PoRIS

Towards Transnational River Information Systems to Foster Commercial Logistics and Public Safety

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Expert Group Safety (EG SEC) Meeting, Danube Commission (DC), Budapest, February 20th 2019
PoRIS – Project Facts

• Security Research funded by Austrian KIRAS Grant (FFG)

• Duration: 10/2014 – 03/2016

• Partners
  • Federal Ministry of Interior
  • Graz University of Technology
  • University of Vienna – ALES
  • via.donau, Federal Ministry of Transport, Innovation and Technology
Agenda

• Problem and Motivation
• Course of Action
• Results
• Conclusion
**Situation**

- The waterways between Western and Eastern Europe represent an important transportation connection for the European inland freight transport

- Waterways are important for merchandise and passenger traffic

- Transnational traffic (10 Danube neighboring states)

- Security-relevant traffic (goods & people)

Picture Source: http://www.donauschifffahrt.info/fileadmin/group_upload/7/Daten_und_Fakten/Wasserstrassenkarten/Donaukarte_de_2010.jpg
Current Development of Inland Water Transportation

Inland water transportation gains in importance – Challenges rise

- Safety requirements rise
- Effort of handling the traffic rises
  - Traffic-management
  - Security checks
- For this reason increasing effort for
  - Shippers
  - Operators of the traffic routes
  - Authorities and Public safety organizations
- Exchange of information between organizations seems to become a more and more important factor
- Single riparian states have already established River Information Systems (RIS)
- Consequently, an essential basis for an integrated concept is already existing

Picture source: http://www.doris.bmvit.gv.at/inland_ecdis/screenshots/
Project Goals

As a part of this study the potentials of an information system network will be tested

- Analysis of the Austrian RIS (DoRIS) in the context of public safety
- Exploration of an expanded transnational coupling of DoRIS with systems of the Danube riparian states

Expected improvements:

**Economy**

- Reduction of burden of ship inspections for shippers
  - Acceleration of transaction, gain in time
  - Avoidance of unnecessary double-checking

**Safety**

- Increase of the control efficiency for authorities
  - Optimization of resource use for BM.I
  - Risk-based resource planning
Socio-Technical Research Framework

Source: Vorraber et al. 2015
# Workshops

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Place</th>
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<tbody>
<tr>
<td>29.10.2014</td>
<td>Kickoff meeting</td>
<td>BMI Wien</td>
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<td>06.11.2014</td>
<td>Training ship logistics</td>
<td>viadonau Wien</td>
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<td>17.11.2014</td>
<td>Ship control - inspection</td>
<td>Fi Handelskai Wien</td>
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<td>19.12.2014</td>
<td>Workshop total process analysis</td>
<td>ALES Wien</td>
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<td>13.02.2015</td>
<td>Meeting with the club of captains</td>
<td>Fahrgastschiff Admiral Tegetthoff</td>
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<td>07.04.2016</td>
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### Identified Improvement Levers

<table>
<thead>
<tr>
<th>Improvement Lever</th>
<th>Impact</th>
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<tbody>
<tr>
<td>Police</td>
<td>Navigation authority</td>
</tr>
<tr>
<td>Pre-transmission of passenger data in standardized format</td>
<td>Time saving</td>
</tr>
<tr>
<td>Availability of historical and current control data from other countries</td>
<td>Self-protection, facilitating of the control planning, prevention of multiple controls</td>
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<tr>
<td>Ship control of cruising ships</td>
<td>Time saving</td>
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<td>Purposeful controls</td>
<td>Prevention</td>
</tr>
<tr>
<td>Uniform work permit for several countries along the Danube</td>
<td>improved check procedure</td>
</tr>
<tr>
<td>More flexible service planning for control authorities</td>
<td></td>
</tr>
<tr>
<td>Unified training requirements along the Danube</td>
<td>improved check procedure</td>
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</tbody>
</table>
## Improvement Lever – Prevention of multiple controls

<table>
<thead>
<tr>
<th>Name</th>
<th>Prevention of multiple controls</th>
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<tr>
<td>Brief description</td>
<td>The opportunity to request the control status shall contribute to avoid multiple controls. Currently it is not possible to “look over” the national borders. It is not evident, if a ship has just been controlled in a neighbouring state. The colour marking of ships in a web portal shall provide information about just-performed inspections respectively shall reproduce the control history.</td>
</tr>
<tr>
<td>Protagonists</td>
<td>Ship, RIS, police</td>
</tr>
<tr>
<td>Organisational requirements</td>
<td>The query of the ship’s position from the RIS, link to the data of the police-control-database, internet connection to transfer data, access to the web portal</td>
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<tr>
<td>Legal requirements</td>
<td>Legal basis for the data exchange with neighbouring states, Data transmission power in national laws, Need for changes in bilateral and multilateral agreements</td>
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<td>Activator</td>
<td>Preparation to upcoming controls, control planning</td>
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<tr>
<td>Process flow</td>
<td>• Consultation of the ships in the immediate vicinity • Creation of a control plan • Conducting controls based on appropriate criteria</td>
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</table>

Quelle: PoRIS internal progress report
System Design: Separation of Control and RIS-data

- RIS infrastructure
- Police/authority infrastructure
- Internet
- Control data
- Ship control system
- Secure police-/authority-infrastructure
- AIS
- DoRIS
- Authority
- Ship position (RIS)
RIS Implementation and Data Exchange Along the Danube

National RIS implementations

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<th></th>
<th>Austria</th>
<th>Belgium</th>
<th>Bulgaria</th>
<th>Croatia</th>
<th>Czech Republic</th>
<th>Hungary</th>
<th>Iceland</th>
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<th>Luxembourg</th>
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<th>Slovakia</th>
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<td>(e.g. AIS)</td>
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- Existing: ✔️
- Functional: □
- In planning: ✔️
System Design: Transnational Control System

Joint data standard

Country A
- Control system country A
- Police: Control data
- Navigation authority: Control data

Country B
- Control system country B
- Navigation police: Control data
- Xy...: Control data

Country C
- Control system country C
- Xy...: Control data

Transnational information exchange through predefined/consisting channels
Ship symbols v2

- Cargo ship
- Dangerous goods ship
- Passenger ship

Country-specific meanings and presentation possible

- Ship is anchored
- Ship is in motion
Ship symbols v2

- Meaning of the ship presentation
  - „New“ - Ship unknown
    - [Image]
  - Was controlled in their own country without objection
    - [Image]
  - Was controlled in their own country with slight complaint
    - [Image]
  - Was controlled in their own country with serious complaint
    - [Image]
Ship symbols v2

• Meaning of the ship presentation
  • Ship marked for inspection

• Information about the last control in the foreign country (worst result is displayed):
  • Everything OK
  • Slight complaint (e.g. administrative offense)
  • Serious complaint (e.g. criminal delict)
Proof of Concept - Map
Proof of Concept – „Subway Schedule“
Proof of Concept: Control overview

Ships in the surrounding area

Marked for inspection

Already controlled in the country (AUT)

Not marked
Proof of Concept: Control logic

ENI: 302 11455
Shiptype: Frachtschiff
Draught: 2 m
Length: 30 m
Beam: 10 m

Kontrollzeit: 2016-03-30 11:11:42

Kontrollstatus: Keine Beanstandung

Geschäftszahl: A_356/16

Keine Anmerkungen.
Proof of Concept: Evaluation

Evaluation workshop Fl Handelskai
21.03.2016
Summary

✓ Workshops with stakeholders realised
✓ Improvement levers identified and prioritised
✓ Proof of Concept implemented
✓ Evaluation of Proof of Concept (User-acceptance) completed
Future Prospects

• International follow-up project
Köszönöm a figyelmet!
Backup
Outtakes