The Strategic evaluation of the Belgian Port Sector and accompanying services

Brussels - 30 April 2015
www.ing.com
Agenda

• ING’s Sector Approach
• Study: Strategic evaluation of the Belgian Port Sector and accompanying services
Companies whose primary business function is to generate revenues and profits derived from the movement of passengers and or freight

Companies whose primary business is directly related to the above business, f.e. freight forwarding, logistics services and captive (in-house T&L)
ING Sector Approach: Dedicated teams

Dedicated team of experts at ING Belgium

- Didier Keters – *Utilities, Transport & Logistics – Corporate Clients*
- Bram Debruyne – *Transport & Logistics – Midcorporate Clients*
ING Sector Approach: Reports and partnerships

- Sector reports: ING Economisch Bureau
- Partnership with ITMMA
  - 5th study
- Partnership with KPMG/NKVK
  - Transport event on 24/3/15
- Partnership with VIL
ING Sector Approach: Conclusion

ING Sector Transport & Logistics

- ING is #1 in the port of Antwerp through concertation and cooperation and focus on sector knowledge
ING Sector Approach: Transport & Logistics

• Stel zelf de elementen samen voor uw succes in Transport & Logistics.
Disclaimer

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All figures in this document are based on the 2013 ING Group Annual Accounts. This document is unaudited.

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STRATEGIC EVALUATION
OF THE BELGIAN PORT SECTOR
AND ACCOMPANYING SERVICES

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Number five of series

Authors: Indra Vonck and Theo Notteboom (ITMMA, University of Antwerp)

For further information on the services of ING Bank in transport and logistics, please visit www.ing.be
Ports are more than piers

- Seaports are important *generators* of economic activities.

- Port functions go **beyond pure cargo handling** (raison d’être of ports)

- **Not only derived** activity: the port and maritime industry has evolved into a fully-fledged economic sector with its own dynamics.

- **Going beyond** value added, employment, investments and source of tax revenues?
Aim of the report

• The study presents a strategic evaluation of the Belgian port sector and accompanying services.

• The goal of this study is twofold.
  
  • Analysing the added value based on a classic economic analysis
  
  • Define and measure the strategic value of the Belgian port network with all its accompanying services.
Definition of strategic value

- Strategic value is defined as:

“The economic value of the ports and the logistical network plus the added value created by the enlargement of the competitive position of the cluster or region by adding knowledge, scale network effects and connectivity”.
The strategic value pyramid

- Quantifiable economic value
  - Created employment

- Qualitative economic value
  - Attraction of supporting businesses
    - Driver of innovation
    - Driver of knowledge creation

- Perceived economic value
  - Maritime heritage/community
  - Port visibility

- Generated infrastructure
  - Attraction of businesses
  - Attraction of cargo flows

- Created added value
Why measuring the strategic value?

- **Classic economic approaches** to measure the importance of ports only focus on specific parts of the total impact.

- Economic effects of seaport activities are no longer limited to the local environment, but are **spread over a much wider geographical area** and among a large number of international players.

- A large part of the population takes seaports for granted. Providing a full picture of the positive effects of ports can help to **improve the public image of ports**.

- Further quantification of the key role of ports to the economy as an **input for policy makers** in times of limited available budgets.
Structure of report

1| Classic Economic Evaluation
2| Strategic Evaluation Techniques
3| The Strategic Evaluation of the Belgian Port Sector
4| Quantification of strategic value
5| Maximizing Strategic Value
1 | Classic Economic Evaluation
Different approaches and methodologies

• Several **methodological problems**:
  • The measurement of the degree of dependency is potentially exposed to the risk of subjectivity
  • The intensity of the added value and employment impact of the port

• **No unique standard methodology** in Europe on the definition of the types of impacts, which makes port comparisons difficult:
  • e.g. NBB studies in Belgium vs. Port Monitor in the Netherlands

• Most popular technique is based on **input-output analysis**.
The National Bank of Belgium provides detailed data on the economic impact of Belgian seaports and larger inland ports.

- Antwerp, Gent, Zeebrugge and Ostend, but also the inland ports of Liège and Brussels.
- Time lag of about two years due to availability of annual accounts.
- Functional and geographical criteria.
- Division between maritime (port logistics, maritime industry, etc..) and non-maritime cluster (petrochemical, electricity production, logistics over land, etc..).
Some key figures (2012) – Flemish seaports and Liège/Brussels

Direct value added: 16.4 billion euro (Antwerp: 9.97 billion euro)

Indirect value added: 13.5 billion euro

Total value added: 29.9 billion euro

Direct employment: 117,455 (of which Antwerp: 60,873)

Indirect employment: 140,689

Total employment: 258,144
Comparison of the air transport sector and the maritime clusters

Added value comparison of ports and air transport

- Air transport
- Antwerp maritime cluster
- Ghent maritime cluster
- Ostend maritime cluster
- Zeebrugge maritime cluster

Direct added value
Indirect added value

(in million €)

0 1000 2000 3000 4000 5000 6000 7000
Other reports
Province of Antwerp – spatial distribution of port-related jobs and impact on financial revenues municipalities (Notteboom 2015)
Economic impact of port activity: a disaggregate analysis (Coppens et al 2007)

- Bottom-up methodology to identify and quantify the mutual relationships between the various port players
- 59.5% of the customers of the port players of Antwerp are located in the province of Antwerp of which 53% in the district itself

Het economisch en financieel belang van de haven van Antwerpen (PRC 2007)

- Impact of 4% of the GDP, a 20% increase over a 6 year period (1992-1998).
- Impact of the port on the income and expense budget of Flanders. The activities related to port workings apparently offer high returns for the Flemish government. 80% of this income was generated by taxes.
2 | Strategic Evaluation Techniques
Porter’s Diamond(s)

- Applied to the ports of Rotterdam and Amsterdam (Van Den Bosch et al 2011):
  - The importance of the port to the Netherlands is higher than shown by the Port Monitor figures
  - The strategic value of the port of Rotterdam is estimated at 6 billion euro or 30% more than the economic importance reported in the Port Monitor.

Reversed PEST(LE)

- PEST analysis (Political, Economic, Social and Technological analysis): to investigate the surrounding landscape and adapt the strategic management accordingly.
- When reversed and assessing the impact of the classic PEST (or PESTLE parameters) on the surrounding economy, a valuation of the total impact of a business or sector is possible.

SWOT analysis
Benchmark analysis, different indexes: GCI

- The GCI is a composed index of three groups of indicators:
  - basic requirements (institutions, infrastructure, macroeconomic environment, …),
  - efficiency enhancers (higher education and training, goods market efficiency..)
  - innovation and sophistication factors

- Belgium is at position 18 on the last available ranking.

- Quality of port infrastructure: Belgium scores considerably better with a sixth place.

- Over the past few years, Belgium has improved its rank and score faster than any of the neighbouring countries (Luxembourg excluded).
Benchmark analysis, different indexes: ECI

The European competitiveness index is a good proxy for strategic value positions of regions.

Belgium currently occupies the ninth position in the ranking.

Environmental sustainability and the labour market are the worst sub indexes with a ranking of 17th and 19th respectively.
The results of the Logistics Performance Index (LPI) are based on survey data from over 800 freight forwarders and other logistics service providers thought to have good insights into the ease and costs of moving goods into, out of, and within 150 different countries.

The LPI is a composite of a country’s rating across seven criteria: customs clearance, logistics infrastructure, ease of international shipments, logistics competence/internal skills sets and service providers, tracking and tracing capabilities, domestic logistics costs and timeliness/consistency.

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>LPI Rank</th>
<th>LPI Score</th>
<th>Customs</th>
<th>Infrastructure</th>
<th>International shipments</th>
<th>Logistics competence</th>
<th>Tracking &amp; tracing</th>
<th>Timeliness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>2014</td>
<td>1</td>
<td>4.12</td>
<td>4.10</td>
<td>4.32</td>
<td>3.74</td>
<td>4.12</td>
<td>4.17</td>
<td>4.36</td>
</tr>
<tr>
<td>Netherlands</td>
<td>2014</td>
<td>2</td>
<td>4.05</td>
<td>3.96</td>
<td>4.23</td>
<td>3.64</td>
<td>4.13</td>
<td>4.07</td>
<td>4.34</td>
</tr>
<tr>
<td>Belgium</td>
<td>2014</td>
<td>3</td>
<td>4.04</td>
<td>3.80</td>
<td>4.10</td>
<td>3.80</td>
<td>4.11</td>
<td>4.11</td>
<td>4.39</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>2014</td>
<td>4</td>
<td>4.01</td>
<td>3.94</td>
<td>4.16</td>
<td>3.63</td>
<td>4.03</td>
<td>4.08</td>
<td>4.33</td>
</tr>
<tr>
<td>Singapore</td>
<td>2014</td>
<td>5</td>
<td>4.00</td>
<td>4.01</td>
<td>4.28</td>
<td>3.70</td>
<td>3.97</td>
<td>3.90</td>
<td>4.25</td>
</tr>
</tbody>
</table>
3 | Strategic Evaluation of the Belgian Port Sector
The qualitative aspects of ports

- **Government support** in the form of investments, be it on a local, national or European level, is indispensable and disruption of this support could have negative consequences for ports.

- Supporting organizations and institutions like governments and port authorities have a crucial role to play as **catalysts and facilitators**, stimulating companies to reach higher levels of competitiveness, innovation and strategic renewal.
Unique national transport drivers (1)

- Part of the strategic value of the Belgian ports
- **Advanced transport network and high degree of connectivity** radiate on the remainder of the Belgian companies.
- **Modal split of seaports** outperforms the national; but further potential (business-case basis)
- **Cargo-generating effect** ports
Unique national transport drivers (2)

- Ports add to the **connectivity** of the Belgian economy.
- Example, Liner Shipping Connectivity Index for maritime connectivity of container ports

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>100.00</td>
<td>108.29</td>
<td>113.10</td>
<td>127.85</td>
<td>137.38</td>
<td>132.47</td>
<td>143.57</td>
<td>152.06</td>
<td>156.19</td>
<td>157.51</td>
<td>165.05</td>
</tr>
<tr>
<td>China, Hong Kong SAR</td>
<td>94.42</td>
<td>96.78</td>
<td>99.31</td>
<td>106.20</td>
<td>108.78</td>
<td>104.47</td>
<td>113.60</td>
<td>115.27</td>
<td>117.18</td>
<td>116.63</td>
<td>115.98</td>
</tr>
<tr>
<td>Singapore</td>
<td>81.87</td>
<td>83.87</td>
<td>86.11</td>
<td>87.53</td>
<td>94.47</td>
<td>99.47</td>
<td>103.76</td>
<td>105.02</td>
<td>113.16</td>
<td>106.91</td>
<td>113.16</td>
</tr>
<tr>
<td>Korea, Republic of</td>
<td>68.68</td>
<td>73.03</td>
<td>71.92</td>
<td>77.19</td>
<td>76.40</td>
<td>86.67</td>
<td>82.61</td>
<td>92.02</td>
<td>101.73</td>
<td>100.42</td>
<td>108.06</td>
</tr>
<tr>
<td>Malaysia</td>
<td>62.83</td>
<td>64.97</td>
<td>69.20</td>
<td>81.58</td>
<td>77.60</td>
<td>81.21</td>
<td>88.14</td>
<td>90.96</td>
<td>99.69</td>
<td>98.18</td>
<td>104.02</td>
</tr>
<tr>
<td>United States</td>
<td>83.30</td>
<td>87.62</td>
<td>85.80</td>
<td>83.68</td>
<td>82.45</td>
<td>82.43</td>
<td>83.80</td>
<td>81.63</td>
<td>91.70</td>
<td>92.80</td>
<td>95.09</td>
</tr>
<tr>
<td>Netherlands</td>
<td>78.81</td>
<td>79.95</td>
<td>80.97</td>
<td>84.79</td>
<td>87.57</td>
<td>88.66</td>
<td>89.96</td>
<td>92.10</td>
<td>88.93</td>
<td>87.46</td>
<td>94.15</td>
</tr>
<tr>
<td>Germany</td>
<td>76.59</td>
<td>78.41</td>
<td>80.66</td>
<td>88.95</td>
<td>89.26</td>
<td>84.30</td>
<td>90.88</td>
<td>93.32</td>
<td>90.63</td>
<td>88.61</td>
<td>93.98</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>81.69</td>
<td>79.58</td>
<td>81.53</td>
<td>76.77</td>
<td>77.99</td>
<td>84.82</td>
<td>87.53</td>
<td>87.46</td>
<td>84.00</td>
<td>87.72</td>
<td>87.95</td>
</tr>
<tr>
<td>Belgium</td>
<td>73.16</td>
<td>74.17</td>
<td>76.15</td>
<td>73.93</td>
<td>77.98</td>
<td>82.80</td>
<td>84.00</td>
<td>88.47</td>
<td>78.85</td>
<td>82.21</td>
<td>80.74</td>
</tr>
</tbody>
</table>

Source: UNCTAD
Unique national transport drivers (3)

• All ports have the inherent ability to process all cargoes and house all types of productions.

• ‘Specialties’ of the gateways.
  • Ghent: prime inland barge hub in Europe, bio-industrial activity, etc..
  • Antwerp: break-bulk reputation, container, chemical industry, etc..
  • Ostend: offshore cluster.
  • Zeebrugge: LNG hub, cars, containers, etc..
• Quite a few traders have vertically integrated their activities and became asset-based, even controlling key storage facilities and assets.

• Maritime services which often accompany traders, also generate added value for the port and increase the general competitiveness of other companies using these services.
Attraction of global players

Leader firms

- Leader firms: Companies which generate relatively speaking more added value and more positive effects for surrounding ports.

- The Belgian ports are home to a lot of local companies matching the description of leader firms (cf. dredging, chemical industry, distribution, terminal operations, etc.).
Attraction of global players

- Belgian ports are home to **clusters**
- Examples:
  - Ghent: bio-ethanol and biodiesel production site, making it the number one bio-port of Europe.
  - Antwerp: largest chemical cluster of Europe.
  - Zeebrugge: food industry cluster
  - Ostend: the renewable energy cluster (Cleantech Cluster Ostend).
- Clusters thrive based on:
  - Knowledge development and exchange (innovation!)
  - Input/output relations
  - Common resources (such as inland connections)

Source: Port authority Antwerp
Overall increase of the national competitive position

• All qualitative determinants give rise to **extra strategic value** for the remainder of the Belgian economy.

• **International companies in Belgium** that are not situated within the port areas benefit from the advanced transport, handling, storage and distribution options of Belgian ports to sell their products worldwide.

• **Visibility for Belgian exports and products** is increased adding to the competitiveness for the Belgian economy.
4 | Quantification of strategic value
Three different aspects to quantify economic value:

1. Estimation of qualitative factors.

2. Assessment of the amount of economic activity which is prone to relocation.

3. By losing ports, all the cargo for national consumption or generated by national production has to be imported/exported via other ports.
1. Strategic value according to the Dutch methodology

- Companies outside the ports can create more value added products and services as a result of better connectivity with the global markets. This increase in value added was estimated at 1% by Dutch researchers.

- Application to Belgian port sector for 2012:

<table>
<thead>
<tr>
<th></th>
<th>in million€</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP Belgium 2012</td>
<td>499129</td>
</tr>
<tr>
<td>Total added value ports</td>
<td>29874,7</td>
</tr>
<tr>
<td>Remainder of the economy</td>
<td>469254,3</td>
</tr>
<tr>
<td>Strategic value estimated at 1%</td>
<td>4692,5</td>
</tr>
</tbody>
</table>

- Estimated strategic value of the Belgian ports based on the **added value increase in the remainder of the economy** = **4.7 billion euro**.
2. Links between port actors and their surroundings (1)

- The possibility of relocating part of the Belgian economy revolves around the assumption that **some of the existing activities require a strong link with local ports** and their cargo base to remain competitive.

- First step: identify the biggest domestic clients of the port network.

Source: Own elaboration based on data Federaal Planbureau
2. Links between port actors and their surroundings (2)
2. Strategic value due to possible relocation of activities

(1)

- The port hinterland impact matrix (HPI) represents the type of activities which are most prone to relocate.
- The higher the distance from the port, the lower the need for a port closeby.
- The following distribution was used:

<table>
<thead>
<tr>
<th>Probability of relocation</th>
<th>Port area (&lt;25km)</th>
<th>Distance from the port centers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very strong</td>
<td>75%</td>
<td>25km-50km</td>
</tr>
<tr>
<td>Strong</td>
<td>50%</td>
<td>50-100km</td>
</tr>
<tr>
<td>Medium</td>
<td>5%</td>
<td>&gt;100km</td>
</tr>
<tr>
<td>Low</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distance from the port centers</th>
<th>Maritime cluster Within range: 100%</th>
<th>Transportation and storage Within range: 40%</th>
</tr>
</thead>
<tbody>
<tr>
<td>25km-50km</td>
<td>Transportation and storage Within range: 44%</td>
<td>Transportation and storage Within range: 12%</td>
</tr>
<tr>
<td>50-100km</td>
<td>Manufacturing Within range: 44%</td>
<td>Manufacturing Within range: 18%</td>
</tr>
<tr>
<td>&gt;100km</td>
<td>Manufacturing Within range: 44%</td>
<td>Manufacturing Within range: 4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distance from the port centers</th>
<th>Manufacturing Within range: 44%</th>
</tr>
</thead>
<tbody>
<tr>
<td>25km-50km</td>
<td>Manufacturing Within range: 44%</td>
</tr>
<tr>
<td>50-100km</td>
<td>Manufacturing Within range: 44%</td>
</tr>
<tr>
<td>&gt;100km</td>
<td>Manufacturing Within range: 44%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distance from the port centers</th>
<th>Mining and quarrying Within range: 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>25km-50km</td>
<td>Manufacturing Within range: 10%</td>
</tr>
<tr>
<td>50-100km</td>
<td>Manufacturing Within range: 10%</td>
</tr>
<tr>
<td>&gt;100km</td>
<td>Manufacturing Within range: 10%</td>
</tr>
</tbody>
</table>
2. Strategic value due to possible relocation of activities (2)

- The total strategic value linked to possible relocations is estimated at around 10.5 billion euro.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Total estimated gross added value of sectors</th>
<th>Total estimated % loss</th>
<th>New added value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, forestry and fishing</td>
<td>945,05</td>
<td>3,00%</td>
<td>916,70</td>
</tr>
<tr>
<td>Mining and quarrying</td>
<td>247,19</td>
<td>1,03%</td>
<td>244,63</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>23886,34</td>
<td>24,56%</td>
<td>18019,86</td>
</tr>
<tr>
<td>Electricity production</td>
<td>1795,99</td>
<td>0,00%</td>
<td>1795,99</td>
</tr>
<tr>
<td>Water supply</td>
<td>4059,49</td>
<td>0,00%</td>
<td>4059,49</td>
</tr>
<tr>
<td>Construction</td>
<td>6109,37</td>
<td>0,00%</td>
<td>6109,37</td>
</tr>
<tr>
<td>Wholesale, retail and trade</td>
<td>32241,21</td>
<td>3,95%</td>
<td>30967,69</td>
</tr>
<tr>
<td>Transportation and storage</td>
<td>6226,60</td>
<td>52,75%</td>
<td>2942,07</td>
</tr>
<tr>
<td>Information and communication</td>
<td>7652,08</td>
<td>0,00%</td>
<td>7652,08</td>
</tr>
<tr>
<td>Financial and support activities</td>
<td>8488,85</td>
<td>0,00%</td>
<td>8488,85</td>
</tr>
<tr>
<td>Real estate activities</td>
<td>26208,67</td>
<td>0,00%</td>
<td>26208,67</td>
</tr>
<tr>
<td>Other services</td>
<td>76821,93</td>
<td>0,00%</td>
<td>76821,93</td>
</tr>
<tr>
<td><strong>Total added value of all sectors</strong></td>
<td><strong>194682,75</strong></td>
<td></td>
<td><strong>184227,30</strong></td>
</tr>
<tr>
<td><strong>Total estimated strategic value due to relocation (million euro)</strong></td>
<td><strong>10455,45</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. Estimation of the increase in import/export costs

• Assumptions:
  • If ports were to vanish all port related cargo will have to be imported and exported via neighboring ports,
  • The closest competitor able to handle the volume has been selected;
  • Port dues in neighboring ports will remain constant despite the decline in port competition;
  • Transport cost based on Eurostat and checked with local transporters for cost of shipping.

• Results: increase in import/export costs for cargo now going via:
  • Antwerp
    • Non-containerized import and export cargo: 609.47 million euro
    • Containerized import and export cargo: 854.32 million euro
  • Ghent
    • Non-containerized import and export cargo: 211.59 million euro
    • Containerized import and export cargo: 4.18 million euro
  • Zeebrugge
    • Non-containerized import and export cargo: 125.23 million euro
    • Containerized import and export cargo: 165.33 million euro
  • Ostend
    • Non-containerized import and export cargo: 5.34 million euro

• Total: about 2 billion euro
<table>
<thead>
<tr>
<th>Port</th>
<th>Economic Value</th>
<th>Increase in Cost</th>
<th>Total Economic Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antwerp</td>
<td>€18,825,20</td>
<td>€1,458,70</td>
<td>€20,283,90</td>
</tr>
<tr>
<td>Ghent</td>
<td>€6,262,50</td>
<td>€215,60</td>
<td>€6,478,10</td>
</tr>
<tr>
<td>Zeebrugge</td>
<td>€1,746,20</td>
<td>€290,50</td>
<td>€2,036,70</td>
</tr>
<tr>
<td>Ostend</td>
<td>€963</td>
<td>€5,30</td>
<td>€968,30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>€29,767,00</strong></td>
<td></td>
<td><strong>€44,915,00</strong></td>
</tr>
</tbody>
</table>

60% more than the classic economic impact
5 | Maximizing Strategic Value
• Strategic value approach is a valuable complementary approach to the classic economic impact of seaports

• Strategic value of the Belgian seaports is estimated at **45 billion euro** or 60% more than the classic economic impact
Important role for government and port authorities in enhancing/facilitating strategic value creation through e.g.:

1. Advanced transport network development
2. Strengthening connectivity
3. Maximizing positive modal split potential
4. Enhancing cluster formation (incl. micro-clusters)
5. Build further on the specialties of individual ports without forcing a trend toward hyper-specialisation of ports
6. Preserving and extending the cargo-generating potential of ports
7. Developing attractive value propositions for leader firms, traders and maritime service providers
8. Social/labour climate and competitiveness
9. Availability and cost-efficiency of the energy network
10. Continue to invest in education and training, and R&D/innovation (cf. circular economics)
11. Focus on a further intensification of stakeholder and HR management (visibility to outsiders)
Thank you for your attention!