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DOCKSTHEFUTURE defining the concept of "Port of the Future"

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DtF Decision Support System

THE TOOL





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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





DSS Rationale

Ongoing challenges

Port decision makers face multidimensional challenges with investments impacted by:

- Long term goals vs short term conflicting interests
- ✓ Stakeholders' competition
- Interconnected decision making processes

Open issues

Therefore, port decision makers need to:

- Cope with multi-dimensional issues and critical challenges
- Find ways to simplify the research for feasible solutions
- Promote long term port development, assuring short term value for port stakeholders





A potential problem scenario

We might look at ways to reduce emissions..

..but at the same time we might want to reduce port activities' negative impacts on local community!







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





DSS Interface

Sorted Projects

Select	Select First Strategic Objective				
To deploy alternative transport fuels		5			
Select S	econd Strategic Objective	Score			
To strengthen city-port relations		0			
Select	Third Strategic Objective	Score			
To encourage port project financing and investments		0			
SO->MS EXPAND MEASURE EXPAND PROJECT RESET	BASICHELP Select up to three SO and the relevant imp score) Press MS-SO to get list of the masures, sorted from the most appropriate Select a measure and press EXPAND MEA the list of projects and initiatives that dd selected measure (measures in Italic are n in the considered initiatives/project) 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 propen not made	, ranked and to the less ASURE to get eveloped the ot developed IND PROJECT restore the er selection is			



MS0440: LNG bunkering, supply and distribution chain 8.6 MS0020: Alternative fuels Environmen 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 MS1210: Port promotion port authority to business 21 Admin 2.1 MS0520: On shore power supply Energy MS0950: Wind energy systems 1.9 Energy 19 MS0420: Knowledge networks (creation of, investment in) Admin 1.9 MS1240: Waste management plan Admir 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 facilitie Environme 1.6 MS0260: Fuel types (new) Environmer 1.5 MS0470: Methanol Environmen 0.6 MS0860: Training schemes **Admin** 0.5 MS0220: Environmental compensation measure Environme 0.4 MS1220: Port- city dialogue Admin 0.4 MS0461: Spatial harbour planning Admin 0.3 MS1030: Noise level mans MS0070: Cargo logistics system in urban areas 0.3 Operation ICT 0.2 MS0380: Information sharing platforms 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

MS0440: LNG hunkering, supply and distribution chain Technical Study and Cost-Benefit Analysis for the Development of LNG as a Marine Fuel in Malta 10 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 PROJECT Go4Synergy GAINN4M05 PROJECT 2.8 1.9 The small-scale LNG Reloading Terminal in Gdansk and bunkering services PROJECT Directive 2014/94/FU INITIATIVE Technical Study and Cost-Benefit Analysis for the Development of LNG as a Marine Fuel in Malta PROJECT Web Reference: https://trimis.ec.europa.eu/project/technical-study-and-cost-benefit-analysis-development-lng-marine-fuel-malta Description This Action "Technical Study and Cost-Benefit Analysis for the Development of LNG as a Marine Fuel in Malta" aims at assessing the optimal infrastructure solutions for the development of maritime LNG bunkering in Malta. The proposed Action contributes to the TEN-T and TEN-E priorities and to the objectives of the Synergy Call. In terms of energy priorities, the Action relates to the Project of Common Interest (PCI) 5.19, which includes a LNG FSRU and a pipeline interconnecting Malta and Italy. In terms of transport the Action involves areas that are located on two core network ports of Marsaxlokk and Valletta, which fall under the Scandinavian-Mediterranean corrido

Suggested measures to investigate

Projects details





PROJECT

DSS Interface

Sorted Projects

MS0020: Alternative fuel	Select First Measure
MS0020: Alternative fuel:	5
	Select Second Measure
MS0630: RIS	beleer bebond measure
	Select Third Measure
None	
None	
None	
MS->SO	BASIC HELP
	 Select up to three Measures Press MS>SO to get the list of SOs addressed by the
MS->SO	 Select up to three Measures Press MS>SO to get the list of SOs addressed by the selected measures and the list of projects that
	 Select up to three Measures Press MS>SO to get the list of SOs addressed by the selected measures and the list of projects that developed them
MS->SO	 Select up to three Measures Press MS>SO to get the list of SOs addressed by the selected measures and the list of projects that
MS->SO	 Select up to three Measures Press MS-SO to get the list of SOs addressed by the selected measures and the list of projects that developed them To expand the Strategic Objective: select the SO press EXPAND SO
MS->SO EXPAND SO	Select up to three Measures Press MS>O to get the list of SOs addressed by the selected measures and the list of projects that developed them To expand the Strategic Objective: o select the SO o press EVAND SO o set he results in the SO_to_MS tool
MS->SO EXPAND SO EXPAND PROJECT	 Select up to three Measures Press MS-SO to get the list of SOs addressed by the selected measures and the list of projects that developed them To expand the Strategic Objective: select the SO press EXPAND ST of SOs tool ses the results in the Setting and restore the
MS->SO EXPAND SO	Select up to three Measures Press MS>O to get the list of SOs addressed by the selected measures and the list of projects that developed them To expand the Strategic Objective: o select the SO o press EVAND SO o set he results in the SO_to_MS tool

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	Meacure 1	1010 Active
NEWS		x
UTUREMED		×
ROMINENT		x
GoLNG	x	
POSEIDON MED	x	
EAWIND	x	
SAINN4MOS	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		
HAMeleon	x	
Technical Study and Cost-Benefit Analysis for the Development of LNG as a Marine Fuel in Malta		
tero Emission Ferries	x	
CLEANPORT	x	
NWAPO		×
MMA		×
ZLINSH		×
Directive 2014/94/EU	×	
Directive 2005/44/EC		x
CoRISMa		x

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) transportflows on inland waterways (especially the Danube) by developing a Nex generation European Inland Waterway Ship and logitics system to make container transport on inland waterways more cost, time- and ecologically efficient. Hence, it supports the full integration of waterborne transport in the EU transport and logistics chain.

Basic interface:

Select Measures

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DSS Limitations

- The effective use of the tool is influenced by:
 - Database reliance and interdependence
 - Missing key indicators on performance and transferability
 - The contextualization of the measures and their applicability to the specific context is up to the user (i.e., further analysis will be needed)





Further development

- In respect to the first released version, future DSS apps will:
 - Embed other DtF outputs (e.g. PCI and TA-score)
 - Guarantee full interoperability
 - Enlarge the number of initiatives considered

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