Intermodality in Europe
From co-modality to synchromodality

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Contents

Why
A national (US) perspective on freight network development: any lessons from Europe?

Subjects
• Freight within EU transport policy
• Issues: “Interconnectivity” and “Interoperability”
• Innovation roadmaps
Policy framework: “Co-modality” (EU White Paper)

- Infrastructure policy: TEN-T are multimodal
- Road
  - Weight & size regulation => LHV's
  - Pricing /Eurovignette
  - Cabotage
- Rail
  - Deregulation, Technology
  - 10 corridors in Europe
  - Network extension Asia
- Waterways
  - Network extension
- Short-Sea
  - Motorways of the Sea
- (Air)ports
  - Connection to TEN-T core network
  - Inland ports added
- Combined transport
  - Marco Polo

![Graph showing transportation modes from 1995 to 2008](image-url)
EU/US core freight networks: similarities

<table>
<thead>
<tr>
<th></th>
<th>US network</th>
<th>US length</th>
<th>TEN-T length</th>
</tr>
</thead>
<tbody>
<tr>
<td>road</td>
<td>STRAHNET</td>
<td>62253</td>
<td>61180</td>
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<td></td>
<td>NHS</td>
<td>164096</td>
<td></td>
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<tr>
<td>rail</td>
<td>Class I</td>
<td>94082</td>
<td>61000</td>
</tr>
<tr>
<td>waterways</td>
<td>Channels + lakes</td>
<td>13342</td>
<td>26708</td>
</tr>
</tbody>
</table>

Notes
1) 2008 status, distances in miles
2) sources: FHWA FF&F 2012, European Commission TIF2009
## EU/US: Differences (example: rail)

<table>
<thead>
<tr>
<th>US</th>
<th>Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>regionalized</td>
<td>shuttles</td>
</tr>
<tr>
<td>long haul</td>
<td>short haul</td>
</tr>
<tr>
<td>double stack</td>
<td>single stack</td>
</tr>
<tr>
<td>long trains</td>
<td>short trains</td>
</tr>
<tr>
<td>few providers</td>
<td>many providers</td>
</tr>
<tr>
<td>landbridges</td>
<td>hinterland</td>
</tr>
<tr>
<td>deregulated</td>
<td>still regulated</td>
</tr>
<tr>
<td>standardized</td>
<td>fragmented</td>
</tr>
<tr>
<td>network</td>
<td>structure</td>
</tr>
<tr>
<td>freight focus</td>
<td>passenger focus</td>
</tr>
<tr>
<td>low value</td>
<td>high value</td>
</tr>
<tr>
<td>little competition</td>
<td>competition</td>
</tr>
<tr>
<td>for rail</td>
<td>many alternative modes</td>
</tr>
</tbody>
</table>

EU/US: Differences (ctd.)

Source: Fagan & Vasallo, 2005
EU intermodal services
Interoperability issues

- AGC/AGN: agreement on main international railway lines, waterways
- AGTC: European Agreement on Important International Combined Transport Lines and Related Installations
- Extension to East (UN-ECE WP2.4 Intermodal Transport & Logistics)

Source: EIA
Interconnectivity: Trans-European Networks – Transport (TEN-T)

- € 800bn portfolio since 1996
- Funding 20% EU share
- Focus on
  - Core network missing links
  - Multimodal, international corridors
  - IT projects (ERTMS, ATM)
- EU budget 2007-2013: €7bn
  - 66% rail
  - 9% waterways
  - 5% multimodal
  - 20% air, sea, road
The TEN-T process (informal, subjective)

- Performance metrics
  - Measurements
  - Ex ante evaluation tools
  - Assessments

- TEN-T guidelines
  - Decision making
  - Project realization

- Results
  - Monitoring & evaluation

- Multi-layered
  - Base of Analysis
  - ...Strategy?

- Pragmatism, PPP & politics

- Cross-border projects delayed, Ex post’s: OK
On Performance

Source: ESPON

TRB 2013
On EU added value

Source: IASON
Criteria for inclusion

Source: TML
Intermodal interconnectivity and interoperability

Source: Rodrigue & Notteboom, 2010
Innovation drivers

Customers require responsiveness

Growing network uncertainties

Differentiation of products

Growing competitive pressures

Demand side

Supply chain resilience

Need for more responsive and customized transport services

Supply side

New KPI’s (e.g. CO₂)

Growing network uncertainties

Demand side

Supply side
Emerging roadmap: synchronized intermodality, “synchromodality”

- Automation and interoperability+ between modes
  - More diversity in service qualities offered
- Understanding requirements
  - Distribution of preferences and the causes
- New services and networks
  - Connect Sea & Inland services, Customs innovations
- Mode abstract technology
  - Electronic P&B sys, RFID, architectures, data pipelines
- Addressing business organizational & legal barriers
  - multimodal E-waybill, horizontal collaboration
Practice (ECT, Rotterdam)

- “European Gateway Services”
- Terminal haulage
- A-modal booking
- Postponed customs, tracking, dryport services
- Requires network, ICT, marketing, contract innovations

Source: ECT
R&D at EU level

- Roadmaps
  - EIRAC: strategic agenda 2010-2030+
  - ERTRAC: Co-modality & logistics roadmap
- Projects:
  - FREIGHTWISE, E-freight, INTEGRITY, Smart-CM, ARKTRANS, EURIDICE, DiSCwise, KOMODA, SmartFreight, RISING, Easyway (rd+), CASSANDRA, iCargo, Demanes
Concluding

- Continental network perspective EU since 1992 (“Cost of non Europe”)

- Mission: interconnectivity and interoperability at continental level

- Areas of interest
  - Interconnectivity: methods and tools used in EU, did they work
  - Interoperability: problems may be too different (EU: fragmentation)
  - Intermodal dimension: study each other’s R&D roadmaps & align