Port Performance Indicators: Selection and Measurement - PPRISM

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Outline

• Intro
• Why?
• How?
• What’s new?
• What’s the added value?
• What’s next?
Useful info

• Project carried out during 2010-2011
• Leading Partner: European Seaports Organization
• Co-Financed by the European Commission (DG Move)
• Five European Universities actively contributed
• More info: http://pp prism.espo.be
The PPRISM partners

External Stakeholders

ESPO’s Technical Committees

Port Performance Indicators Selection and Measurement

INSTITUTE OF TRANSPORT AND MARITIME MANAGEMENT ANTWERP

Technische Universiteit Eindhoven University of Technology

Vrije Universiteit Brussel

CARDIFF UNIVERSITY

European Commission
Why?
Measuring Performance

- Performance Measurement is common in other industries:
Port performance measurement

- Port sector is vital but largely unknown to Europe
- Port sector is both a dynamic and traditional industry
- Port authorities and terminal operators measure own performance but share very little:
  - For ports only limited information is available:
    - Tonnes of cargo handled
    - Number of passengers
  - Sources: Eurostat, ESPO & UNCTAD
  - No time-series data
- (Public) benchmarking highly controversial
- Very few reliable and comparable indicators at European level
Aims

- Contributes to greater transparency and awareness about the vital role of ports
- Is a first step to a culture of measurement for the European port sector as a whole
Objectives

‘PPRISM aims to identify a key list of sustainable, relevant and feasible indicators to monitor the overall performance of the EU port system and assess its impact on the society, environment and the economy of the EU’

- quantification is possible in time series in the long term
- measurement of the performance on EU level (not on a port level)
- precisely defined and collected in a coherent manner for different seaports
Stakeholder relevance

• For (EU) policy makers: relevant information on the performance of the EU port system.
• For stakeholders of the port industry: indicators that respond to stakeholder concerns (e.g. Environmental performance, safety, employment).
• For the port industry: contribution to quality of port policies and societal acceptance of port activities.
• For port authorities: Next to the above mentioned effects, an opportunity to benchmark against EU average (taking into account port specificity, cf. typology indicator)
How?
5 Categories of Port Performance Indicators (PPIs)

- Dimensions correspond with challenges:
  - Market trends
  - Logistics and operations
  - Socio-economic impact
  - Sustainability
  - Governance

- Interrelated and

- Produce an overall picture of the European Port Sector
Inventory and Selection Process

Continuous modifications, deletions, replacements

Start
- 159
  - Academic Partners & ESPO
  - Filtering procedure

39
- Assessment (1\textsuperscript{st} round)
- Internal Stakeholders

45
- Assessment (2\textsuperscript{nd} round)
- Internal Stakeholders

42
- Multi-Stakeholder response panel assessment (3\textsuperscript{rd} round)
- External Stakeholders

14
- Pilot Survey

Finish

RELEVANT AND FEASIBLE
Pre-Selection of indicators

- 159 port performance indicators selected by academic partners
- Limited down to 39 indicators
- Following a consultation of ESPO and academic partners
- Subject of stakeholders (internal & external) assessment
Evaluation of indicators
(Internal Assessment)

• Evaluate the feasibility and relevance of indicators
• To receive feedback in order:
  - To exclude indicators
  - To modify indicators
  - To replace indicators
  - To introduce new indicators
• The same process followed for all the indicators
• Delphi methodology (2 rounds-Technical Committees)
• Combination of quantitative and qualitative analysis
• Two rounds of evaluation:
  – 45 Indicators (1st phase)
  – 42 Indicators (2nd phase)
Assessment methodology

- To be implemented within observatory; PPRISM identifies conditions for implementation and provides (paths to) solutions and/or ideas to solve the feasibility bottlenecks.

- To be implemented within PPRISM.

- To be implemented within observatory if acceptance increases (e.g., periodical surveys within ESPO).

- No real interest to implement in the near future. If acceptance increases, observatory should look into feasibility.
Output of assessment (1st round)
Top-10 Indicators (1st Assessment)

- Acceptance
- Feasibility
- Environmental Management System
- Maritime Traffic
- Market Share
- Reporting Corporate Responsibility
- Autonomous Management
- Vessel Traffic
- Direct Employment
- Strategic Environmental Aspects
- Concentration Ratio
- Availability of Port Community System

Feasibility vs. Acceptance graph with various indicators plotted.
Top-10 Indicators (2\textsuperscript{nd} Assessment)

- Maritime Traffic
- Ex. of Env. Management Programme
- Ex. of Inventory of significant environmental Aspects
- Ex. of Environmental Policy
- Vessel Size
- Existence of Environmental Report
- Existence of Objectives and Targets
- Ex. of Inventory of legislation
- Concentration Ratio-HHI
Need for external assessment

• Internal assessments of PPIs remain inconclusive
• Further evaluation of the indicators is needed
• From a multi-stakeholder response panel
  – ports,
  – port users
  – governments
  – academics etc.
• Proceeded to an On-line assessment
• Lasted 4 months and anyone could contribute and shape the results
338 valid responses!!!
Top-10 Indicators (3rd Assessment)

- Ex. of an Inventory of Significant Environmental Aspects: 3.88
- Degree of Containerization: 3.88
- Levels of Safety: 3.93
- Direct Employment: 3.93
- Modal Split: 3.93
- Direct Gross Value Added: 3.97
- Vessel Traffic: 3.97
- Ex. of an Environmental Monitoring Programme: 3.98
- Ex. of an Environmental Policy: 3.98
- Maritime Traffic: 4.02

Ex. of an Environmental Monitoring Programme

Ex. of an Environmental Policy

Maritime Traffic
The Pilot Survey

- Internal & external stakeholders assessments
- Provide valuable feedback & generate knowledge
- Yet... do not test PPIs in real life conditions
- Need for a pilot survey
Pilot Survey - Objectives

a) further assess the feasibility of the PPIs in real life conditions,
b) assess the likely success of the proposed PPIs,
c) test whether the PPIs are realistic and workable,
d) identify any problems which may occur during the collection of the data needed for the calculation of the PPIs,
e) determine what resources are needed for the collection of real data in the future, and
f) collect preliminary data.
Port Size

- < 1 million tonnes: 4
- 1 - 10 million tonnes: 19
- 10 - 25 million tonnes: 9
- > 25 million tonnes: 26
What’s new?
Selected indicators?
Market dynamics and logistics performance indicators

- Maritime traffic (throughput)
- Call size of ships
- Maritime connectivity (containers)
- Intermodal connectivity (containers)
- Quality of customs procedures
Environmental & socio-economic performance indicators

- Carbon footprint
- Recycled solid waste
- Water consumption
- Environmental management systems
- Direct (& indirect) employment
- Direct (& indirect) value added
Governance performance indicators

• Autonomous management
• Integration in port cluster
• Reporting on CSR
What’s new?

• Most indicators already in use
• Lack of standardization
• Development of a toolbox:
  – Definition
  – Purpose
  – Unit(s) of measurement
  – Data sources
  – Calculation formula
  – Market segment
  – Interaction with other indicators
  – Geographical scale
  – Modal split
  – Frequency of data
  – Etc.
Remarks

• **Trends** and not absolute values are important!!!
• To calculate the indicators following the exact same procedure by all PAs
• Even if that leads to less informative indicators at the early stages of the project
• Dynamic nature of the **Dashboard**
• Progressively becoming more sophisticated
• When certain standards will be established
Port Performance Dashboard - PPD

• (Virtual) Easy-to-read textual or graphical representation of a limited number of port performance indicators (PPIs).
• Contains summarized data
• Enables users to quickly interpret and understand a snapshot perspective of port sector performance
• Will monitor trends of significant indicators
• Will generate overall view of port sector performance
Port Performance Dashboard - PPD

- Delivers *summarized key information* to large users communities
- Easily adapted to each PA’s needs
- Provides actionable business information
- Clearly linked with the strategy/policy objectives
- Alerts users as to where they are
- In relationship to their objectives
Port Performance Dashboard

• How does it look like?
What’s the added value?

• Market opportunity
• Sustainable development
• Positive Image
• Self improvement
• Liabilities and responsibilities
What’s the added value?

- Port Authorities must demonstrate evidenced-based performance of delivery of expectations from ever-widening range of stakeholders
- Level playing field for implementation
- Tools and methodologies
- Shared costs and experience
What’s the added value?

- Partnership and Network of Research & Development
- Policy to practice
- Tools and methodologies
What’s next?

• Short term:
  – Create a culture of performance measurement
  – Getting the indicators right (learning process with stakeholders)
  – Design the organizational structure behind the dashboard

• Medium to long term:
  – Analyse and understand port system performance indicators linkages with policy, socio-economic and technological development
  – Support tool for decision-making and evaluation in the EU port industry
What’s next?

• European Port Observatory (EPO):
  1. A port sector performance dashboard
  2. A service-support asset for Port Authorities
  3. An R&D capability for the sector as a whole in the five fields identified.

• Online Dashboard to be available as of 2014

• Submission of a new proposal (FP7) – More partners, also from outside Europe, more sophisticated indicators
Thank you!

More Info: http://pp prism.espo.be

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