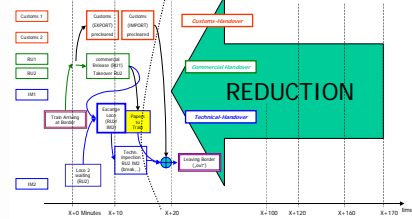
Effect of improvements

Status Quo: typical timing of handover (2 border stations) - freight

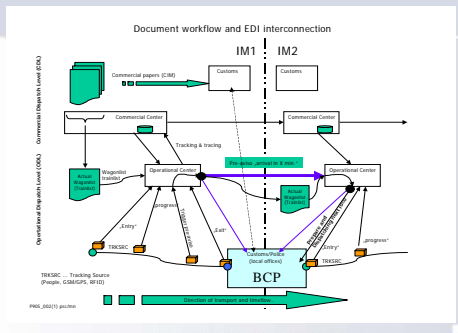


Effect of improvements

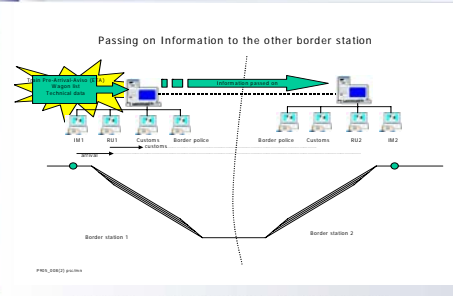
Effect of optimization (freight)



Interactions as they should be



Passing-on pre-aviso information to next border station



Example: train list

The screenshot shows a train list table with columns for train number, date, time, and destination. The table contains multiple rows of data, including train numbers like 1001, 1002, and 1003, and destinations like 'München' and 'Frankfurt'. The table also includes a 'Bemerkungen' (Remarks) column.

Examples of automatic train recognition systems

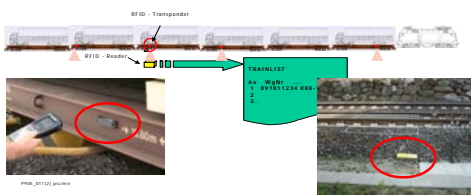
axle counter / optical train recognition



Examples of automatic train recognition systems

RFID

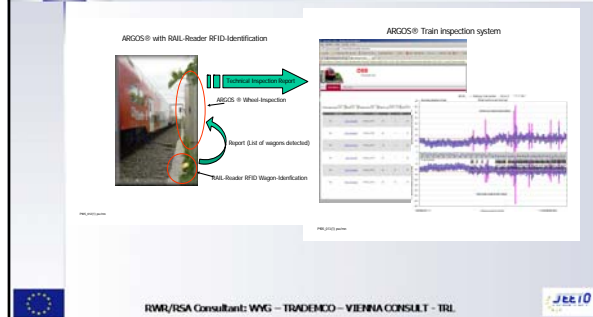
Principal of an RFID System used for identification of rolling stock



Example: Train list generated from RFID-based train recognition

The screenshot shows a train list table generated from RFID-based train recognition. The table contains a detailed list of train numbers, times, and destinations. The table also includes a 'Bemerkungen' (Remarks) column. The table is organized into columns for train number, date, time, and destination.

Example: Support of technical handover - train technical inspection check point

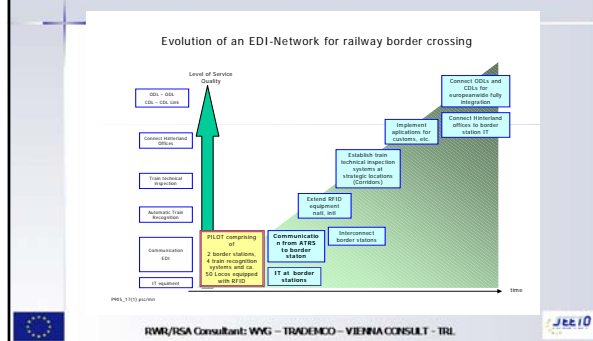


Summary

to improve handling at railway border crossings

- Establish and use proper IT equipment at the border stations
- Establish proper electronic data interchange (EDI-) links
- Equip rolling stock with identification devices for automatic vehicle identification
- Establish systems for generation of automatic train PRE-ARRIVAL AVISO messages & technical check
- Establish joint operation procedures

Possible evolution of an EDI-network for railway border crossing



Possible Pilot (1)

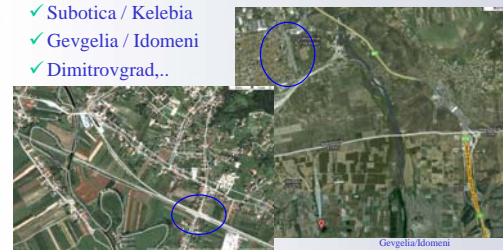
- ✓ Select border crossing point
- ✓ Install minimum IT-Equipment
- ✓ Establish RFID-Train Recognition System
- ✓ (Possibly establish Train Technical Inspection System)
- ✓ Equip Locos with RFID
- ✓ Possibly include and/or mount RFID on Wagons
- ✓ Run Pilot

Pilot (2) Effort for Seeto Participants

- ✓ Local effort (integration / implementation)
- ✓ Reduction of workload
- ✓ Speeding up border handling
- ✓ Getting experienced and generate skills
- ✓ Easy interconnection to EC-Railnetwork
- ✓ (TEN-corridors supported)
- ✓ New value added services to customers opens new revenues for Seeto Participants

Pilot (3) possible BCPs

- ✓ Dobova / Zagreb
- ✓ Subotica / Kelebia
- ✓ Gevgelia / Idomeni
- ✓ Dimitrovgrad,...



Thank you for your attention.

Do you have any questions?

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