

Multi-year Expert Meeting
on Transport, Trade Logistics and Trade
Facilitation:

**Trade Logistics and the 2030 Agenda for
Sustainable Development**

23-24 October 2017

by

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Vrije University
Brussels

24 October 2017



SAVE THE DATE!
PORTOPIA FINAL EVENT
9 NOVEMBER 2017 - BRUSSELS

<https://www.facebook.com/portopia/>

Ports Observatory for Performance Indicator Analysis

October 24th 2017

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Administrative and Scientific Coordinator

Presentation to UNCTAD - Multi-year Expert Meeting on Transport, Trade Logistics and Trade Facilitation, fifth session




PORTOPIA
Mission Statement

PORTOPIA will deliver a sustainable, self-supporting European Port Performance Management Toolkit, validated and endorsed by port industry stakeholders, that provides added value to the industry and its stakeholders by supplying transparent, useful and robust indicators and the contextual analysis thereof, leading to improved resource efficiency, effectiveness and societal support for the European Port System

12 partners, of which 10 universities and research institutes, one major trade association, and a technology company

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PORTOPIA
History



- Where does it come from?
1997, 2001, 2006, 2007, 2009, 2012, 2013, 2017
- Where are we now (1 month from the end)
- Where are we going?

(Where it really started: pprism.espo.be)


Challenge: turn a negative past/start into a positive future

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2010 – 2012: pprism.espo.be



European Port Performance Dashboard

Port authorities and port stakeholders take pride in the important contribution they make to European ports and wish to be recognised for the quality of their work. The EPPD aims to create a common and publicly accessible platform for the comparison of European port performance. It also provides the development of European cooperation in the sector. EPPD provides a means to demonstrate the performance of the sector in terms of addressing the expectations of a more extensive range of stakeholders who seek evidence of achievement.

EPPD has taken a first step in establishing a culture of performance measurement in European ports with the help of PPRISM. PPRISM (Port Performance Indicator System and Measurement) is based on the European Commission's best practice indicators that form the basis of the first European Port Performance Dashboard.

EPPD and stakeholders will provide further support efforts of its members related to data. The European Commission is invited for its continuing cooperation and financial support.

How can port authorities contribute?

Port authorities can contribute directly by participating in the next round of data collection and by providing information to the data collection team.

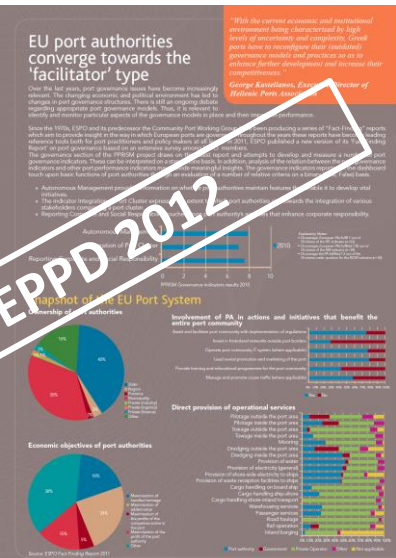
Effective and informed representation of the sector of all kinds requires credible means of performance based on a wide range of essential data. EPPD continues to progress, improve and support the culture of measuring and reporting of the port sector's performance.

Benefits of participation to the port authority:

- Gain recognition as being committed to the development of the port sector.
- Benchmarking and the dashboard is a key reporting tool.
- PPRISM EPPD is contributing to EPPD activities, offering own stakeholder programs and self-the dashboard.
- The dashboard is a key reporting tool for the port authority.

Case studies

The dashboard is a key reporting tool for the port authority.



EU port authorities converge towards the 'facilitator' type

Over the last years, port governance issues have become increasingly relevant. The European Commission and PPRISM management has been studying different governance models. This is a strategic approach to identify the most suitable model for the port sector.

Since the 1980s, EPPD and its predecessor the Community Port Working Group have been producing a series of "Port Performance Reports" which have become a key reference for the port sector. In 2011, EPPD published a new version of its "Working Paper on Port Governance" based on an extensive survey of port authorities.

The governance section of the PPRISM project aims to identify the most suitable model for the port sector. This is a strategic approach to identify the most suitable model for the port sector. The governance section of the PPRISM project aims to identify the most suitable model for the port sector.

Automatic Management System (AMS)

The indicator management system (AMS) is a key reporting tool for the port authority. It allows the port authority to monitor and report on its performance in real-time.

Map of the EU Port System


Investment of PA in actions and initiatives that benefit the wider port community


Port Authority	Investment	Percentage
Port of Antwerp	€100 million	10%
Port of Rotterdam	€200 million	20%
Port of Valencia	€150 million	15%
Port of Barcelona	€120 million	12%
Port of Hamburg	€80 million	8%
Port of London	€60 million	6%
Port of Liverpool	€40 million	4%
Port of Southampton	€30 million	3%
Port of Felixstowe	€20 million	2%
Port of Felixstowe	€10 million	1%
Port of Felixstowe	€5 million	0.5%
Port of Felixstowe	€2 million	0.2%
Port of Felixstowe	€1 million	0.1%

Economic objectives of port authorities

Objective	Percentage
Improving port efficiency	35%
Increasing port capacity	25%
Reducing port emissions	15%
Improving port safety	10%
Increasing port revenue	5%
Improving port infrastructure	5%
Improving port services	5%
Improving port security	5%


Extract of the EPPD 2012

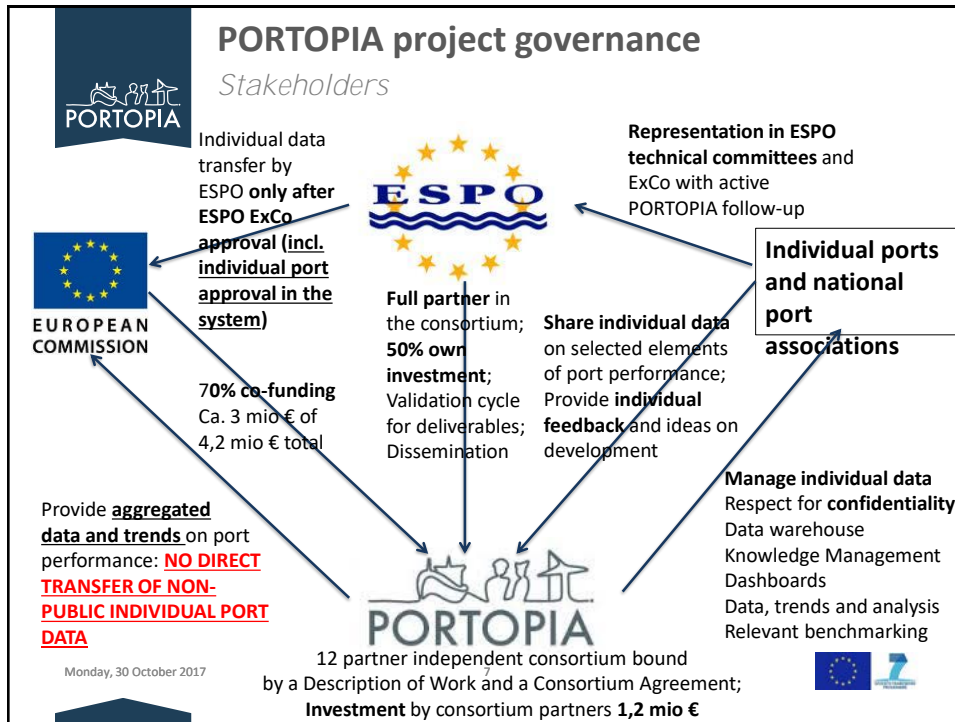
 PORTOPIA: 10 Strategic Objectives	
Strategic Objective	Description
1	Identify <i>extensions and elaborations of currently used indicators</i> within various existing / completed / ongoing projects and initiatives
2	<i>Integrate inland ports</i> in the observatory
3	<i>Develop a benchmarking tool</i> that allows <i>individual ports</i> to compare their activities and operations <i>with the EU average</i> and with ports in other important regions like Asia and the Americas <i>in a meaningful way</i>
4	<i>Ensure a balanced representation of ports</i> and port actors across the EU and relevant neighbouring countries (e.g. Mediterranean Partner Countries)
5	<i>Develop an approach to collect data from the whole port community</i> : this entails the implementation of appropriate mechanisms to collect, manage and distribute the data on a long term and to show trends over a substantial timeline

 PORTOPIA: 10 Strategic Objectives	
Strategic Objective	Description
6	<i>Implement a user-friendly interface</i>
7	<i>Determine appropriate weighting and aggregation levels</i> leading to comprehensiveness and meaningfulness of port system indicators
8	<i>Develop a knowledge and management tool</i> for monitoring the efficiency and performance of sea and inland ports
9	<i>Ensure stakeholder confidentiality</i> of data management
10	<i>Develop and implement a business case for a European Port Observatory (EPO)</i> to ensure sustainable continuity (long term data monitoring and trends)

Source: PORTOPIA consortium (2012), reinterpretation of the call text

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- ## PORTOPIA
- Indicators: Market Trends and Structure*
- Market tendencies: Rapid Exchange System Dashboard (based on quarterly traffic data supplied by port authorities)
 - Average Call Size
 - Average Vessel Size
 - Traffic growth
 - Market Share
 - Transshipment incidence / intra-European traffic dependency
 - Modal Split
 - Forecasting module
 - Short and mid-term market expectations
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PORTOPIA Service Cloud
The desktop overview

<https://www.youtube.com/watch?v=1kidWtgG634&t=97s>

ADMINISTRATION DATA COLLECTION DATA ANALYSIS DASHBOARD REPORTING

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DATA ANALYSIS MODULE
Market Trends & Structure Indicator's Analysis

Dimensions

- 01 Geographical Region
- 02 Infrastructure - TEN-T
- 03 Legal Status and Port Operator
- 04 Main Commercial Activities and Cargo handling
- 05 Port Authority
- 06 Port Business
- 07 Port Location and Port Area
- 08 Services
- 09 Time
- 10 JAK
- 11 Year

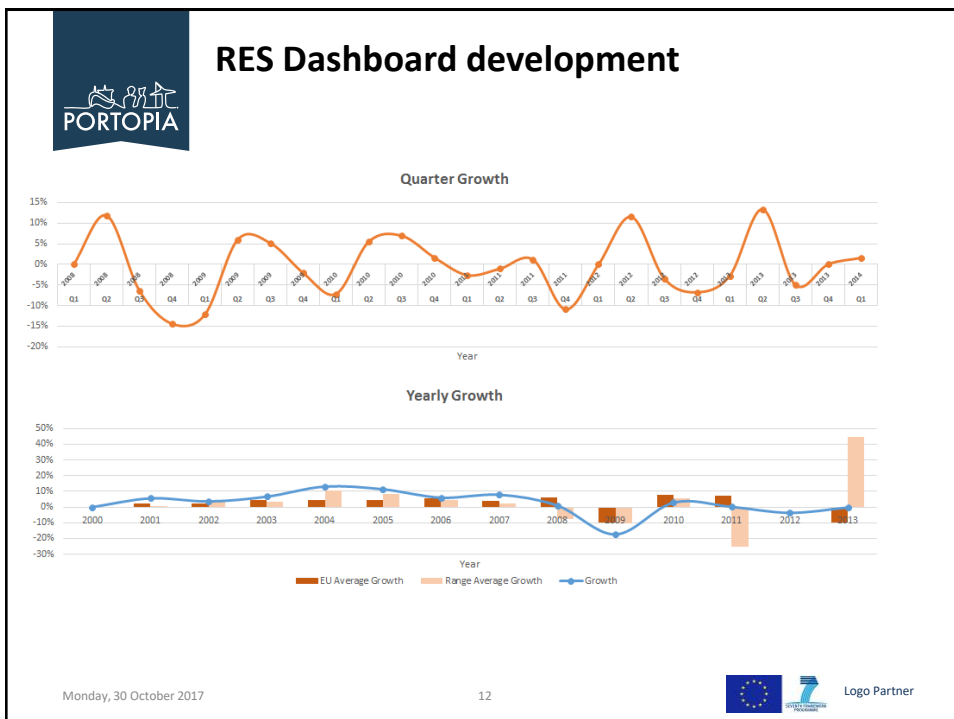
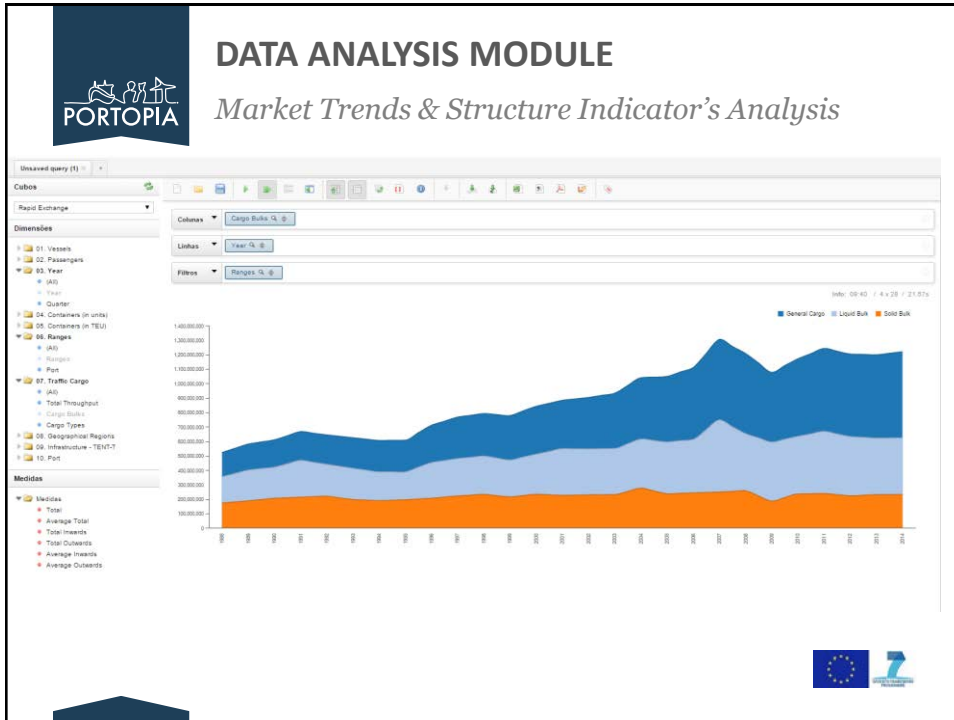
Measures

- 1 Maritime Traffic (Total cargo throughput)
- 2 Maritime Traffic (Conventional general cargo traffic)
- 3 Maritime Traffic (RoRo traffic)
- 4 Maritime Traffic (Containerized cargo traffic)
- 5 Maritime Traffic (Liquid bulk traffic)
- 6 Maritime Traffic (Dry bulk traffic)
- 7 Car-Bike (Total cargo throughput)
- 8 Car-Bike (Conventional general cargo traffic)
- 9 Car-Bike (RoRo traffic)
- 10 Car-Bike (Containerized cargo traffic)
- 11 Car-Bike (Liquid bulk traffic)
- 12 Car-Bike (Dry bulk traffic)
- 13 Car-Bike (Passenger traffic)

Columns: Maritime Traffic (Total cargo throughput), Maritime Traffic (Conventional general cargo traffic), Maritime Traffic (RoRo traffic), Maritime Traffic (Containerized cargo traffic), Maritime Traffic (Liquid bulk traffic), Maritime Traffic (Dry bulk traffic)

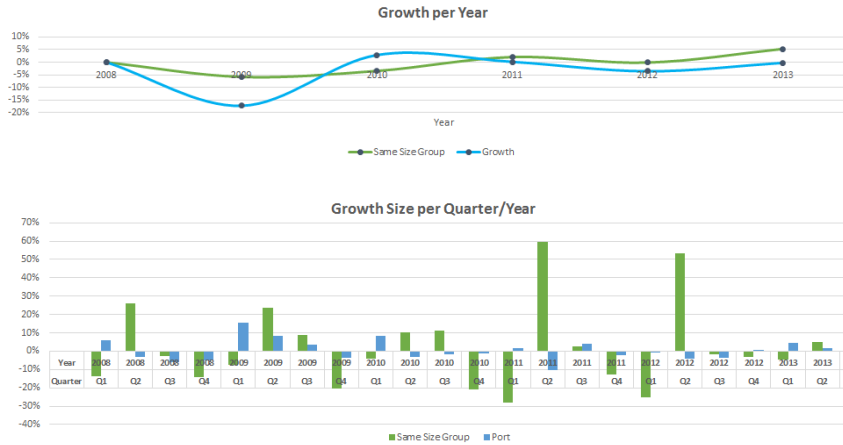
Filter: Year

1970 2010 2015 2020





RES Dashboard development

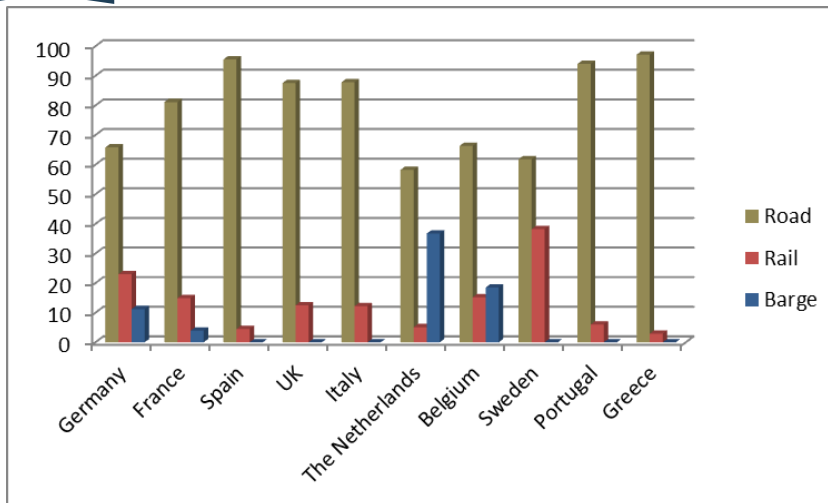


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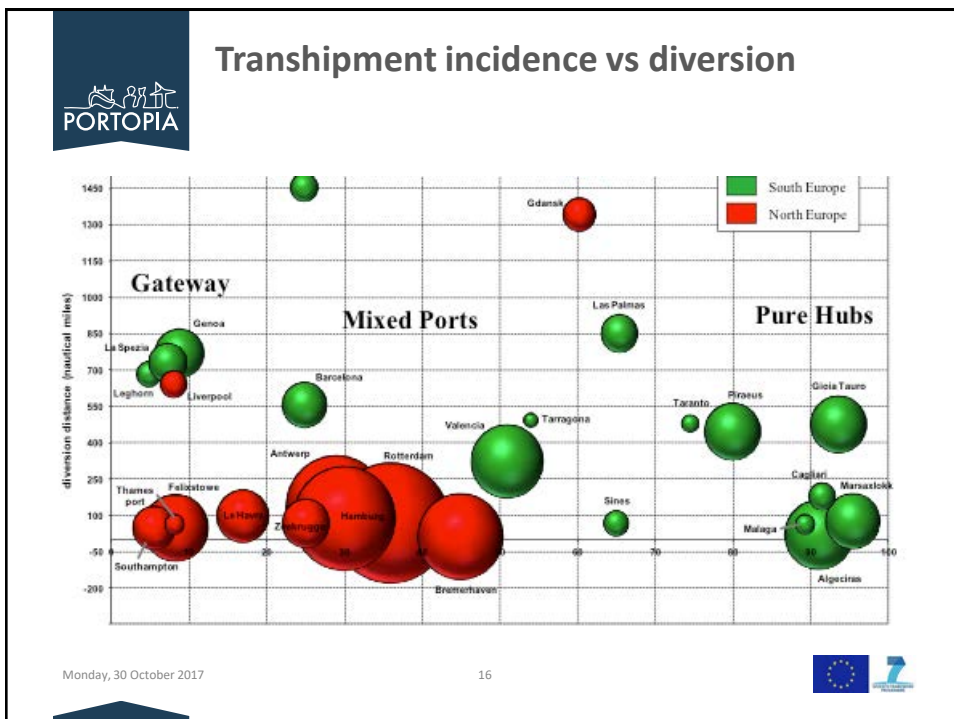
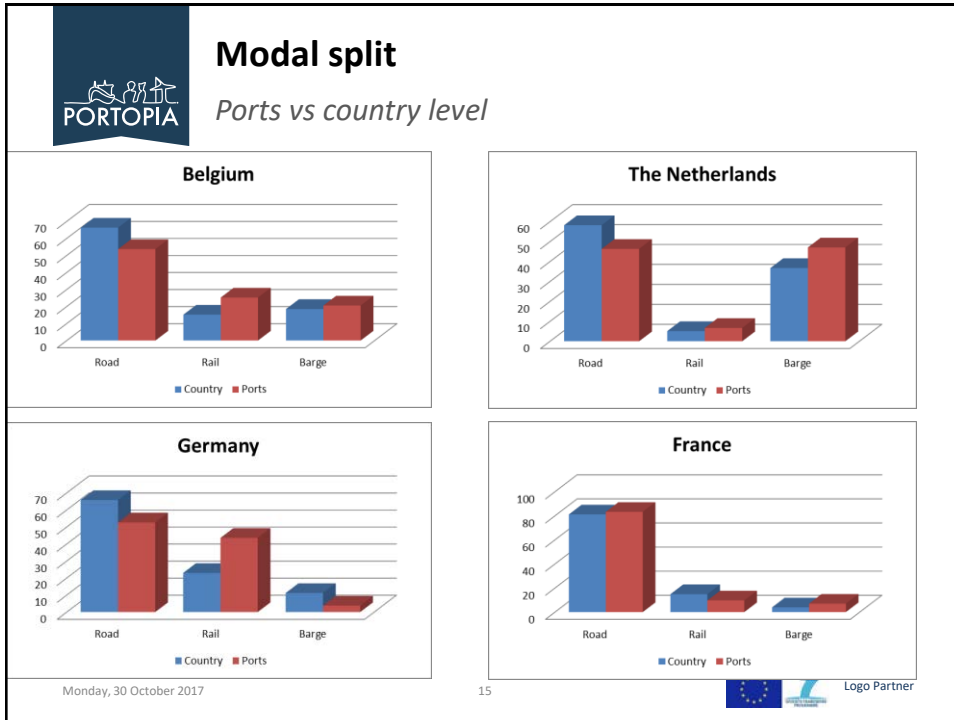
Modal Split




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Indicators: Socio-Economic Indicators

- Direct and indirect Employment (in FTE)
- Direct and indirect Gross Added Value (in €)
- Flowback to Treasury (in €)
- Private Investment (in €)
- Other indicators:
 - Hrs of Training per FTE
 - Gender (% of women)

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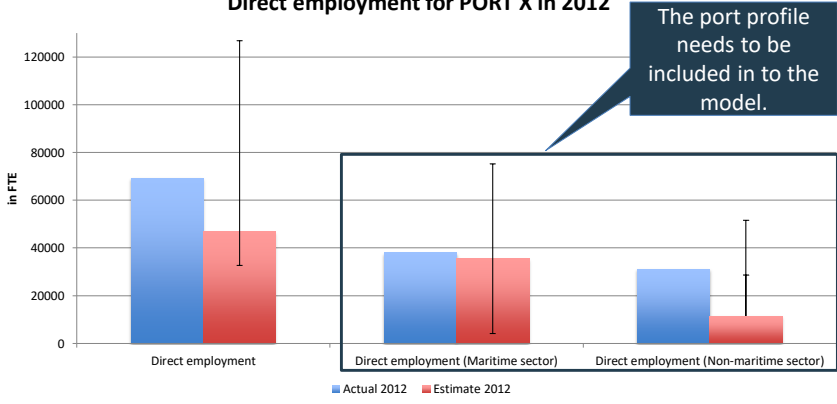


Applications

Estimates at the port level

Results - Direct employment (example)

Direct employment for PORT X in 2012




The port profile needs to be included in to the model.

Category	Actual 2012 (FTE)	Estimate 2012 (FTE)
Direct employment	~70,000	~48,000
Direct employment (Maritime sector)	~38,000	~35,000
Direct employment (Non-maritime sector)	~32,000	~12,000

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Indicators: Environment, Security and Health & Occupational Safety

- Dashboards based on ECOPORTS self-diagnosis method (environmental management index)
- CO2 footprint
- Water quality
- Waste production
- Nautical accidents
- Port security incidents
- Fatal accidents, work-related accidents, lost workdays
- Investments in protection

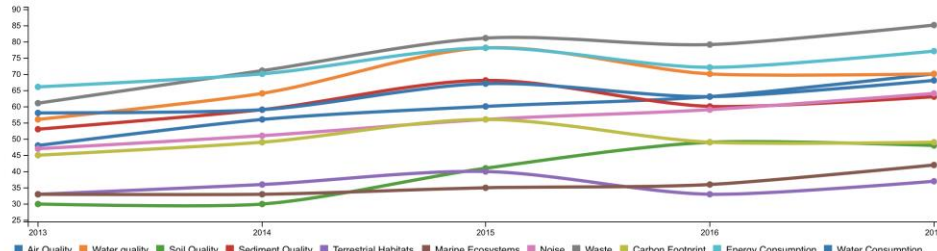
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Dashboard development

Environmental Management Indicators

ENVIRONMENTAL MONITORING INDICATORS



Indicator	2013	2014	2015	2016	2017
Air Quality	65	68	78	75	78
Water quality	60	65	75	70	72
Soil Quality	30	30	40	48	48
Sediment Quality	55	60	68	60	65
Terrestrial Habitats	35	35	40	32	38
Marine Ecosystems	32	32	35	35	42
Noise	50	50	58	60	65
Waste	55	55	60	60	65
Carbon Footprint	45	48	55	48	48
Energy Consumption	65	70	78	70	75
Water Consumption	60	60	60	65	68

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Logo Partner



Environmental priorities in ports

	1996	2004	2009	2013	2016
1	Port Development (water)	Garbage / Port waste	Noise	Air quality	Air quality
2	Water quality	Dredging: operations	Air quality	Garbage/ Port waste	Energy Consumption
3	Dredging disposal	Dredging disposal	Garbage / Port waste	Energy Consumption	Noise
4	Dredging: operations	Dust	Dredging: operations	Noise	Relationship with local community
5	Dust	Noise	Dredging: disposal	Ship waste	Garbage/ Port waste
6	Port Development (land)	Air quality	Relationship with local community	Relationship with local community	Ship waste
7	Contaminated land	Hazardous cargo	Energy consumption	Dredging: operations	Port development (land related)
8	Habitat loss / degradation	Bunkering	Dust	Dust	Water quality
9	Traffic volume	Port Development (land)	Port Development (water)	Port development (land)	Dust
10	Industrial effluent	Ship discharge (bilge)	Port Development (land)	Water quality	Dredging: operations

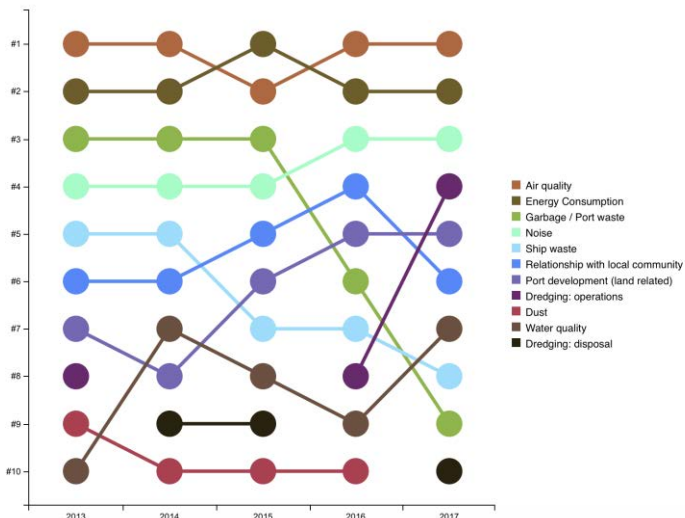
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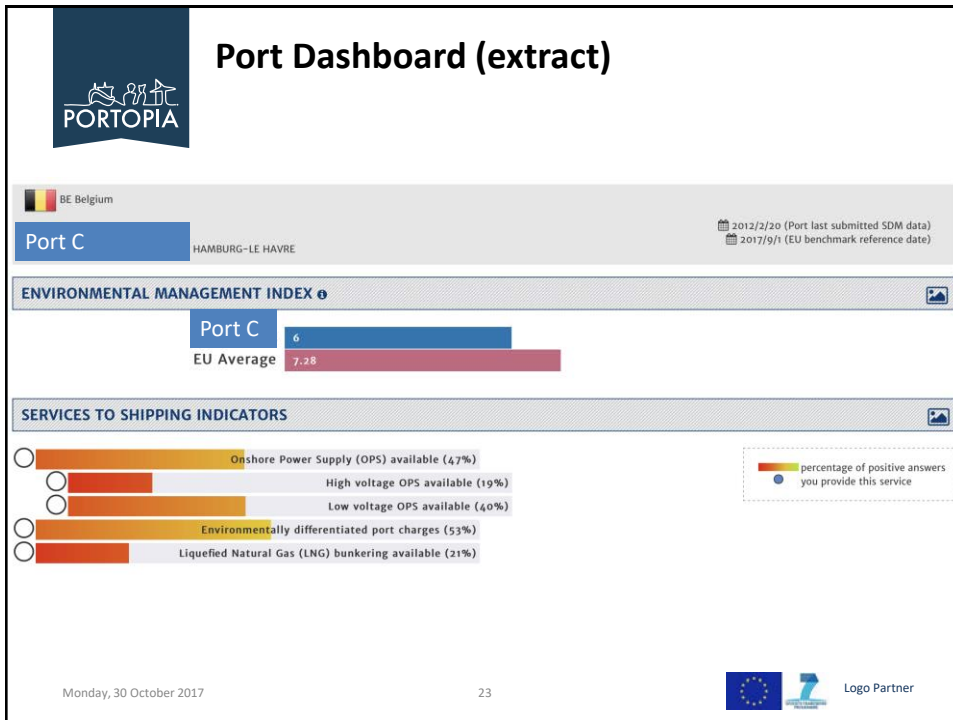


Environmental priorities in ports

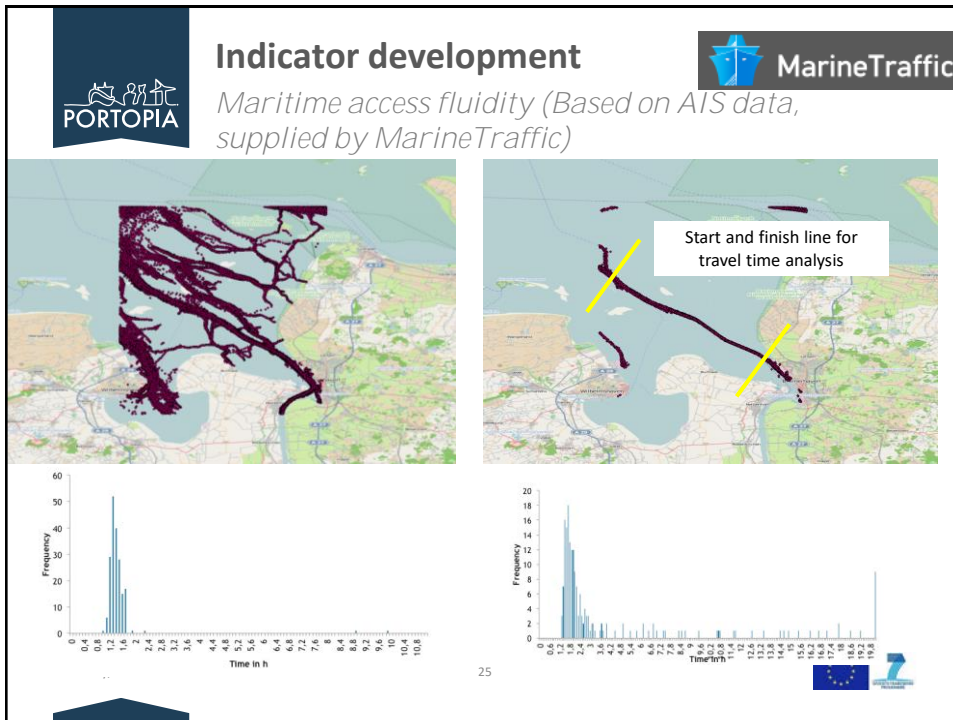
TOP 10 ENVIRONMENTAL PRIORITIES




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- PORTOPIA**
Indicators: Logistic Chain and Operational Performance
- Intermodal connectivity index
 - Maritime connectivity index
 - Ro-ro connectivity index
 - Maritime Access Fluidity
 - Road congestion (TomTom partnership)
 - Supply chain cost indicators
 - Terminal productivity (aggregated level)
 - Others: Mean Time Customs Clearance
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Indicators: Governance

- Based on ESPO's fact finding study
- 5-yearly study on port governance
- PORTOPIA digitalizes and dynamizes the exercise, allowing permanent updating and generating snapshots of the EU port system, with links to policy issues

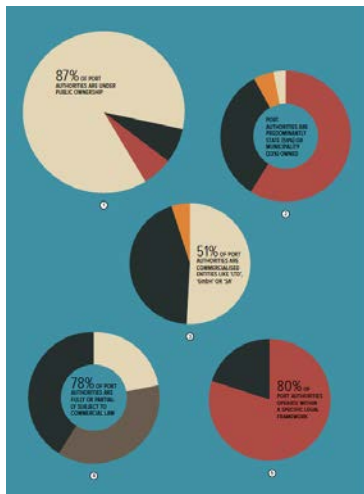
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Governance indicators



OWNERSHIP OF PORT AUTHORITIES
 87% of port authorities are under public ownership
 13% are under private ownership

OWNERSHIP OF PORT AUTHORITIES
 51% of port authorities are commercial entities
 49% are not

OWNERSHIP OF PORT AUTHORITIES
 78% of port authorities are fully or partially subject to commercial law
 22% are not

OWNERSHIP OF PORT AUTHORITIES
 80% of port authorities are subject to a specific law
 20% are not

THE HYBRID NATURE OF PORT AUTHORITIES

Supports remain under public ownership
 In most, most port authorities in Europe remain publicly owned. Full ownership by the state or by the municipality remains predominant. Only very few port authorities consider ownership of different government levels, state-municipality-private ownership. Mixed public-private ownership is still very rare and exists only in a few countries. In these cases, the public sector owns the majority of shares and private shareholders participate in sector-related. Port authorities listed in the stock exchange remain the exception in size. Full private ownership, where the port authority is fully owned by one or more private parties, is characteristic of some ports in the US. There are no other fully private ports from other countries in the sample of independent ports.

But are moving towards more independent private-law organisations
 Compared to most, more port authorities are structured as independent commercial entities (such as limited liability companies, public limited companies, AB, Aktiefond, Spolka Akcyjna, etc.) and operate in a commercially oriented manner in other countries for parts of the respondents. Most, such as port authorities are still independent public bodies with their own legal personality and different degree of financial and financial dependency from the public administration.

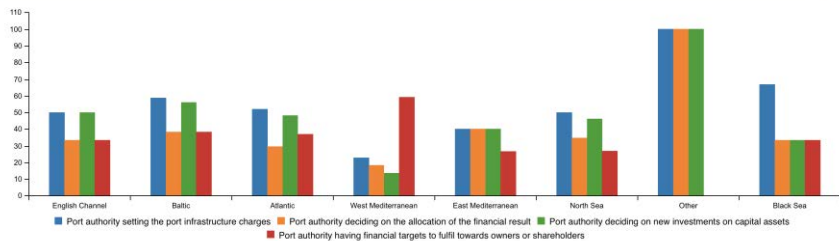
Port authorities by legal form
 1. Public limited company
 2. Limited liability company
 3. Public limited company
 4. Public limited company
 5. Public limited company
 6. Public limited company
 7. Public limited company
 8. Public limited company
 9. Public limited company
 10. Public limited company

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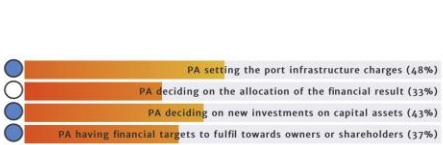
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FINANCIAL AUTONOMY OF PORT AUTHORITIES



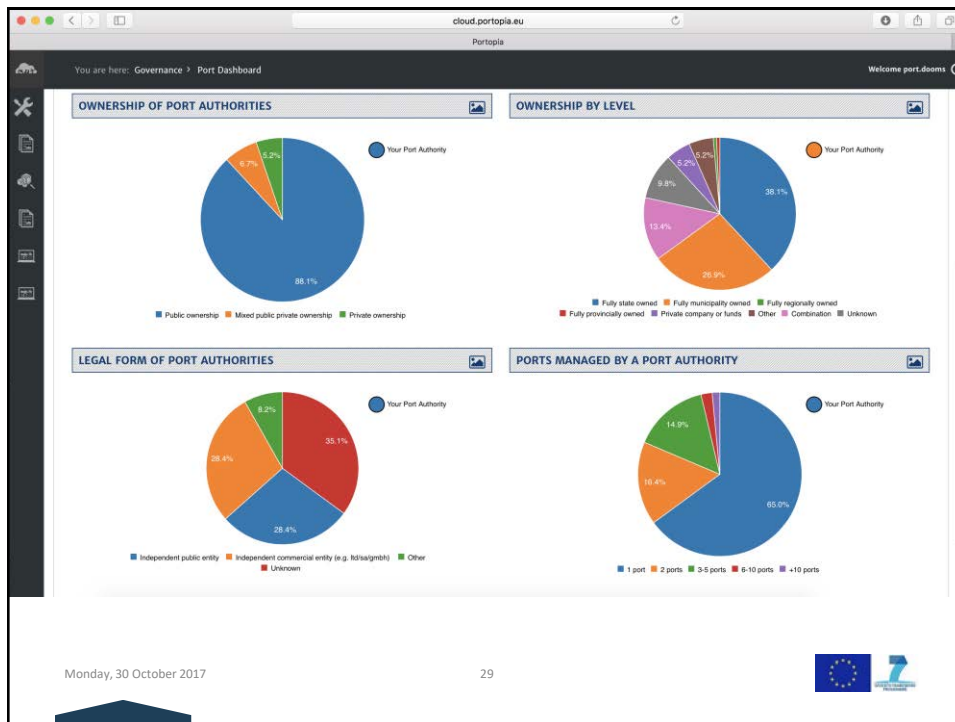
FINANCIAL AUTONOMY OF PORT AUTHORITIES




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Indicators: User Perceptions of Port Performance

- Development of an ICT tool to measure the user perceptions on port performance (= effectiveness of service delivery / **user satisfaction**)
- Port-centric approach
 - Tool can be customized (not all criteria are important for each port cf. diversity of ports) – markets, port components.
 - Ports submit the survey to their users (shippers, shipping lines, forwarders, other service providers)
- PORTOPIA provides the technological solution, scientific quality assurance and basic analytical tool
- Initially based on the CSI initiative of the AAPA, but modified and tailored to European needs

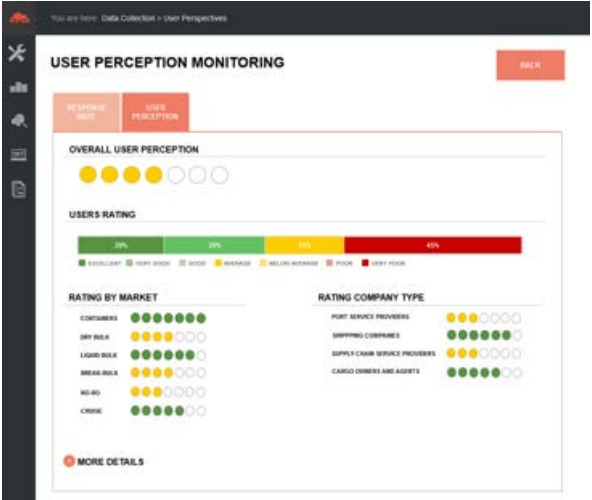
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User perceptions monitoring



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Main challenge of PORTOPIA

Develop, and sell (cfr. future revenue base, self-supportiveness...) something that potential contributors / early adopters do not want or need... (or say/think they do not want or need)

This is extremely difficult...

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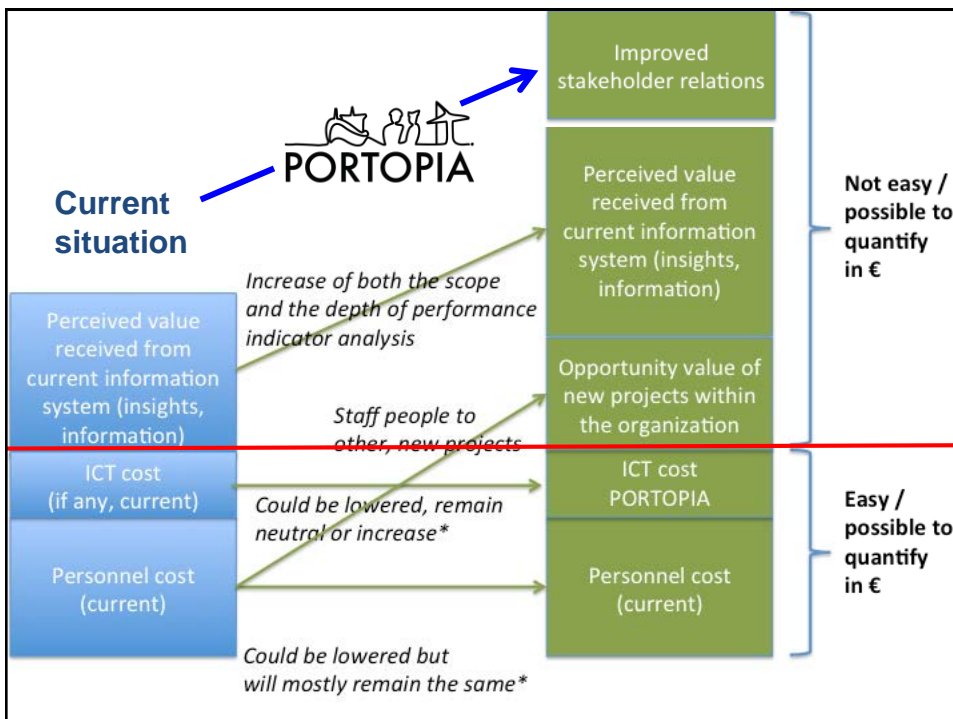


Market Understanding that Mirrors how Customers Experience Life



“The customer rarely buys what the company thinks it is selling him”

- Peter Drucker





Main conditions

1. Given that in this first phase, data acquisition is primarily oriented at **port authorities as suppliers and adopters** (so as resource contributors), **any development needs to bring clear value to these contributors first**. This creates challenges in terms of the revenue model if the future organization needs to generate its own resources (cfr. “self-supporting”).
2. There needs to be a **strong climate of trust between the stakeholders** (i.e. which kind of access for which stakeholders, which implications) on a high level. Given the “history”, this is not an easy task and needs careful communication.
 - Cfr representative of an important port during a PORTOPIA workshop, end of april 2015): ***“we did not want this PORTOPIA project, the European Commission enforced it upon us. That is exactly why we as port authorities should not contribute to the future resource base of the system, but the European Commission should instead”***.
 - This after more than 5 years of joint work (PPRISM – PORTOPIA)!

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PORTOPIA

quotes

“You can't do transparency halfway. It takes people and it takes strategy. This is not a quick fix.”

“If you are gonna be naked, you better look attractive”

“PORTOPIA will allow ports to look in the mirror and see how they perform compared to meaningful averages and best practices, but within the confines of their own bathroom”

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Challenges and risks

- Interaction academics / industry within a business intelligence project
 - Different profiles who do not understand each other interact to implement the project
 - Need for “translators” who can bridge data, analytics and business decision making: data strategists, data scientists and analytic consultants
 - Understanding transaction costs when implementing an indicator: acceptability also means a cost-efficient way to collect data
 - One by one indicator approach is difficult: **create integrated dashboards**
- Stakeholder management issues
 - Gain and maintain the trust of both industry and policy (government) stakeholders
 - Often divergent objectives and attitudes, even within the industry!
 - Data confidentiality issues (trust in the partnership)
 - Dealing with uncertainty: entrepreneurial aspects of the project not in line with main institutional logic of most port authorities or representative bodies (npo)
 - Implementation rhythm: take into account restricted absorptive capacity of stakeholders
 - Change management: cfr. changes in RES system (make the case for change)

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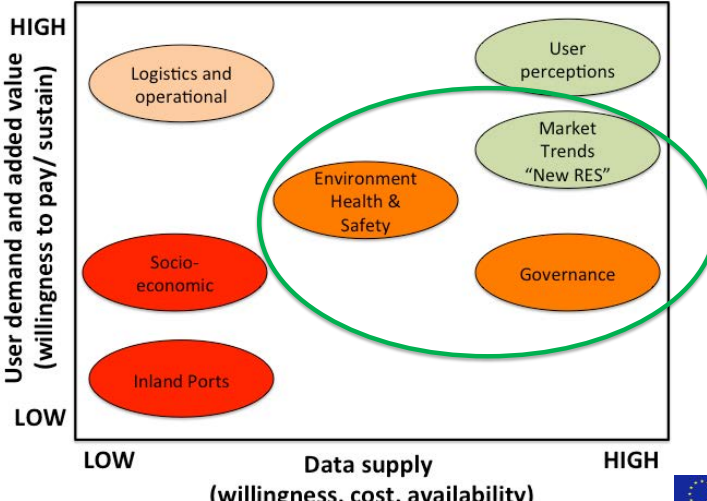
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Vision of the future


Need to prioritize technological development towards PORTOPIA survival



The diagram is a 2x2 matrix. The vertical axis is labeled 'User demand and added value (willingness to pay/ sustain)' with 'HIGH' at the top and 'LOW' at the bottom. The horizontal axis is labeled 'Data supply (willingness, cost, availability)' with 'LOW' on the left and 'HIGH' on the right. A green circle highlights the 'Environment Health & Safety' and 'Market Trends "New RES"' bubbles.

User demand and added value	LOW Data supply	HIGH Data supply
HIGH	Logistics and operational	User perceptions, Market Trends "New RES"
LOW	Socio-economic, Inland Ports	Environment Health & Safety, Governance

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Governance / organization is crucial

- Direct link to cost/revenue model
- Direct link to power relations between stakeholders (contributors of resources)
 - Data (port authorities, external sources)
 - Intellectual knowledge (academics, industry)
 - Technology provider
 - => All three components are needed to deliver value (time/efficiency/cost)
 - => Revenue in first stage primarily from one of the resource contributors.

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Way forward (1)

- Favorable decision of ESPO Exec. Comm. to continue the “core” activity (traffics, environmental management, governance)
- Transfer to new technology partners
- Offer the platform to other (non-EU) users
- Start small and focused (!?): create a global database of quarterly port traffic, bottom-up...
- Seek network externalities and coalition building – share traffic data with other partners to develop new intelligence/insights

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Way forward (2)

- New project ideas revolve around:
 - Sustainability reporting for ports (IAPH/PIANC WG 174): guidelines and support
 - Measurement of social license to operate (SLO)
 - Integrated maritime logistics corridor dashboards integrating data from PORTOPIA, connectivity; fluidity and costs (*“a fluid maritime logistics chain is a green logistics chain”*).
 - Involving all modes (road, rail, IWW)

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