



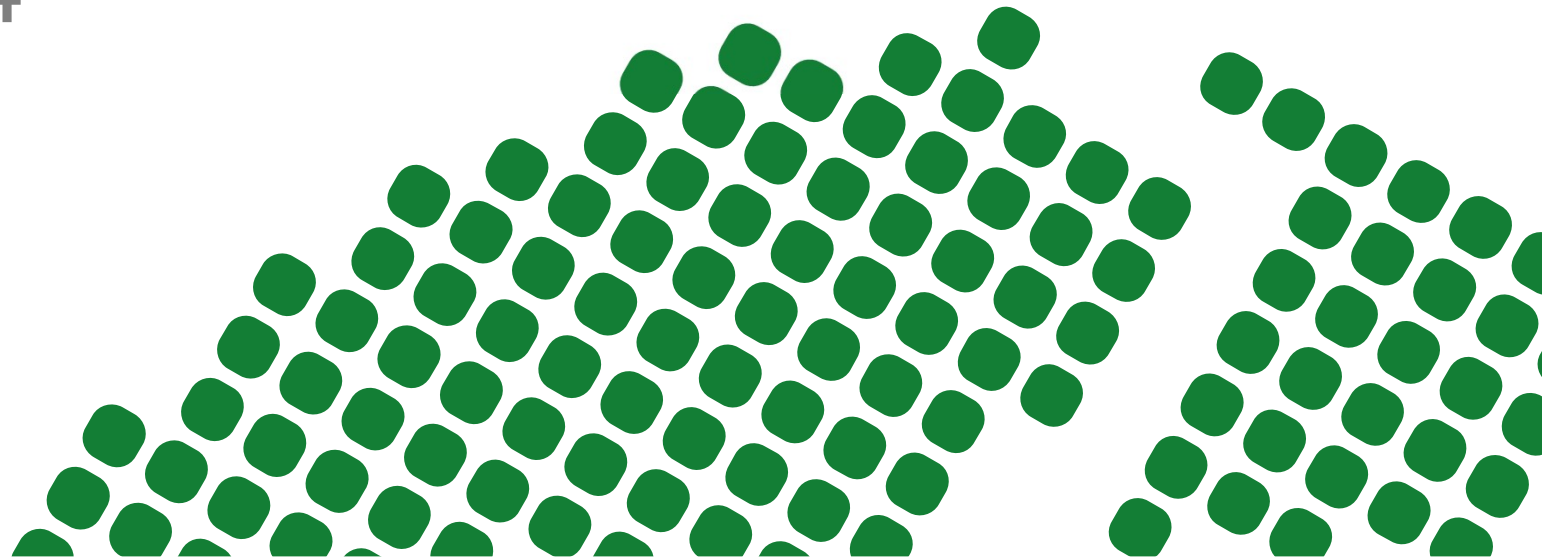
Portable Innovation Open Network for
Efficiency and Emissions Reduction Solutions

EM Ports

12/03/2024



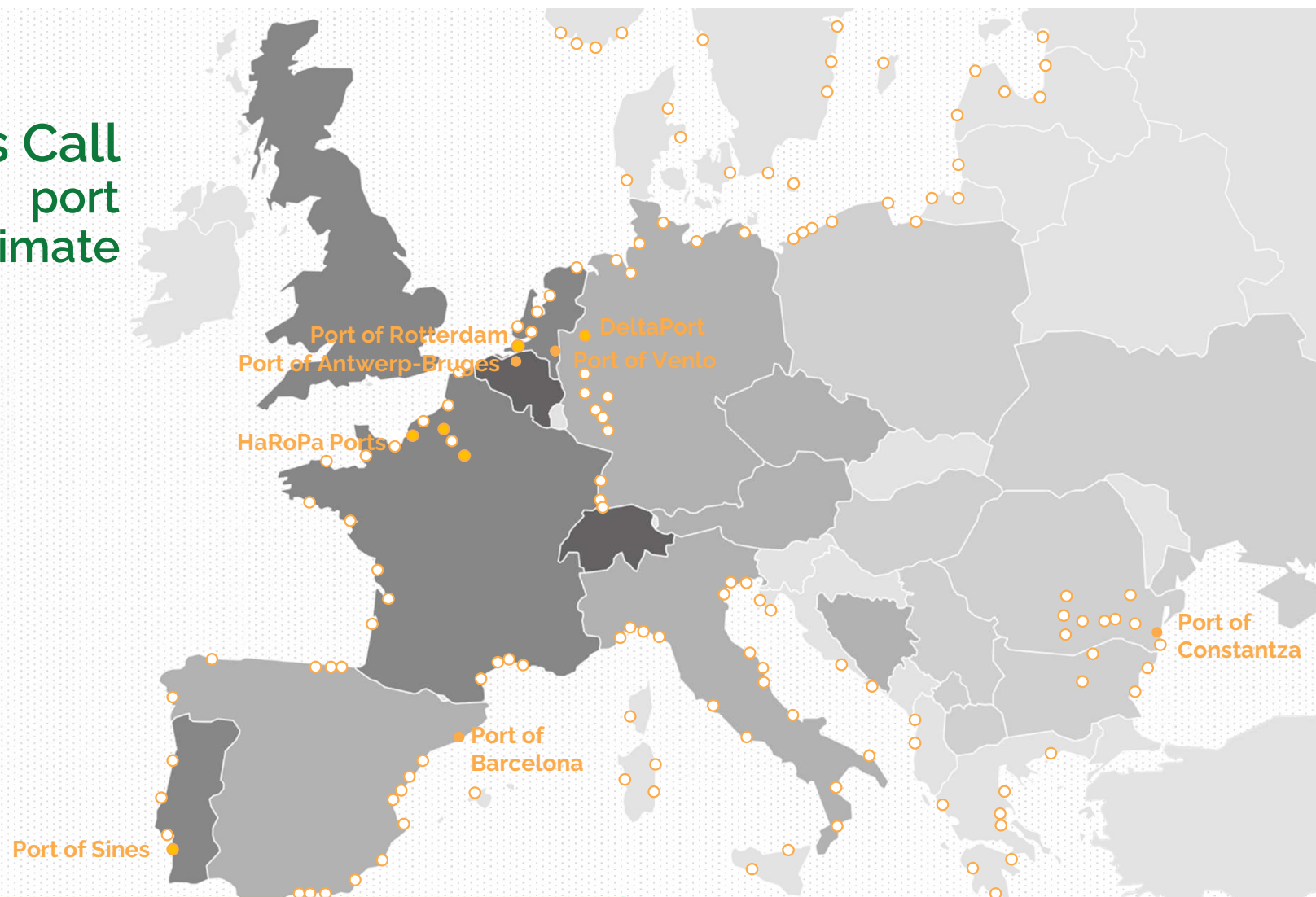
Co-funded by the Horizon 2020 programme
of the European Union



H2020 Green Ports Call Greening the EU port sector towards climate neutrality

PIONEERS

Portable Innovation Open Network for
Efficiency and Emissions Reduction Solutions



"Green Ports should be the norm"

*Magda Kopczynska, Director for Waterborne Transport DG MOVE
@ PIONEERS International Conference 2022*



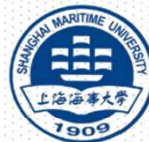


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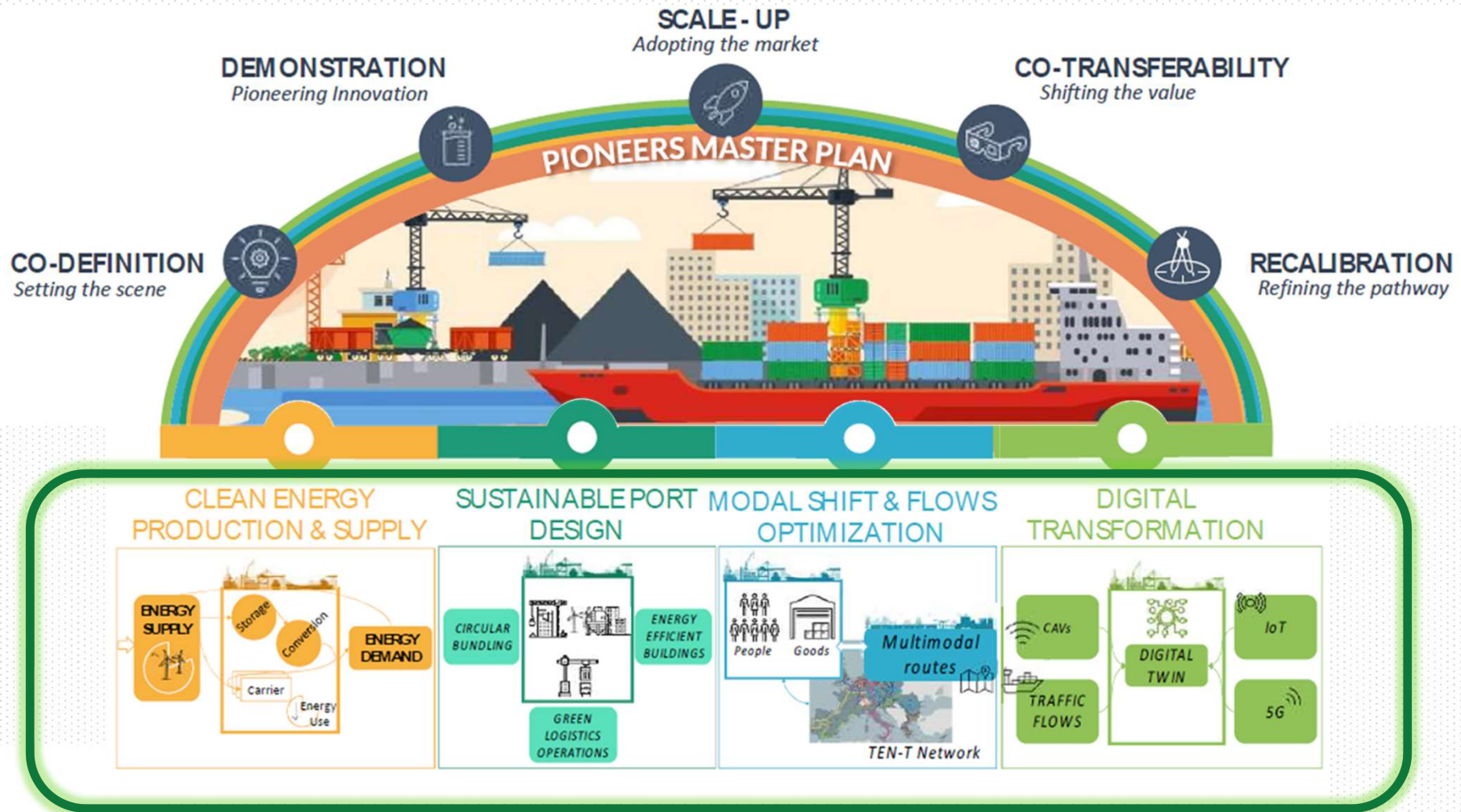
Portable Innovation Open
Network for Efficiency and
Emissions Reduction
Solutions

- Reduce GHG emissions in ports while safeguarding their competitiveness
- Green Deal H2020 > Green Ports & Airports call > 25 Mio €
- Collaboration of 47 public & private EU partners
- Port of Antwerp Bruges lighthouse port
- Strategic (Green Port Master Plan) vs. operational (19 demos)
- 2021-2026

PIONEERS' PARTNERS



PIONEERS: 19 demos and 1 Green Ports Master Plan



PIONEERS 19 demo projects

Implemented in:

POAB

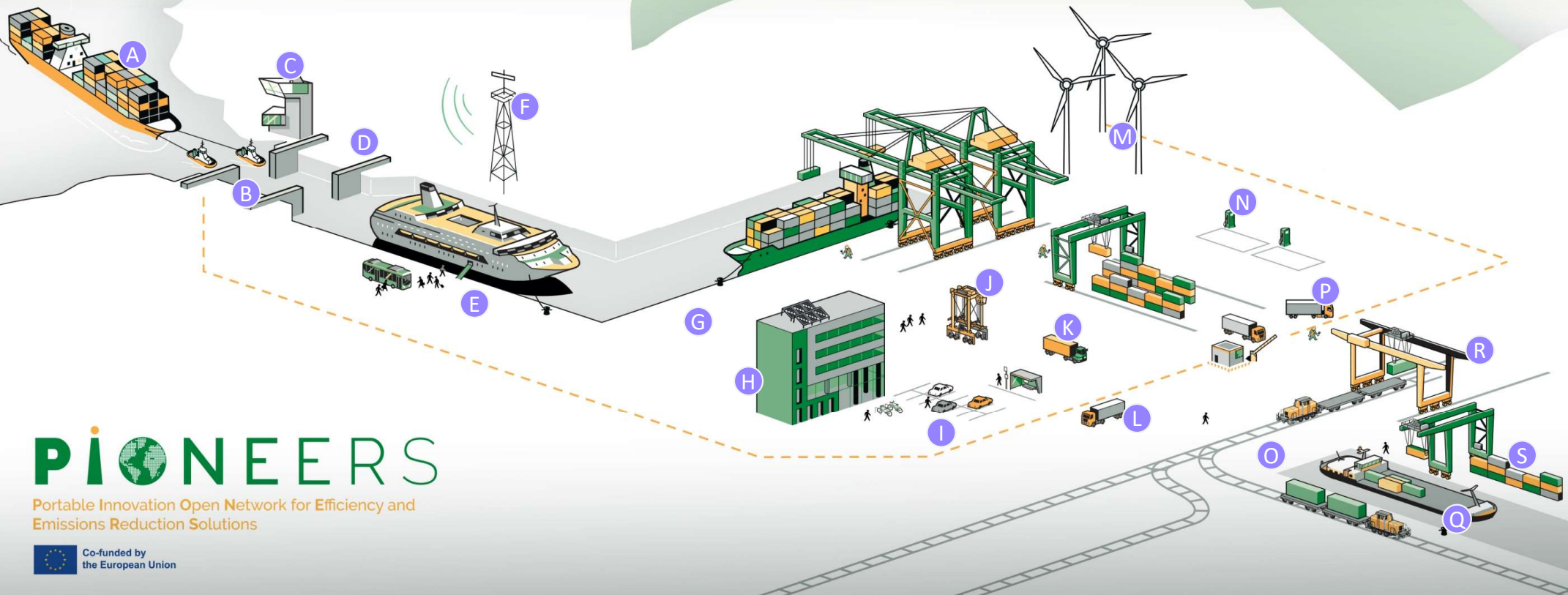
POB

POV

WP4 Clean Energy WPL = Inge De Wolf	WP5 Sustainable Port Design WPL = Bart P / Inge DW	WP6 Modal Shift WPL = Josep Freixanet	WP7 Digital Transformation WPL = Simon Krepper
Green Hydropower Platform for Port Infrastructure De Meyer	Local resource recovery for green, circular concrete VITO	Multimodal Inland Planner / Connectivity Platform Mosaic	Automated container shuttle solutions AKKA
Realisation of a hydrogen refuelling infrastructure Air Liquide	Hydrogen heating for buildings PoAB	Digital Rail Platform Infrabel	Automated vessels Seafar
Corridor of modular docking stations for energy containers ZES	Green Straddle Carriers PSA	Modal shift in the commute of port employees ANT	Digital Twin IMEC
Battery storage & smart mgmt of green energy in terminals AET	Electric Green Last Mile FIER	Cargo Flow Optimiser MJC²	Vessel traffic optimisation Macomi
		Cargo Flow Predictor Mosaic	Maritime 5G PoB
		Mobility as a service Aggregated platform ACASA	Container transport forecast Mosaic

Demonstrators' Showcase

Demonstrators' Showcase

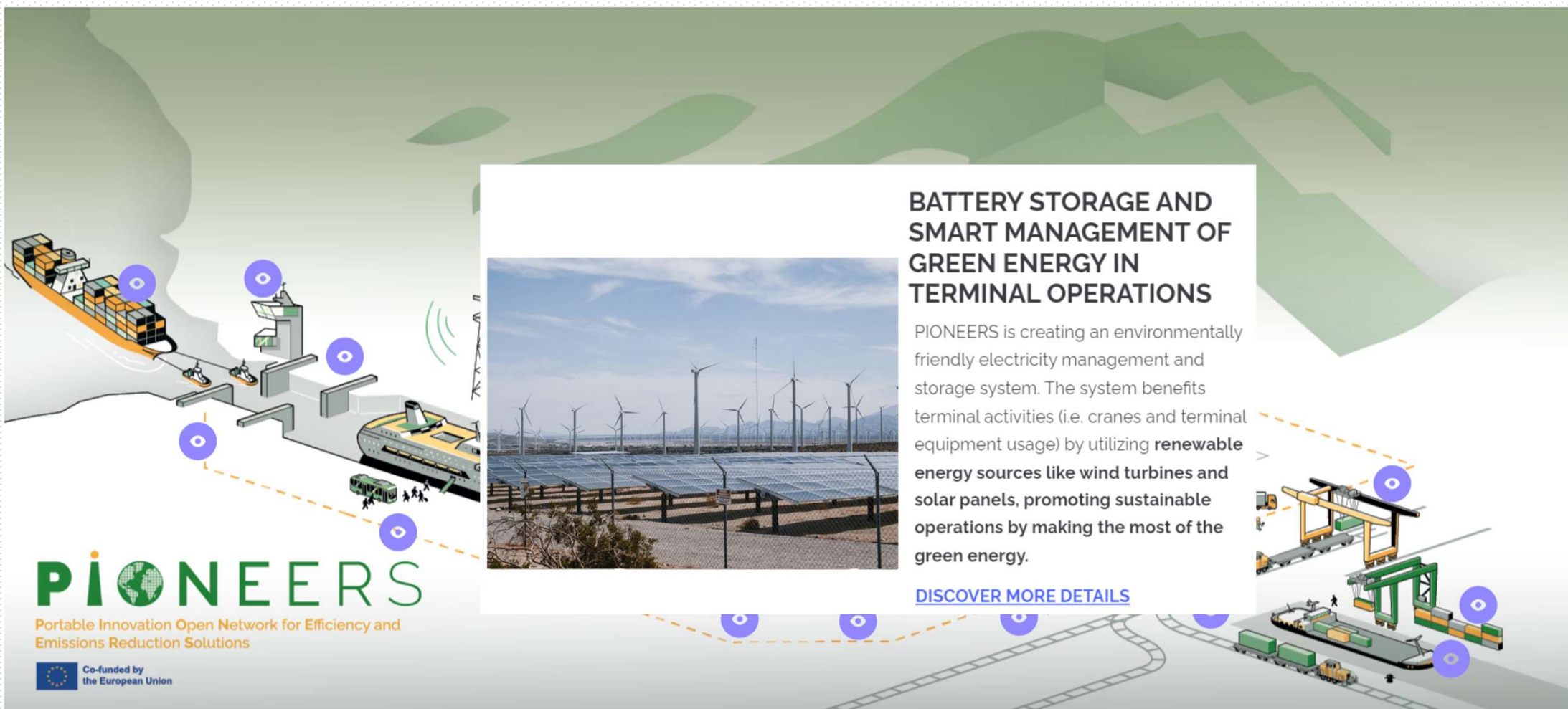


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Portable Innovation Open Network for Efficiency and Emissions Reduction Solutions



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Portable Innovation Open Network for Efficiency and Emissions Reduction Solutions



BATTERY STORAGE AND SMART MANAGEMENT OF GREEN ENERGY IN TERMINAL OPERATIONS

PIONEERS is creating an environmentally friendly electricity management and storage system. The system benefits terminal activities (i.e. cranes and terminal equipment usage) by utilizing **renewable energy sources** like wind turbines and solar panels, promoting sustainable operations by making the most of the green energy.

[DISCOVER MORE DETAILS](#)

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Problem/context

- Environmental impact of ports
 - Sustainable global trade

Outputs

- Green Straddle Carrier Program

Success story highlights

- From Diesel to Hydrogen – 70% diesel replaced with H2



Impacts

- Clean hydrogen as an alternative fuel
- Decarbonisation of container handling

Lessons

- EU support in the development of innovative solutions
 - Safe use of hydrogen in a container terminal environment and combustion engines

Problem/context

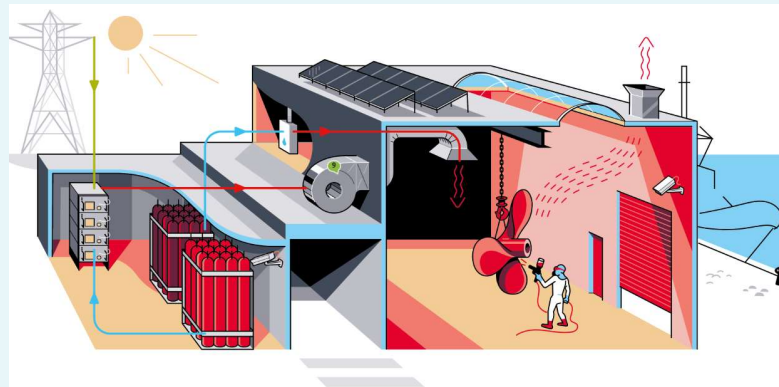
- The Antwerp-Bruges' port authority's buildings are heated using fossil fuels
- The port's goal is to reduce CO² output with 92% by 2030

Outputs

- The first warehouse in Belgium being heated using a green hydrogen heating system (using a 30kW elektrolyser and a 24kW hydrogen boiler)
- Cooperation between PoAB, Remeha (heating system provider) Imtech (building contractor) & Solencopower (production)

Success story highlights

From gas to Hydrogen – first in Belgium to use locally produced H² to heat a building



Impacts

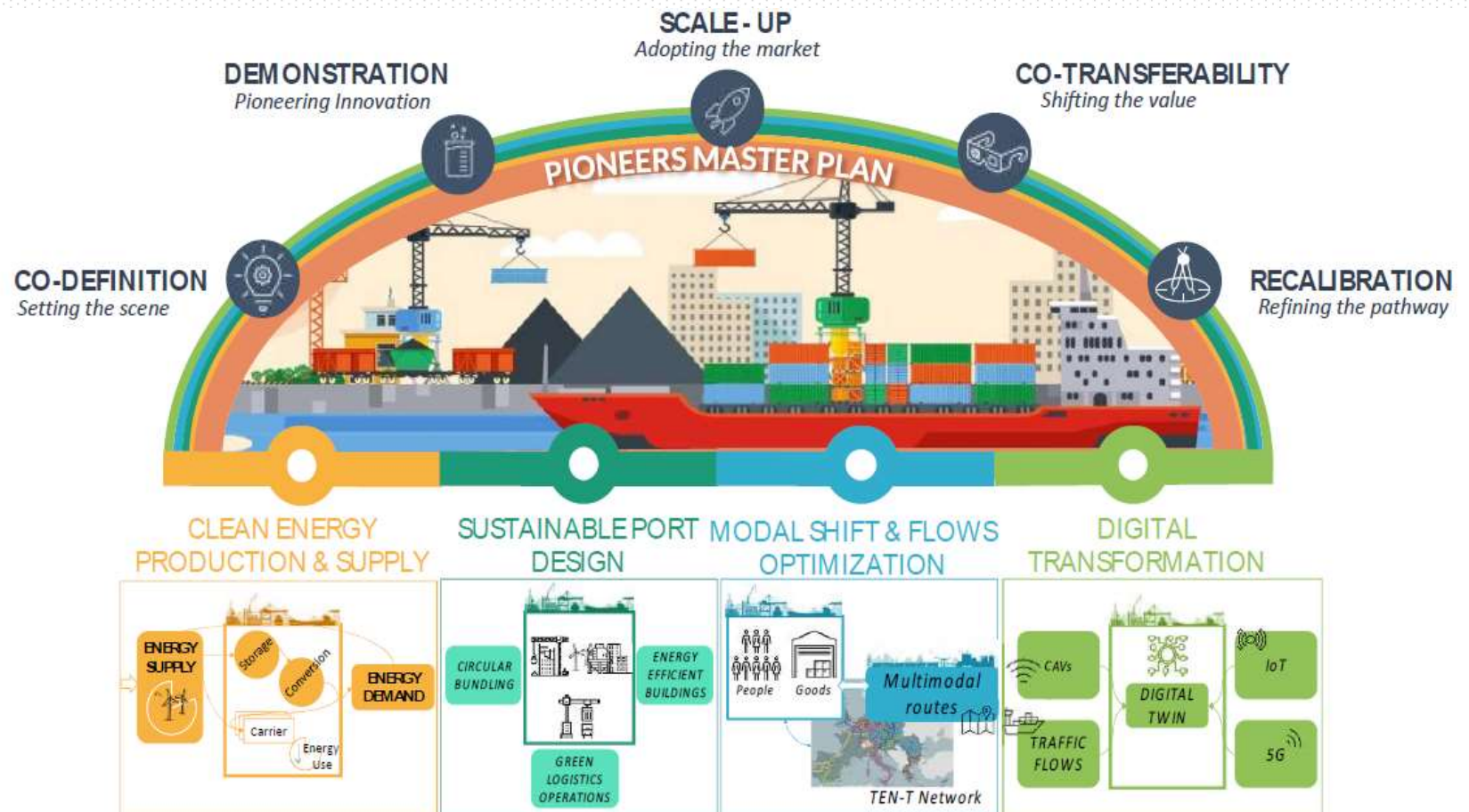
- Green hydrogen as an alternative to natural gas as a fuel for heating
- Hydrogen plays an important role in the transition towards a climate neutral port and Port of Antwerp-Bruges wants to take a prominent role in the local and international hydrogen economy

Lessons

- EU support in the development of innovative solutions is crucial
- This demo is set up to test the feasibility of using existing heating systems at high temperatures if a hydrogen grid is available

PIONEERS' Green Port Master Plan

Concept: „from innovations to solutions“

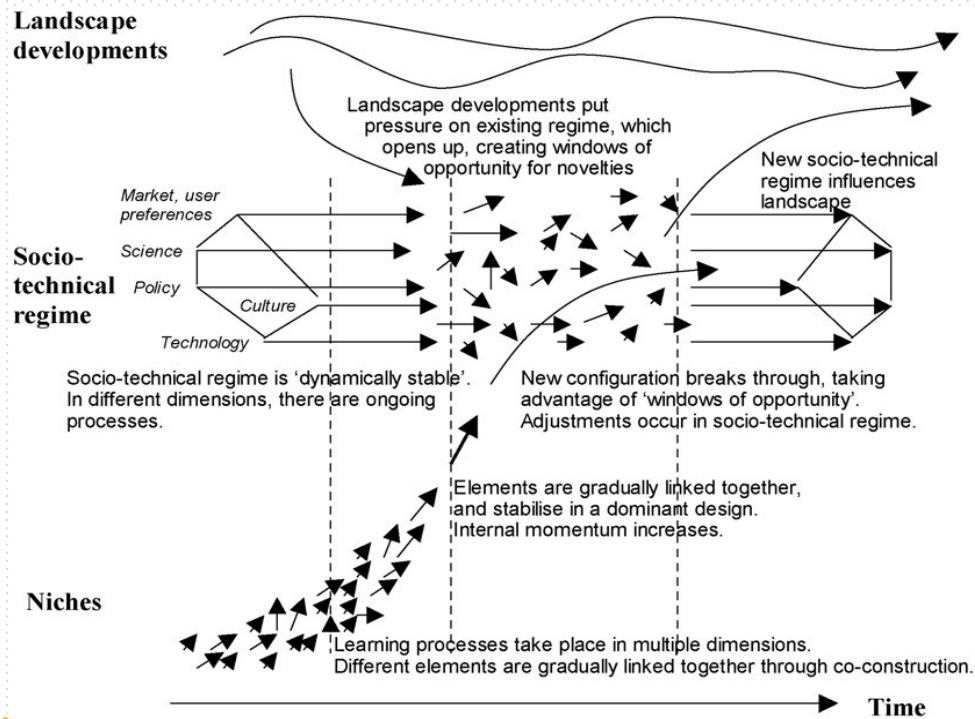


PIONEERS- 2050 Green Transition Port System → Port ecosystem

Port: an integrated system of interconnected elements (logistic and industrial activities, port services, people, etc)

Is the innovation part of the problem or a solution?

MLP (Multi Level Perspective) model: framework for sustainable transition

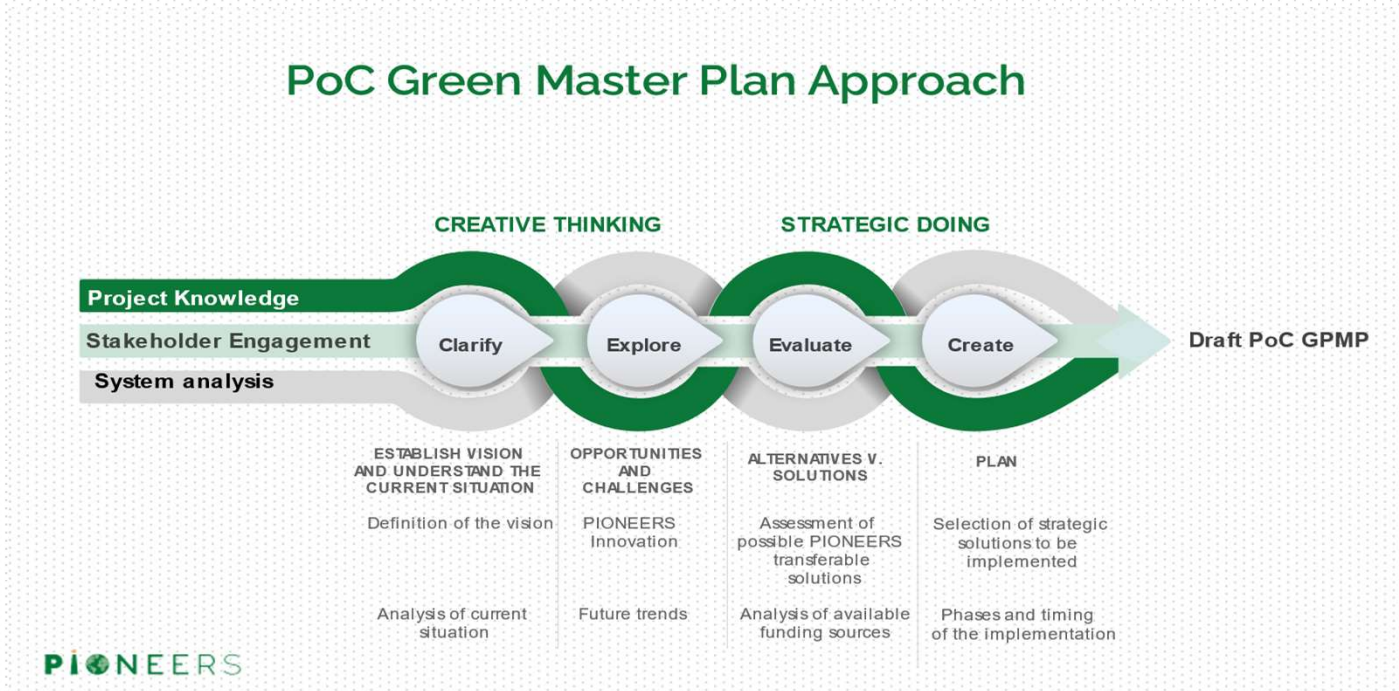


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MLP Elements	Description	Integrating MLP in GMP
Regime	Port activities	The GMP draft will include a description of the "Regime" that characterizes the port Input data from WP2 deliverables
	STH and their interactions	
	Port governance	
	Port policies, rules and regulations	
Landscape	Basic culture in the port	The GMP draft will investigate how the "landscape" puts pressure on the "regime"
	EU Green Deal and other European policies	
	IMO international policies	
	Mega social trends	
Niches	Geopolitical developments and crises (COVID, Russia-Ukraine war)	The GMP draft will identify the barriers in the implementation process of PIONEERS demos in terms of STEEP (social, technological, economic, environmental protection, political). Input data: deliverables WP3, WP4, WP5, WP 6, WP7 and WP8 The case studies in WP3 will lead to the identification of STH that have an impact in the design and implementation of the PIONEERS demos Barriers can be of a structural nature and therefore become characteristics of the "regime". The impact of innovations on the port ecosystem is monitored in WP9.
	19 PIONEERS demos	
	The innovation radar outside PIONEERS (WP1) will identify solutions that respond to the urgent situation regarding system change	

PoC Green Master Plan Approach Concept -D2.11-

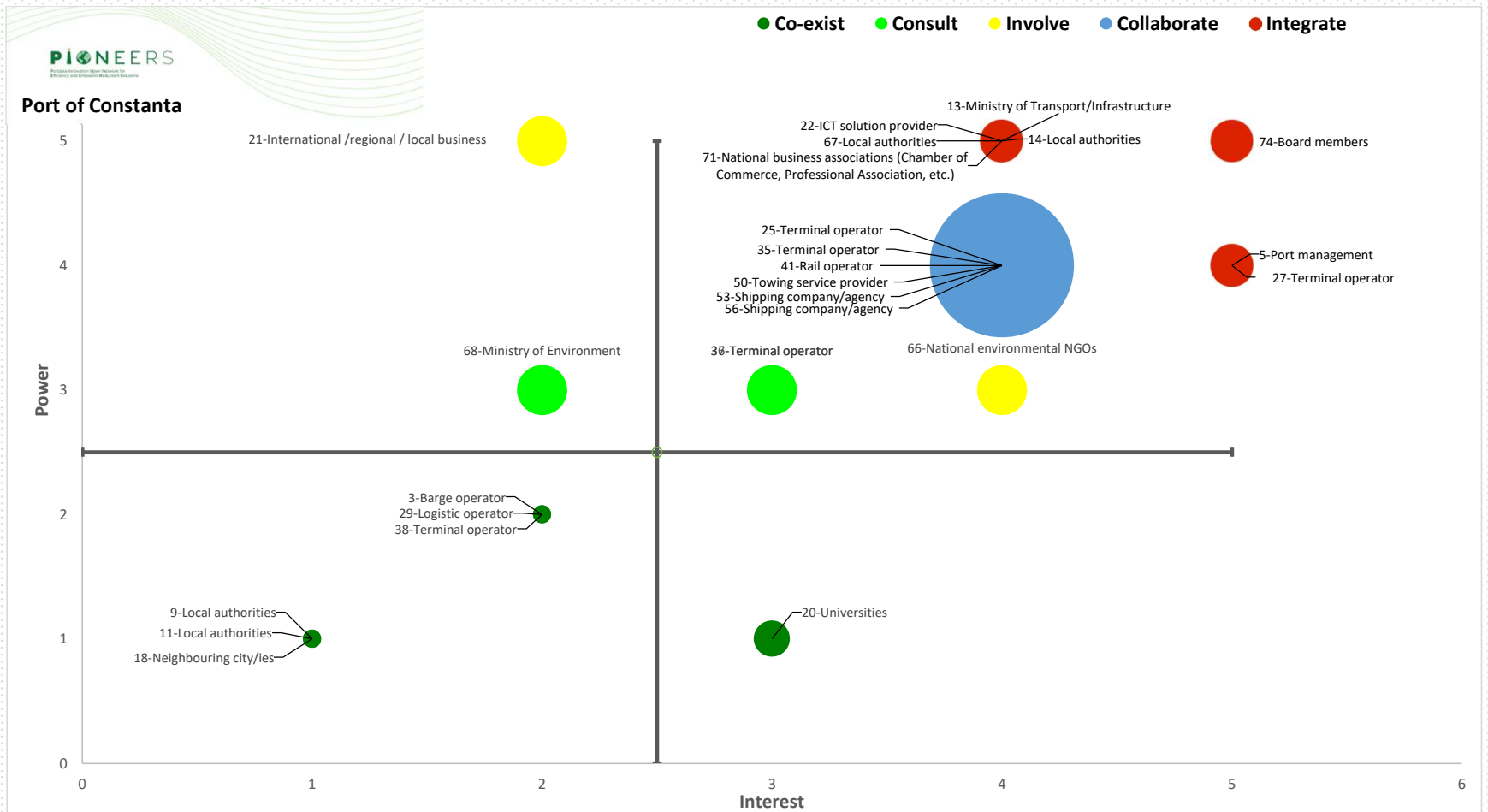
Plan or Planning?



Dwight D. Eisenhower:

'In preparing for battle I have always found that plans are useless but planning is indispensable'

-PoC Green Port Master Plan – Stakeholders Engagement



PoC Green Port Master Plan

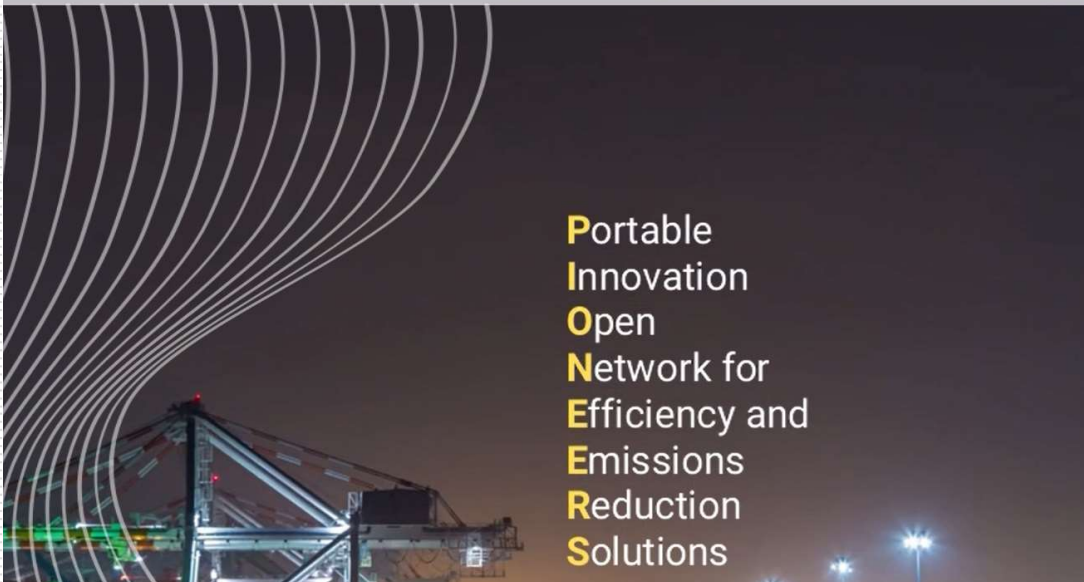
Analysis of current situation

Vision 20230

Emissions reduction objective	Specific Objective	Name of the project
A more sustainable transport with reduced greenhouse gas emissions	Installation of infrastructure for OPS	EALING
		E-COLD
	Development of railway infrastructure	Development of railway capacity in the river – maritime area
Energy efficiency	Reduction of electricity consumption	Modernization of the electricity distribution infrastructure (phase 1 and phase 2)
		Ensuring street lighting inside port area with LED bulbs
Energy from renewable sources	Production energy from renewable sources	Photovoltaic Park (9MW) in port area
Consumption Natural Resources	Water loss decrease	Expansion and modernization of the water and sewage infrastructure in port area
Digitalisation	Digital Transformation	Port Community System

FOLLOW PIONEERS!

Receive updates on the project through our stakeholder community network!



www.pioneers-ports.eu

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[EURONEWS Ocean documentary](#)

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THANK YOU!

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