Port co-operation and competition in Europe: business practices and policy initiatives

Theo Notteboom
MPA Visiting Professor, CEE-NTU, Singapore
Research Professor, China Institute of FTZ Supply Chain, Shanghai Maritime University, China
Chair professor, Port of Ghent, Maritime Institute, Faculty of Law, Ghent University, Belgium
Professor, Faculty of Applied Economics, University of Antwerp, Belgium
Professor in Maritime Transport, Antwerp Maritime Academy, Belgium
Immediate past President, International Association of Maritime Economists (IAME)
Co-Director PortEconomics.eu

Public seminar NTU, Singapore, 16 February 2017

Content

1. European port traffic: signs of economic recovery?
2. European port outlook: key drivers
3. The container market
4. Port governance in Europe
5. Port co-operation
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EUROPEAN PORT TRAFFIC: SIGNS OF ECONOMIC RECOVERY?

Year-on-year growth in total EU28 port traffic (basis = ton) and EU GDP

Traffic peaked in 2008: 3.83 billion tons
2015: 3.69 billion tons

<table>
<thead>
<tr>
<th>Year</th>
<th>Total throughput growth %</th>
<th>GDP growth EU27/EU28 growth %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>3.69 billion tons</td>
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</tbody>
</table>

Traffic peaked in 2008: 3.83 billion tons
2015: 3.69 billion tons
## Top ports in Europe - total traffic in tons
(source: Eurostat)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Port</th>
<th>Country</th>
<th>2015 Total (thousand tons)</th>
<th>2016 Total (thousand tons)</th>
<th>2017 Total (thousand tons)</th>
<th>2018 Total (thousand tons)</th>
<th>2019 Total (thousand tons)</th>
<th>By type of cargo-handled (%)</th>
<th>Growth rate 2014-2015 (%)</th>
<th>Growth rate 2015-2016 (%)</th>
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<tbody>
<tr>
<td>1</td>
<td>Rotterdam</td>
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<td>40.0</td>
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<td>17.2</td>
<td>7.5</td>
<td>10.3</td>
</tr>
</tbody>
</table>

Note: (*) column indicates number of positions lost or gained compared to 2014 | (t) not available | (x) not applicable

(1) 2015-2016: partially estimated by Eurostat.
(2) 2015-2016: partially estimated by Eurostat.
(3) Total figure for the ports being part of top 25 ports during the reference year concerned.
(4) All ports in the EU, EFTA, and candidate countries reporting gross weight of goods.
Are we back at pre-crisis traffic levels?

Index evolution of throughput in the EU port system (2008=100)

- Container volumes managed to get well above the 2008 level
- Liquid bulk saw a minor drop in 2009, but records further traffic decline after 2009
- Dry bulk: no recovery

Total throughput is still about 4.6% below the 2008 level
Distribution of cargo flows in the EU port system
Increased containerisation and decline of bulk

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Containers</td>
<td>11.1%</td>
<td>11.2%</td>
<td>Containers</td>
<td>12.8%</td>
<td></td>
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<tr>
<td>Liquid bulk</td>
<td>6.7%</td>
<td>6.4%</td>
<td>Liquid bulk</td>
<td>7.0%</td>
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<tr>
<td>Dry bulk</td>
<td>25.6%</td>
<td>25.0%</td>
<td>Dry bulk</td>
<td>20.9%</td>
<td>20.9%</td>
</tr>
<tr>
<td>Conventional general cargo</td>
<td>40.8%</td>
<td>39.5%</td>
<td>Conventional general cargo</td>
<td>38.8%</td>
<td>37.1%</td>
</tr>
<tr>
<td>Roro traffic</td>
<td>11.1%</td>
<td></td>
<td>Roro traffic</td>
<td>22.3%</td>
<td>22.3%</td>
</tr>
</tbody>
</table>

Share of UK ports in European port traffic

Brexit: the share of the UK port system in the total EU port throughput per cargo segment

<table>
<thead>
<tr>
<th>Cargo Segment</th>
<th>2015</th>
<th>2016</th>
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</thead>
<tbody>
<tr>
<td>% UK in EU GDP</td>
<td>17.6%</td>
<td>17.6%</td>
</tr>
<tr>
<td>% UK in EU population</td>
<td>12.8%</td>
<td>12.8%</td>
</tr>
<tr>
<td>% UK ports in EU port system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Containers (TEU 2015)</td>
<td>9.2%</td>
<td>10.5%</td>
</tr>
<tr>
<td>Other general cargo (tons 2014)</td>
<td>8.7%</td>
<td>14.1%</td>
</tr>
<tr>
<td>Roll on / roll off (tons 2014)</td>
<td></td>
<td>12.0%</td>
</tr>
<tr>
<td>Dry bulk (tons 2014)</td>
<td></td>
<td>13.2%</td>
</tr>
<tr>
<td>Liquid bulk (tons 2014)</td>
<td></td>
<td>15.6%</td>
</tr>
</tbody>
</table>

Note: The data is sourced from Eurostat and the European Commission.
EUROPEAN PORT TRAFFIC - OUTLOOK:
KEY DRIVERS
Weak oil refining capacity outlook for Europe

- Global refining system: 7.2 mb/d of new crude distillation capacity (to be) added in the period 2012-2016 => virtually no additions in Europe
- Largest proportion of closures – around 1.7 mb/d – has so far occurred in Europe.
- Still, industry will continue to experience a capacity surplus, one that has been gradually building since 2009.

A changing energy mix

- Expected growth renewables and biofuels till 2030: 7.6% per annum
- Tight oil and oil sands: ~13% of global liquid energy supply in 2030 (North America!)
- Shale gas revolution: self-sufficiency for N-America + impact on industry location/coal price
- European gas demand: share of net imports (LNG + pipeline) in total demand will increase from 50% today to around 80% in 2030.
The steel industry

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>12/11</th>
<th>13/12</th>
<th>14/13</th>
<th>2014 as % of 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>1,430.3</td>
<td>1,475.1</td>
<td>1,523.2</td>
<td>2.8</td>
<td>3.1</td>
<td>3.3</td>
<td>122.9</td>
</tr>
<tr>
<td>United States</td>
<td>96.2</td>
<td>95.9</td>
<td>95.6</td>
<td>7.8</td>
<td>0.7</td>
<td>3.0</td>
<td>92.2</td>
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<td>137.8</td>
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<td>-3.8</td>
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<td>89.1</td>
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<td>Japan</td>
<td>63.9</td>
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<tr>
<td>China</td>
<td>660.1</td>
<td>689.7</td>
<td>720.7</td>
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<td>6.0</td>
<td>3.0</td>
<td>172.2</td>
</tr>
<tr>
<td>India</td>
<td>71.6</td>
<td>74.0</td>
<td>78.2</td>
<td>2.6</td>
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<td>0.6</td>
<td>3.2</td>
<td>3.8</td>
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<tr>
<td>ASEAN (5)</td>
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<td>2.2</td>
<td>1.7</td>
<td>7.3</td>
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</table>

Steel Use, finished steel

Source: SMRL and BHP Billiton

Developed Economies

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<th>2013</th>
<th>2014</th>
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<td>2.2</td>
<td>1.7</td>
<td>7.3</td>
<td>127.2</td>
</tr>
</tbody>
</table>

Source: World Steel Association (2014)

Stainless steel consumption to 2028 (kg per capita)

The rising importance of traders in directing cargo flows

Source: Meersman, Rechtsteiner and Sharp (2013)
Distribution based on RDCs

Distribution based on one EDC

Distribution based on tiered system (EDC+RDCs)

Towards new waves in distribution networks?
- 24h rule
- Double and triple EDC
- DC bypass
- Impact e-business, 3D printing

THE CONTAINER MARKET
Top 15 container ports in Europe

![Top 15 container ports in Europe in 2016](image1)

Regional shares in total TEU of the European container port system

![Regional shares in total TEU](image2)

Source: Notteboom (2016)
Transhipment incidence in ranges of European port system

Source: Notteboom (2014)
Position worldwide: top container regions in the world

Source: Notteboom (2015)

Scale increases in vessel size

- Ships of up to 20,000 TEU capacity
- Cascading of vessels to north-south routes + upscaling of feeder vessel sizes
- Leader/follower
- Slow steaming
- Impact on no. of ports of call

Mary Maersk (18,000 TEU) and Evelyn Maersk (14,000 TEU) at Deurganckdock – Port of Antwerp – 19 Oct 2013
Prof. Theo Notteboom

Changes in strategic alliances in container shipping

Source: Notteboom (2016)

Position of NW-European ports in liner services on Europe-Far East trade – Q2 2017

Number of weekly calls – 17 services in total – double calls possible - situation on 16 Feb 2017

Main carriers not part of an alliance

Main carriers not part of an alliance

Note: (*) Hamburg Sud has slot chartering agreements with Maersk Line as an interim step to the planned takeover of Hamburg Sud by Maersk Line. Also HMM co-operates with 2M.

Source: Notteboom (2016)
The importance of intermodal transport

Modal split for containers in some major European container ports - 2008

Prof. Theo Notteboom

<table>
<thead>
<tr>
<th>Seaport</th>
<th>Total container throughput (including sea-sea transshipment) Million TEU</th>
<th>Road %</th>
<th>Rail %</th>
<th>Inland barge %</th>
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<tbody>
<tr>
<td>Antwerp (Belgium)</td>
<td>8.66</td>
<td>56.6</td>
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<td>86.2</td>
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<td>7.2</td>
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<td>30.0</td>
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<td>Zeebrugge (Belgium)</td>
<td>2.21</td>
<td>62.0</td>
<td>36.6</td>
<td>1.4</td>
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</tbody>
</table>

62% of Hamburg's rail container volume in 2008 was related to Germany (57% in 2003).

Source: own compilation based on data respective port authorities and Schiffahft Hafen Bahn und Technik, No. 1 (2010), p. 68.
The intermodal challenge

- **Hinterland coverage:**
  - Advances in intermodal solutions for *local/regional hinterland* (extended gates, etc.)
  - *Going beyond the 'comfort zone' remains difficult*

- **Trunk lines to gateway ports: large scale co-modality is concentrated**
  - More than half of total *European container traffic by rail* is concentrated in 6 ports
  - About 90% of *European container traffic by barge* is linked to Antwerp and Rotterdam
  - Overcoming the critical mass challenge by *bundling cargo* from multiple ports in inland centres

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In search of frequency, scale and capacity utilization

Bundling concepts in rail: European examples

- **Direct shuttles where possible**
- **Massification centres where useful**
- **Hub-and-spoke systems where needed**
  - cf. Duisburg, Lyon, Sopron, etc.
  - Vulnerability of hub-and-spoke system
  - Connect ‘smaller ports’ to rail network via inland hubs
Barge container volumes in the European port system

- **Rotterdam**
  - 2008: 2.34 million TEU
  - 2013: 2.57 million TEU
  - Rhine, Benelux

- **Marseille**
  - 2008: 85,000 TEU
  - 2012: 78,500 TEU
  - Rhône (Lyon)/Saône

- **Le Havre**
  - 2008: 145,000 TEU
  - 2013: 183,000 TEU
  - Seine axis

- **Hamburg**
  - 2008: 119,000 TEU
  - 2013: 108,000 TEU
  - Elbe/Moldau (Vltava)

- **Bremerhaven**
  - 2008: 55,700 TEU
  - 2012: 95,000 TEU
  - Weser, North German Canals

- **Antwerp**
  - 2008: 2.64 million TEU
  - 2013: 2.52 million TEU
  - Rhine, Benelux, Northern France

- **Venice**
  - 2008: 3,200 TEU
  - Rhine, Belgium

- **Rotterdam and Antwerp** = ~90% of barge volumes in European port system

- Source: Notteboom (2014) based on data individual port authorities
• Most port authorities in Europe are publicly owned
  - North Europe: mainly cities
  - South Europe: mainly central government
  - Multipurpose private ports only exist in the UK

• Most European port authorities have their own legal personality

• There is a growing trend of corporatisation

• But political influence remains present almost everywhere

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**Facts: financial capabilities**

• Considerable financial responsibilities for capital assets that constitute a port

• Maritime and land access in several EU countries funded by the public purse

• Port dues form the main source of income of port authorities, followed by land lease and services

• Financial autonomy of port authorities varies a lot and is generally more restricted in southern Europe
• Multiple pressure on port authorities:
  - Pressure of market players
  - Pressure of government
  - Pressure of societal stakeholders

• Existential options:
  - Be full-fledged partners in the logistics chain
  - Play a supporting role
  - Disappear

---

### Hypothetical typology

<table>
<thead>
<tr>
<th></th>
<th>Conservator</th>
<th>Facilitator</th>
<th>Entrepreneur</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Landlord</strong></td>
<td>Passive real estate &quot;manager&quot;</td>
<td>Active real estate &quot;broker&quot;</td>
<td>Active real estate &quot;developer&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mediator in B2B relations</td>
<td>Direct commercial B2B negotiations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Strategic partnerships beyond port perimeter</td>
<td>Direct investments beyond port perimeter</td>
</tr>
<tr>
<td><strong>Regulator</strong></td>
<td>Passive application and enforcement Rules set by others Financial revenue on &quot;tariff&quot; basis</td>
<td>Active application and enforcement Other + own rules Provide assistance in compliance Tariffs + differential charging options to promote sustainability</td>
<td>Idem facilitator Idem facilitator + commercialising expertise and tools outside port Financial revenue on commercial basis</td>
</tr>
<tr>
<td><strong>Operator</strong></td>
<td>Mechanistic concession policy</td>
<td>Dynamic concession policy &quot;Leader in dissatisfaction&quot; Provide public services / specialised services</td>
<td>Dynamic concession policy Shareholder in private service providers Provide commercial and public services</td>
</tr>
<tr>
<td><strong>Community manager</strong></td>
<td>Not actively developed</td>
<td>Solve economic bottlenecks Provide public goods Solve conflicting interests Promote positive externalities</td>
<td>Idem facilitator but more direct commercial involvement</td>
</tr>
<tr>
<td><strong>Local</strong></td>
<td>Local</td>
<td>Local + Regional</td>
<td>Local + Regional + Global</td>
</tr>
</tbody>
</table>

Source: Patrick Verhoeven (2010)
Port cooperation and port networking in Europe

**Port authority mergers:**
- Hamina-Kotka (Finland)
- Vlissingen-Terneuzen (the Netherlands)
- Copenhagen Malmö Port (CMP) (Denmark/Sweden)
- Mersey Docks and Harbour Company (MDHC): Liverpool, Heysham, Steerness and Chatham (UK)
- Ghent - Zeeland Seaports (Belgium/the Netherlands) – scheduled for April 2017

**Formal port cooperation schemes:**
- NAPA (North Adriatic Ports Association)
- ‘Haropa’ (Le Havre, Rouen, Paris)
- ‘Medlink Ports’ = Marseille, Sète and 9 inland ports along Rhône-Sâone (Arles, Avignon, Valence, Vienne-Sud, Lyon, Villefranche, Macon, Chalon-sur-Sâone, Pagny)
- (Container alliance Antwerp-Zeebrugge)

**Port authority internationalisation:**
- Antwerp: Oman, India, ..; Rotterdam: Oman (Sohar), Brazil (Suape), etc.
Haropa (France)

North Adriatic Ports Association (NAPA)
Port cooperation in perspective

- **Scope for more cooperation** in bundling cargo to the hinterland and in improving the exchanges between the different port areas.

- Cooperation initiatives should be **market-based** (i.e. following a strong business case)

- Government initiative to facilitate or encourage cooperation between ports: **not imposed on ports**.

- Forcing ports to go for **specialisation** can increase commercial risks and makes the choice for customers less rich (lower flexibility).
Key questions

- What focus?
  - Flows (containers or other flows as well, specific trade routes?)
  - Nodes/corridors:
    - Intra-port focus
    - Inter-port connections
    - Intra-port focus + inter-port connections
    - Hinterland focus
    - All (system approach)
  - Revenue focus (demand) vs. investment focus (supply)

Textbook conditions for successful and intensive port cooperation

<table>
<thead>
<tr>
<th>Condition</th>
<th>Case Antwerp/Zeebrugge (containers only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint threat (cf. Oresund bridge as key development for Malmo-Copenhagen merger)</td>
<td>+ : Possible traffic losses due to Rotterdam, market consolidation, etc..</td>
</tr>
<tr>
<td>Non-solvable capacity shortage in one port</td>
<td>- : No capacity shortages in the foreseeable future (if realisation of Saeftingedock in Antwerp)</td>
</tr>
<tr>
<td>Complementarity in terms of accessibility (sea, land)</td>
<td>+ - : Coastal port versus upstream port, ZB has poorer IWT connectivity, but similar draft conditions and rail connectivity</td>
</tr>
<tr>
<td>Complementarity in terms of commodities handled or regions served (foreland/hinterland)</td>
<td>+ - : Complementarity in terms of regions used to be larger</td>
</tr>
<tr>
<td>Complementarity in terms of customer base</td>
<td>+ - : Industry consolidation leads to a more shared customer base</td>
</tr>
<tr>
<td>Scale differences</td>
<td>+ - : no. 2 and no. 17 in European container port ranking in 2016, no. 2 and 9 in 2010</td>
</tr>
</tbody>
</table>

Complementarity as condition for cooperation?
Key questions

• Cooperation form?
  - The modalities and governance structures for cooperation are less important than the objectives to be achieved
  - Informal vs. formal cooperation
  - Governance structure
    • Separate entity?
    • Relation with municipalities/region?
    • Representation?
  - Financial structure (distribution revenues/costs)

• How to communicate/market?
  - ‘Brand name’, etc..
• Jacques Delors (President European Commission 1985-1995)
• First Transport White Paper (1992)
• Road to Sea policy
• Trans-European Transport Networks (TEN-T)

• Neil Kinnock (Transport Commissioner 1995-1999)
• Green Paper on Seaports and Maritime Infrastructure (1997)
• Basic elements Ports Policy:
  - Market access port services
  - Port financing
  - Infrastructure development
• Loyola de Palacio (Transport Commissioner 1999-2004)
• Port Package I (2001):
  - Port services Directive
  - Rejected 2003
• Port Package II (2004):
  - New port services Directive
  - Withdrawn 2006
• Second Transport Policy White Paper (2001)
• Ports in TEN-T (2001)
• Jacques Barrot (Transport Commissioner 2004-2009)
• Ports Policy Communication (2007)
• Reconciliation through ‘soft law’ approach

• Siim Kallas (Transport Commissioner 2009-2014)
• Ports Regulation proposal (2013)
• Third Transport Policy White Paper (2011)
• Full integration ports in TEN-T (2013)
• Violeta Bulc (Transport Commissioner 2014-)

• Final adoption of the Ports Regulation:
  - By Parliament (14 December 2016) and by Council (23 January 2017)
  - Legal act signed in mid-February 2017 and published in the EU Official Journal a few weeks later.
  - Regulation enters into force 20 days after its publication.
  - Member States have two years to implement Regulation in national legislation
Port regulation 2016: basic elements

1. Market access port services

2. Financial transparency and autonomy

3. Consultation and supervision

1) Market access

- Treaty principle freedom to provide services
- Minimum quality requirements
- Limitation of number of service providers
- Public service obligations
- Internal operator
- Guarantees for workers (transfer of undertakings)
- *Cargo handling and passenger services are exempted from these rules*

=> Regulation is hoped to make it easier for new providers of certain port services to enter the market. It will create a more level playing field and reduce legal uncertainties for ports, port service providers and investors.
2) Financial transparency en autonomy

- Transparency of financial relations between government and port authority that receives public means / offers port services
- Pricing use of public infrastructure (port dues)
- Financial autonomy port authority

=> Regulation is hoped to ensure transparency of port charges and public funding of ports. This will lead to better use of public funds and the effective and fair application of EU competition rules in ports, thereby taking into account the diversity of the sector across Europe.

3) Consultation and supervision

- Consultation of port users
- Consultation of other stakeholders
- Independent supervisory body
- Cooperation between supervisory bodies

=> Regulation is hoped to facilitate consultation among stakeholders and supervision. This should lead to a smoother working of ports and reduce (legal) conflicts through dialogue.
Common EU ports policy: summary

- A long and difficult process given diversity of sector
- Two attempts to open up market access for port services failed in 2003 and 2006 (so-called ‘port packages’)
- New start in 2007: Ports Policy Communication
- Revival policy in 2011:
  - Infrastructure: ports integrated in Trans-European Transport Networks (TEN-T)
  - Administrative simplification
  - Financing (use of public funding – State aid)
  - Concessions (application of internal market rules – transparency)
  - Port services (dock labour, technical-nautical services)
- 2013 initiative
- Final adoption of Ports Regulation in early 2017

Conclusions

- EU port traffic volumes are still below 2008 levels, although big differences exist between ports
- European port system is still somewhat fragmented + co-modality challenges
- Port governance is changing with more autonomous and corporatised port authorities: north Europe is leading the way
- Port co-operation on the menu, but implementation characterized by diversity and reluctance
- EU Ports Policy: long and difficult history.. but recent breakthrough