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DOCKSTHEFUTURE defining the concept of "Port of the Future"

Major Project Outcomes COREALIS Final Conference

23rd April 2021





Docks the Future Main Outcomes

Docks the Future Tools and Training Packages

- □ KPI and Project Common Index (PCI) Tool
- □ Transferability Analysis (TA) Tool
- Decision Support System (DSS) Tool

Docks the Future Network of Excellence





The methodological frame



Document analysis (past/ongoing port projects)

Docks the Future Main Outcomes

Project Common Index (PCI) Tool





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Performance indicators

5 WPSP areas

Aggregated Key Performance Indicators (KPIs)

17 high-level strategic objectives

Key Performance Indicators (KPIs)

50+ tactical objectives

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Performance Indicators (PIs)







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WPSP areas	high-level strategic objectives
Climate and Energy	Combat global warming (SDG 13)
Clim	Save natural resources (SDG 12)
each ogue	Inclusive cities (SDG 11.3.2)
Community outreach and port-city dialogue	Land consumption (SDG 11.3.1)
munit oort-ci	Improve environmental quality (SDG 11.6)
Com and p	Good jobs (SDG 8.5)
pu	Transparency (SDG 16.6)
	Gender equality (SDG 5.5)
Governance and Ethics	Equal opportunity (SDG 10.3)
Ievel	Restrict corruption (SDG 16.5)
Go	Green governance (SDG 15.9)
tture	Economic growth (SDG 8.1)
Resilient Infrastructure	Higher productivity (SDG 8.2)
Re	Resilient infrastructure (SDG 9.1)
=	Account for resilience (SDG 13.2)
iety nd urity	Reduce crime (SDG 16.1)
Safer and Secur	Safe working conditions (SDG 8.8)

High-level strategic objectives:

- Actual ("underlying") objectives
- Cover directly or indirectly all major objectives for port projects





Project "Aggregated KPI" profile

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 KPI profile shows main impact and side impacts of a project

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Decision Support System (DSS) Tool





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DSS Objectives

The DSS is a valuable tool for understanding which measures, projects and initiatives need to be pursued in order to achieve ports' high level strategic objectives

- To help in selecting the "right" *initiatives* to achieve a series of Strategic Objectives chosen by the *user*
- To support complex decision-making processes in which there is a multi-objective function





What is it?

 The DtF DSS is an excel based decision support system allowing decision makers to find the best suitable solution, based on past experience, for achieving port related strategic objectives







A potential problem scenario

AAG SAYS: NO TO GAS TERMINALS

MLADI

We might look at ways to reduce emissions..

E.g., by

promoting

alternative fuels

.but as demonstrated by relevant protests, this might increase conflicts with local communities.. ..but at the same time we might want to reduce port activities' negative impacts on local community!





DSS Interface

Sorted Projects

	>>>	
DOC	KSTHEFUTURE	
Selec	t First Strategic Objective	Score
To deploy alternative transp	ort fuels	5
Select	Second Strategic Objective	Score
To strengthen city-port relat	tions	0
	Third Strategic Objective	Score
To encourage port project fi	nancing and investments	0
	-	
SO->MS EXPAND MEASURE	BASIC HELP • Select up to three SO and the relevant imp score) • Press MS-SO to get list of the masures sorted from the most appropriate appropriate	, ranked and
EXPAND PROJECT	 Select a measure and press EXPAND ME/ the list of projects and initiatives that d selected measure (measures in Italic are n in the considered initiatives/project) 	eveloped the
RESET	Select a project/initiative and press EXPA to get the details of the selected project Press RESET to clean the settings and default condition An ERROR message is prompted if a prope not made Note: some SO might not be addressed by any MS in the	restore the er selection is

Basic interface: Select Strategic Objectives

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ANKING SCORE	LIST OF MEASURES	CATEGORY
10	MS0440: LNG bunkering, supply and distribution chain	Environment
8.6	MS0020: Alternative fuels	Environment
5.4	MS0550: Optimise renewable energy use including smart grids	Energy
3.7	MS1230: Green procurement	Admin
3.5	MS1041: Energy saving	Energy
3.2	MS0191: Electric terminal and transport equipment	Energy
2.1	MS1210: Port promotion port authority to business	Admin
2.1	MS0520: On shore power supply	Energy
1.9	MS0950: Wind energy systems	Energy
1.9	MS0420: Knowledge networks (creation of, investment in)	Admin
1.9	MS1240: Waste management plan	Admin
1.9	MS0210: Energy Efficiency Design Index (EEDI) and Ship Energy Efficiency Management Plan (SEEMP)	Energy
1.7	MS0190: Electrical charging stations in the ports	Energy
1.6	MS0690: Safety training	Admin
1.6	MS0920: Waste water reception facilities	Environment
1.6	MS0260: Fuel types (new)	Environment
1.5	MS0470: Methanol	Environment
0.6	MS0860: Training schemes	Admin
0.5	MS0220: Environmental compensation measures	Environment
0.4	MS1220: Port- city dialogue	Admin
0.4	MS0461: Spatial harbour planning	Admin
0.3	MS1030: Noise level maps	Environment
0.3	MS0070: Cargo logistics system in urban areas	Operation
0.2	MS0380: Information sharing platforms	ICT
0.2	MS0090: Collaborative network of ICT platforms	ICT
0.2	MS0570: Port Collaborative Decision Making	Operation
0.2	MS0820: Technological innovations: scanners, weighbridges, tracking technology, sensors	ICT

RANKING SCORE	PROJECT or INITIALIVE TAHT DEVELOPED THE I	
		Environment
10	Technical Study and Cost-Benefit Analysis for the Development of LNG as a Marine Fuel in Malta	PROJECT
6	cHAMeleon	PROJECT
5.4	POSEIDON MED	PROJECT
4.5	GoLNG	PROJECT
4.2	Blue Baltics LNG infrastructure facility deployment in the Baltic Sea Region	PROJECT
3.7	Go4Synergy	PROJECT
2.8	GAINN4MOS	PROJECT
1.9	The small-scale LNG Reloading Terminal in Gdansk and bunkering services	PROJECT
1.1	Directive 2014/94/EU	INITIATIVE
Description: This Action "Tech optimal infrastruc F and TEN-E prior Common Interest	europa.eu/project/technical-study-and-cost-benefit-analysis development-log-manne-fuel-maita nical Study and Cost. Benefit Analysis for the Development of LNG as a Marine Fuel in Mařa" aims at as true solutions for the development of maritime. ILX bonkering in Maîta. The proposed Action contribu- time solutions for the development of maritime (LNG bonkering in Maîta. The proposed Action contribu- tion and to the development of maritime (LNG bonkering in Maîta. The proposed Action contribu- tion and the development of maritime (LNG bonkering in Maîta. The proposed Action contribu- tion and the development of the solution of the sol	tes to the TEN oject of sport the

Suggested measures to investigate

Projects details





PROJECT

DSS Interface

Sorted Projects

DOC	>>> KSTHERIMIRE	WINKING SCORE
MS0020: Alternative fuels	Select First Measure	10 T 4.5 T 2.9 T
MS0630: RIS	Select Second Measure	0.5 T
None	Select Third Measure	Stra
MS->SO	BASIC HELP → Select up to three Measures → Press MS>SO to get the list of SOs addressed by the	can
EXPAND SO	selected measures and the list of projects that developed them > To expand the Strategic Objective: o select the SO	sele
EXPAND PROJECT	press EXPAND SO see the results in the SO_to_MS tool Press RESET to clean the setting and restore the default condition	0010
RESET	 An ERROR message is prompted if a proper selection is not made 	
	Note: some MS might not address any SO and/or be developed in a	

ANKING SCORE	LIST OF STRATEGIC OBJECTIVES	Measure 1	Measure 2
10	To deploy alternative transport fuels	×	
4.5	To reduce / mitigate the externalities of port operations	×	×
2.9	To increase the portion of renewable energy in port	×	
0.5	To provide systematic incentives for clean ships	×	
0.5	To transit towards digitization and automation in port activities	×	

Strategic Objective that can be pursued via the selected measures

Projects details

DROIFCT/INITIATIVE	Moacuro 1	Moacuro
NEWS		×
FUTUREMED		×
PROMINENT		x
GoLNG	x	
POSEIDON MED	x	
LEAWIND	x	
GAINN4MOS	x	
The small-scale LNG Reloading Terminal in Gdansk and bunkering services	x	
Go4Synergy	x	
Blue Baltics LNG infrastructure facility deployment in the Baltic Sea Region	x	
cHAMeleon	x	
Technical Study and Cost-Benefit Analysis for the Development of LNG as a Marine Fuel in Malta	x	
Zero Emission Ferries	x	
CLEANPORT	x	
INWAPO		х
EMMA		x
CLINSH		x
Directive 2014/94/EU	×	
Directive 2005/44/EC		x
CoRISMa		×

NEWS

Web Reference:

https://trimis.ec.europa.eu/project/development-next-generation-european-inland-waterway-ship-and-logistics-system

Description:

NEWS principal objective is to increase (container) transport flows on inland waterways (especially the Danube) by developing a New generation European inland Waterway Ship and logitics system to make container transport on inlan waterways more cost, time- and ecologically efficient. Hence, it supports the full integration of waterborne transport into the EU transport and logitics chain.

Basic interface:

Select Measures

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Docks the Future Main Outcomes

Transferability Analysis (TA) Tool





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Objectives of the DtF Transferability Analysis

Making future PoF projects and their solutions transferable to a wider range of ports in Europe and neighbouring countries

Innovative projects have essential impact on the future of European ports, port-cities and every **stakeholder**

Making **transferability expectations** of EU PoF program initiatives a conditions for approval by the EU Commission

Ongoing evaluation during project **living labs** and collaboration between ports providing **port-peering** potentials (during & after)



The 2 parts and scoring for transferability

Project proposal stage:

 Assessment of the Potential Contribution towards Transferability (PCT), resulting in a preliminary TA-score

During and after project life cycle:

 Methodological evaluation of the Ease of Transferability (EoT) of projects under the Port of the Future (PoF) framework with/without an innovative concept (IC), using the PoF TA Methodology, resulting in a TA-index





Transferability Analysis (TA)

<u>PCT = Potential Contribution towards Transferability = **TA-score**</u>

SCALE	definition of potential contribution towards transferability (PCT)
0 (zero-weight)	NOT measured: single port , OR similar solution (s) already exist AND/OR has no horizontal applicability (no efforts undertaken to peering or champion solution in potential adaptor ports)
1 (low)	No to low support or high constraint for transferability: project supports an IC, but no barriers/constraints considered or investigated OR transferability has high risk
2 (medium)	Modest support for transferability : project supports an IC, applicable to targeted ports, constraints/barriers & resolutions suggested,
3 (high)	Limited potential for transferability: project supports an IC, applicable at <u>some</u> (1 to 4) targeted ports, constraints/barriers & resolutions suggested,
4 (strong)	wide support for transferability: project supports an IC, applicable at <u>multiple</u> (5 or more) targeted ports, constraints/barriers & resolutions + risk management provisions established or anticipated



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The PoF TA Methodology and its outcome weighing

<u>EoT = Ease of Transferability = **TA-index**</u> (consolidation of assessment):

SCALE	definition of <mark>ease</mark> in realising expected success and managing identified risk (EoT)
+2	strong support for transferability
+1	modest support for transferability
0	Neutral
-1	modest constraint for transferability
-2	strong constraint for transferability

Docks the Future Main Outcomes

Docks the Future Network of Excellence





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Goals

The DocksTheFuture Network of Excellence is a tool **supporting ports to develop innovative projects to achieve their sustainable targets, based on the opportunities deriving from funding programmes** such as the ones promoted by the Green Deal.

- Promote ideas inspired by other ongoing initiatives and proposals and have a leading and proactive role in the process of overcoming the industry challenges
- Speed up the distribution of practical innovative ideas, hasten the spread of best practices, promoting **new technologies to innovate the business** and the whole port industry;
- Enrich the dialogue with and among other organisations such as the European Technology Platforms, international associations and maritime clusters – without any kind of competition character.





Core topics

The core topics the Network focus on essential parts of the **EU Green Deal** funding elements clearly relates to port industry.

City-Port relation

Alternative fuels

Multimodal transport

Innovative financing tools

Cyber security

Energy transition

Circular economy

Innovation & digitalisation









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