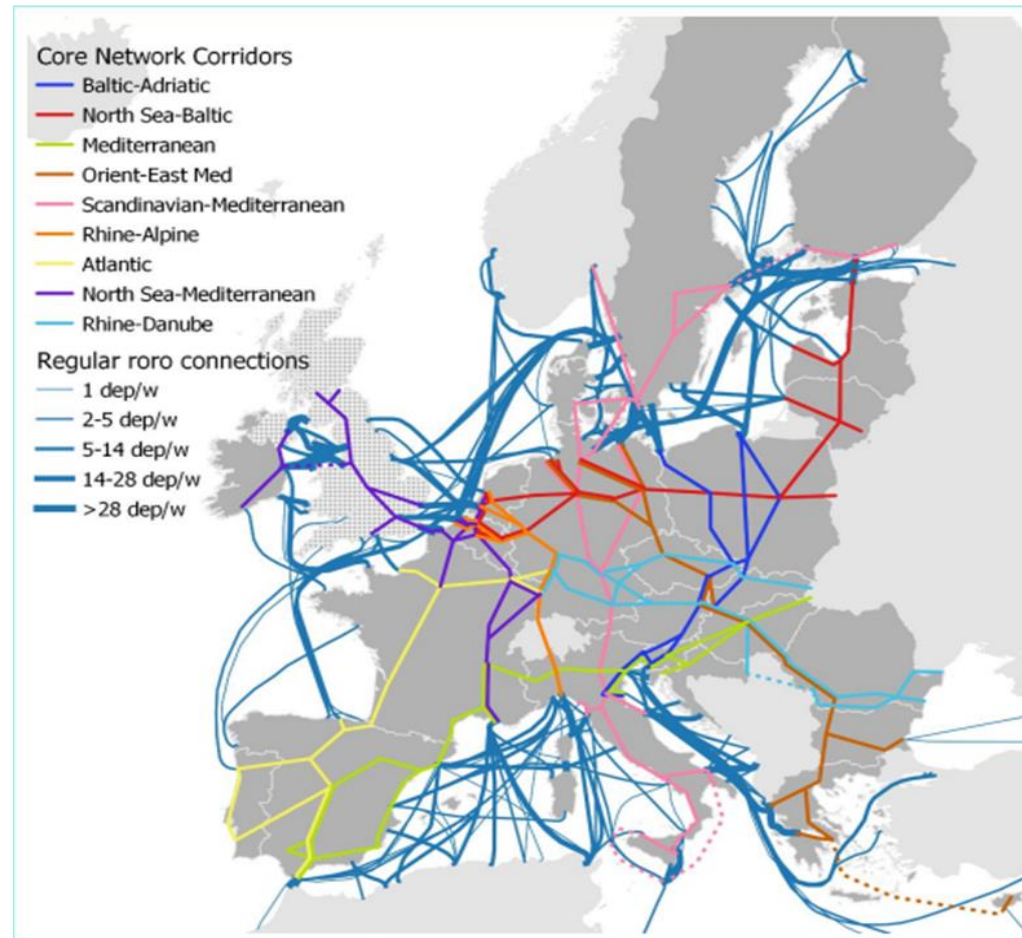


Associate Prof. Nikolaos P. Ventikos, NTUA

SSS in the EU

The EU aims at transferring cargo from land-based transportation to more environmentally friendly modes.



To increase the share of SSS in the container supply chain:

- Feeder routes must reach **more destination ports.**
- Feeder vessels must **carry less cargo cost effectively.**

Expanding the EU container supply chain with SSS



~~Problem~~
Solution

Short Sea Shipping to **small ports with no cargo handling infrastructure** could provide an alternative to land-based transshipment

Efficient

Green

Safe

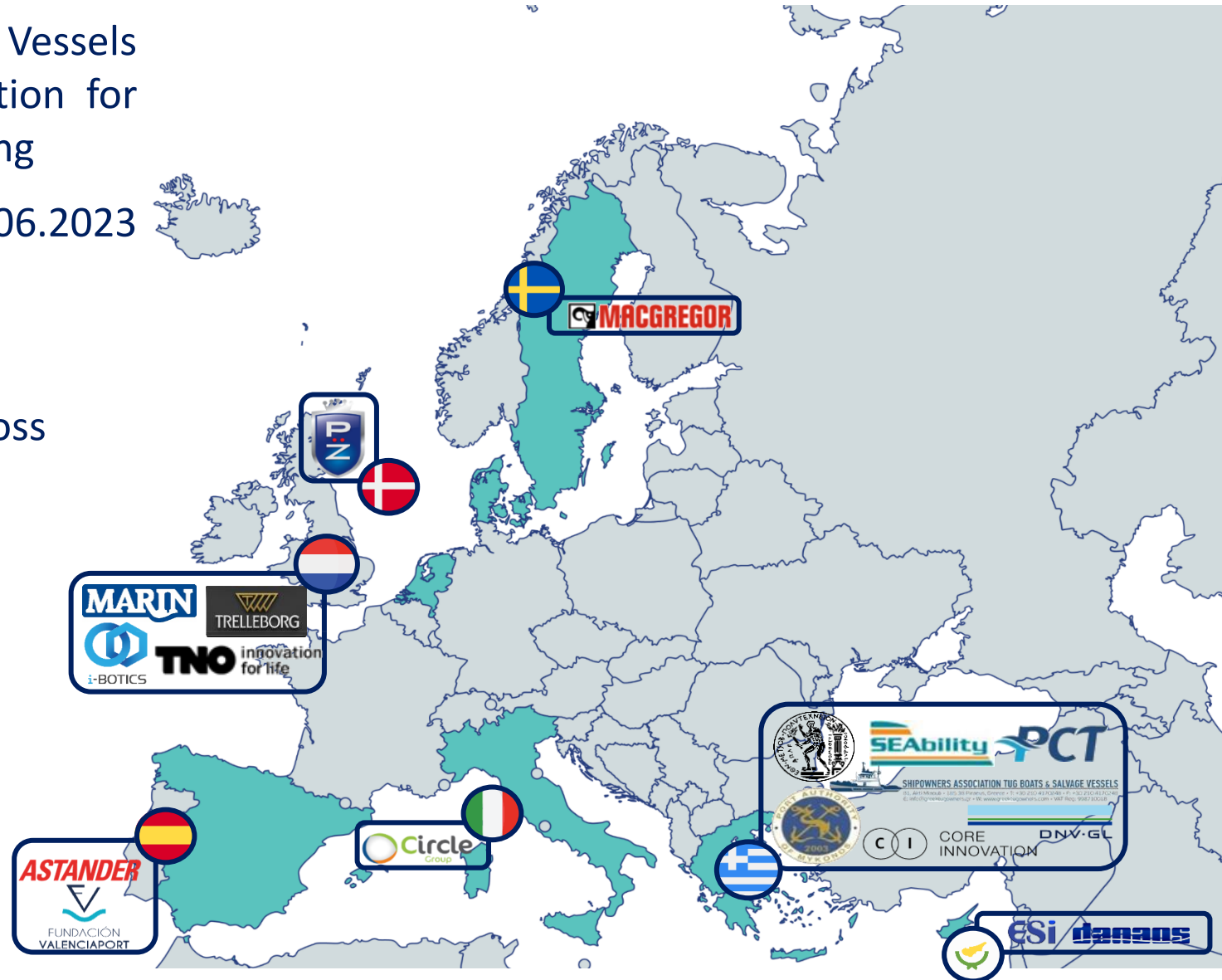
This potential is mostly untapped, because:

- Existing feeders cannot be served by small ports.
- There is little incentive for carriers to choose maritime transport instead of road/rail modes.

MOSES Facts



- **Project Title:** AutoMated Vessels and Supply Chain Optimisation for Sustainable Short SEa Shipping
- **Duration:** 01.07.2020 - 30.06.2023 (36 months)
- **Budget:** 8 million €
- **Consortium:** 17 Partners across Europe



MOSES Objectives



The aim of MOSES project is to **enhance the Short Sea Shipping (SSS) component** of the European supply chain by **addressing the vulnerabilities and strains** related to the operation of large containerships.

A two-fold strategy



SSS feeder services

Logistics solution
for balancing
demand-supply



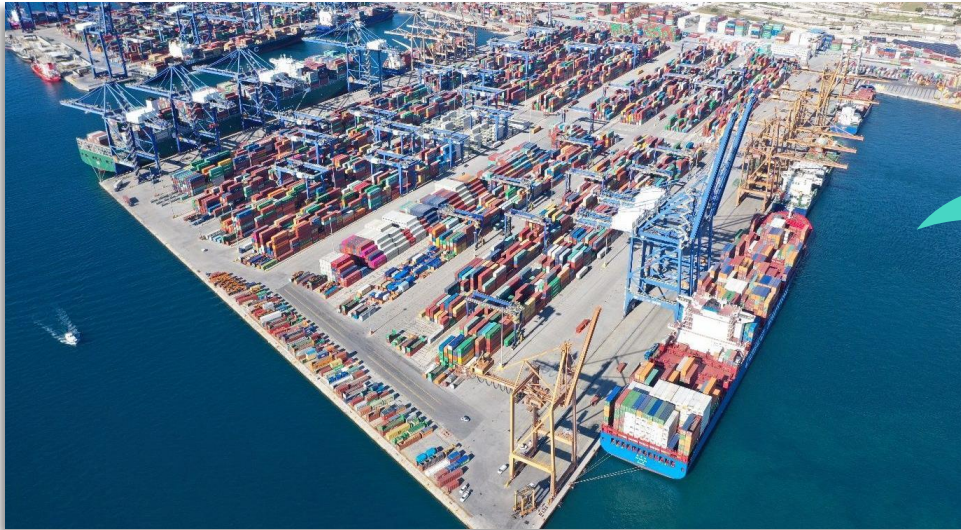
DSS ports efficiency

Technological solutions for
improving DSS ports
inefficiencies – reduce
berthing time, improve safety

MOSES Objectives



MOSES will create **new pathways** in the EU by **integrating small ports** with no infrastructure into the EU container supply chain

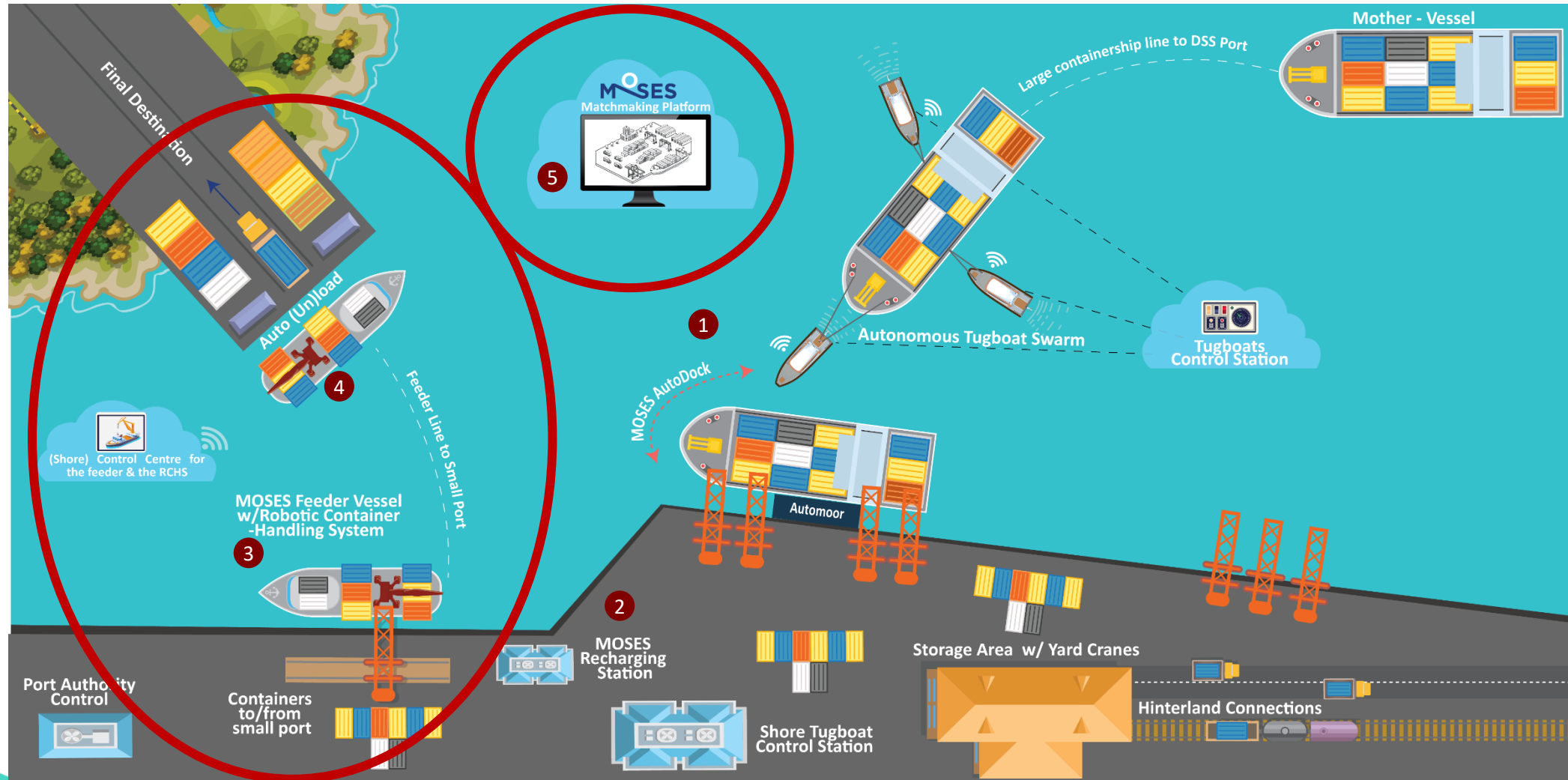


Feed containers directly from large container terminals...



...to small ports via Short Sea Shipping feeders

MOSES Concept



MOSES Innovations:

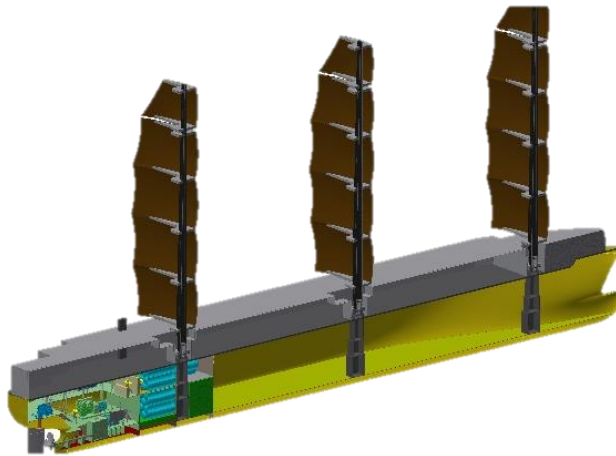
1. MOSES AutoDock (MOSES Autonomous tugboats + AutoMoor)
2. MOSES Recharging Station

3. Innovative Feeder Vessel
4. Robotic container-handling system
5. MOSES matchmaking platform

MOSES Innovations

Innovative Feeder

- Autonomous sail in the open seas along a predefined route monitored by a SCC.
- (Un)loading capabilities independent from the port's infrastructure.
- Enhanced maneuverability and position keeping capability enabling the operation in unprotected service ports.



Reduced ballasting/de-ballasting operations



Robotic Container Handling System

- Autonomously operated.
- A remote operator located at the innovative feeder's SCC, whose main responsibilities will be the monitoring and supervisory control of the autonomous operation and supporting the interaction with onsite actors.
- An Intelligent Operator Support System (IOSS) will provide situation awareness to the remote operator.

Dynamic task allocation to the operators at the SCC



MOSES Innovations

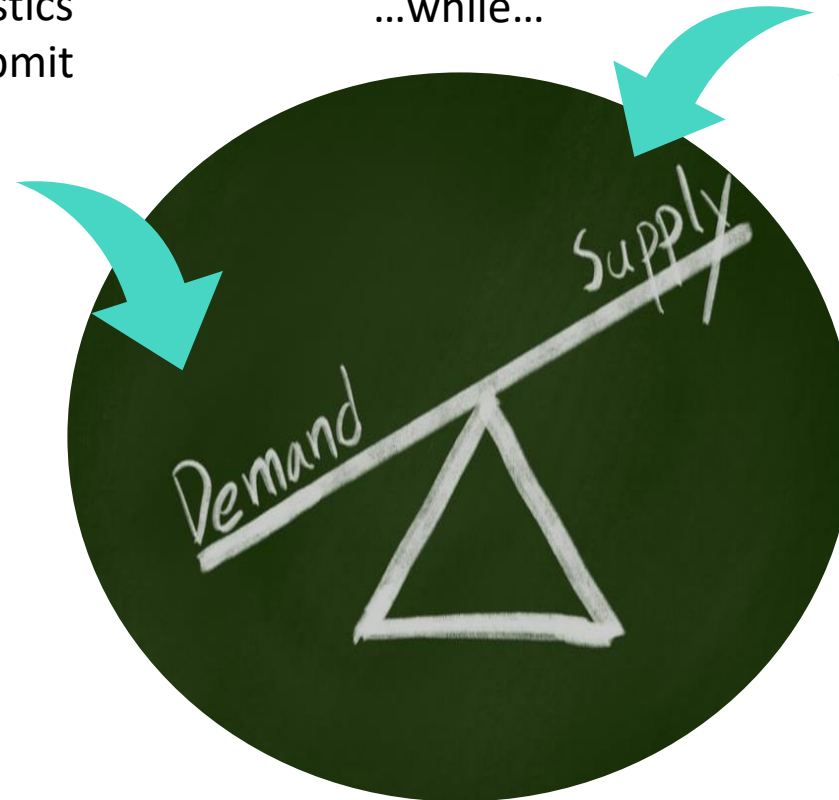


Matchmaking Platform

A horizontal collaboration logistics platform will allow **shippers** to submit their transport needs (**demand**)...

...while...

...**transport operators and shipping lines** will be able to advertise their schedules/prices for the SSS routes (**supply**).

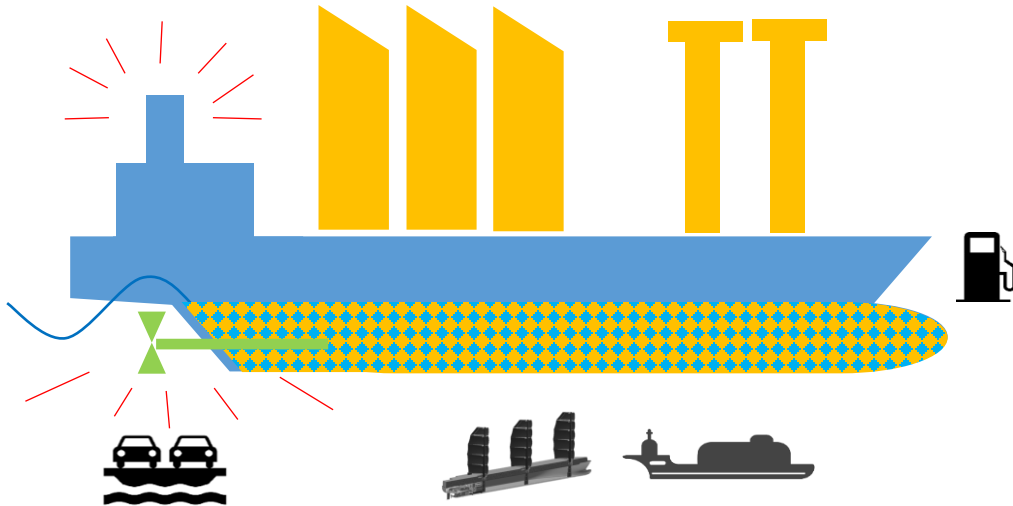


Order aggregation at container level according to capacity, availability, user-defined criteria, legal and practical constraints.

MOSES Impact on sustainable SSS



Innovative feeder vessel



Safety

- Automated functionalities (cargo handling and navigation).

Environment

- Reduced environmental footprint.
- Reduced road congestion in port areas.

Efficiency

- Improvement of maritime logistics chains.
- Make SSS a competitive alternative to land transport cargo delivery in smaller ports.
- Benefit local communities with infrequent RoPax connections (passengers' accommodation).

MOSES Impact on sustainable SSS



Robotic container-handling system



Safety

- Minimize risk in cargo handling.

Efficiency

- Enable Lo-Lo container services to small ports that have limited or no loading and offloading infrastructure.
- Impact on the local logistic infrastructure to transport Lo-Lo delivered containers to the final destination of the end-costumer.
- Impact on the receiving port logistic infrastructure and port control organisation.

MOSES Impact on sustainable SSS



Matchmaking Platform



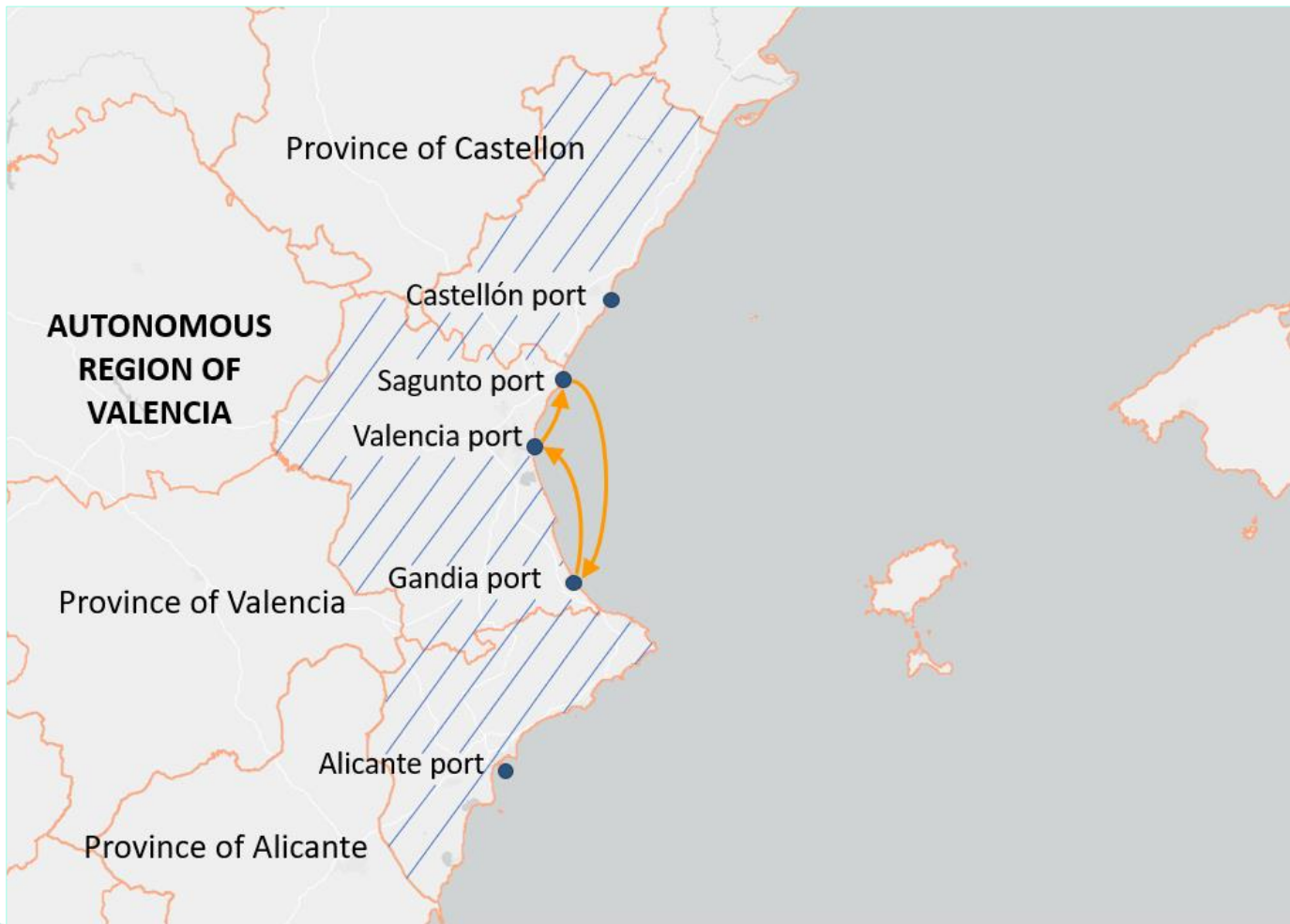
Environment

- The shipper is informed about transport services with low environmental footprint and is able to select them, leading to the reduction of total emissions for the cargo transportation.
- Some carriers may be preferred based on their emissions. This can be used as incentive for other carriers to promote routes with lower emissions.

Efficiency

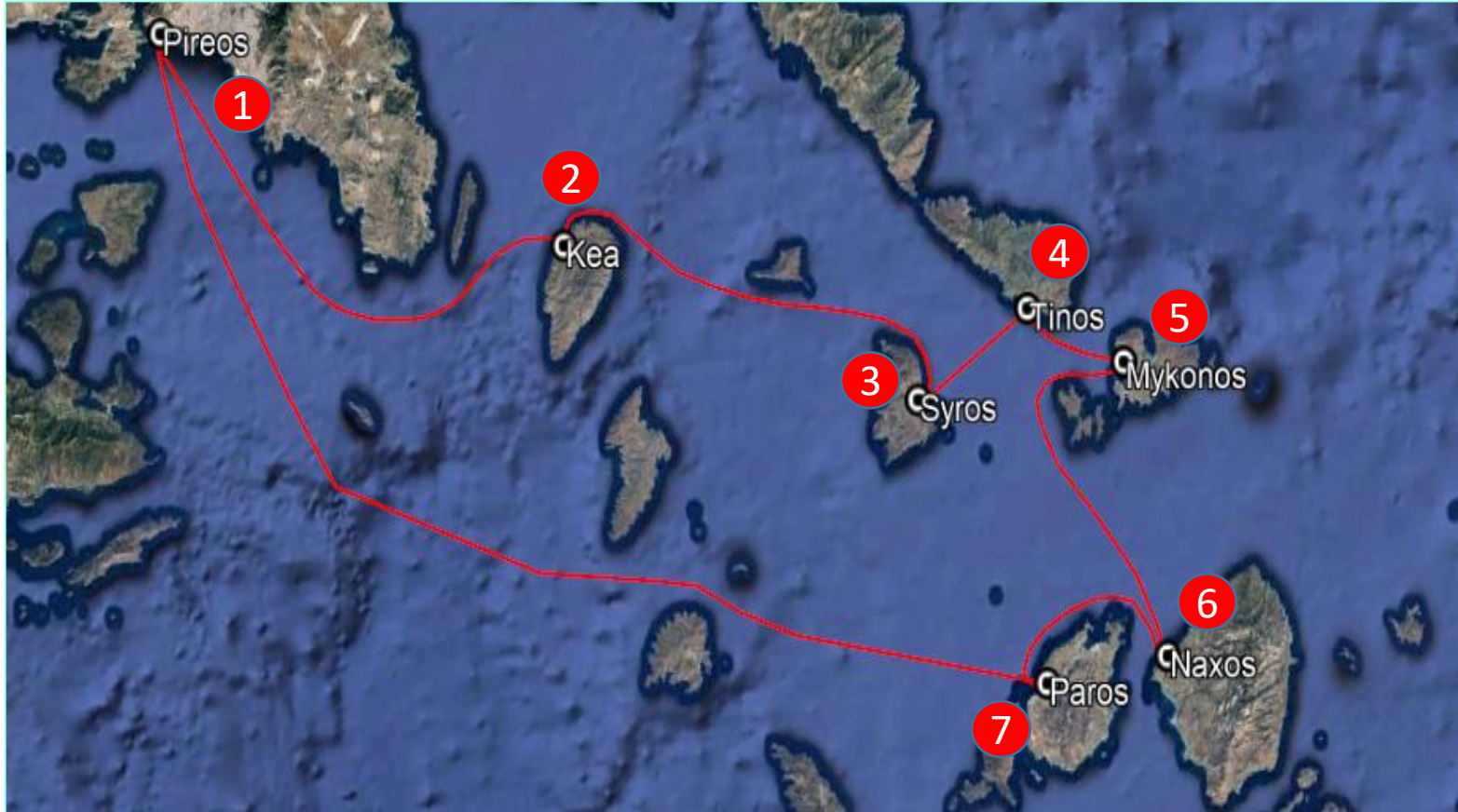
- Single communication channel between shippers and carriers.
- Available routes and their characteristics must be systematically updated.
- No extra operational budget is required.

MOSES Business Case #1: “Western MED-Spain”



- Feeder service with a frequency of **three weekly services**, with geared ships.
- The expected cost-effective capacity of the vessel is **600-700 TEUs**.

MOSES Business Case #2: “Eastern MED-Greece”



- Cargo should not only be transferred from the Ro-Ro logistic chain to the Lo-Lo logistic chain, but should also be **consolidated/deconsolidated** in a different way.
- The expected cost effective capacity of the vessel is **300-400 TEUs**.
- At least **two weekly services** in each port.

Paving the way towards the future of Short Sea Shipping



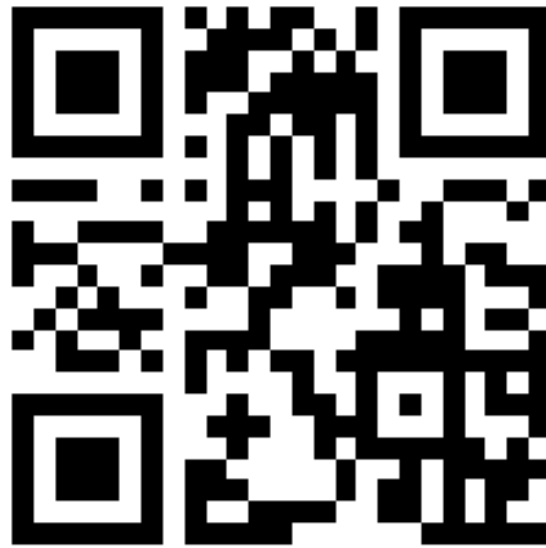
- The problem addressed by MOSES does not have an obvious solution!
- The expected benefits will strengthen the **presence of SSS within the EU supply chain**



Paving the way towards the future of Short Sea Shipping




What are the key components of the next generation of Short Sea Shipping in the EU?



slido.com with the code #MOSES



What are the key components of the next generation of Short Sea Shipping in the EU?

 Start presenting to display the poll results on this slide.



MOSES

Thank you very much for
your attention!

If you have any questions or require further information, please contact us:

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 www.moses-h2020.eu

 MOSES project2020

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