

Automated cargo
handling for
autonomous ships:
The MOSES project

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LLS EBOOKS

Introduction

Cargo handling

- Time- & cost-consuming process
- Increased risk potential
- Significant environmental impact

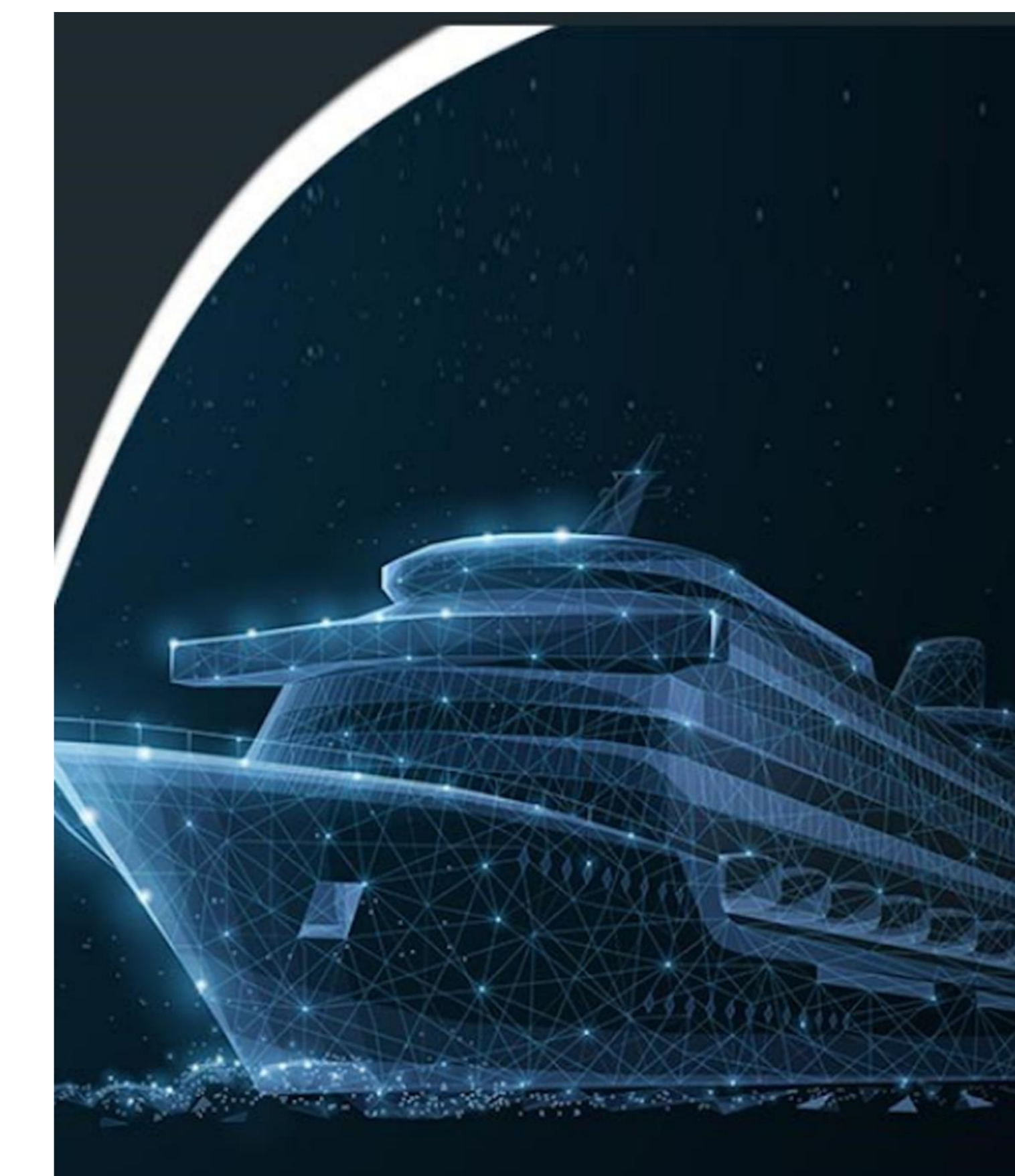


Automation/Autonomy

- Great potential but limited adoption (focus on remote operation & optimization)
- Promotion of efficiency and competitiveness

Small ports & Short Sea Shipping (SSS)

- Valuable alternative but with low integration
- Ideal testbed for automation
- Modal shift from land-based transportation



MOSES Vision & Concept

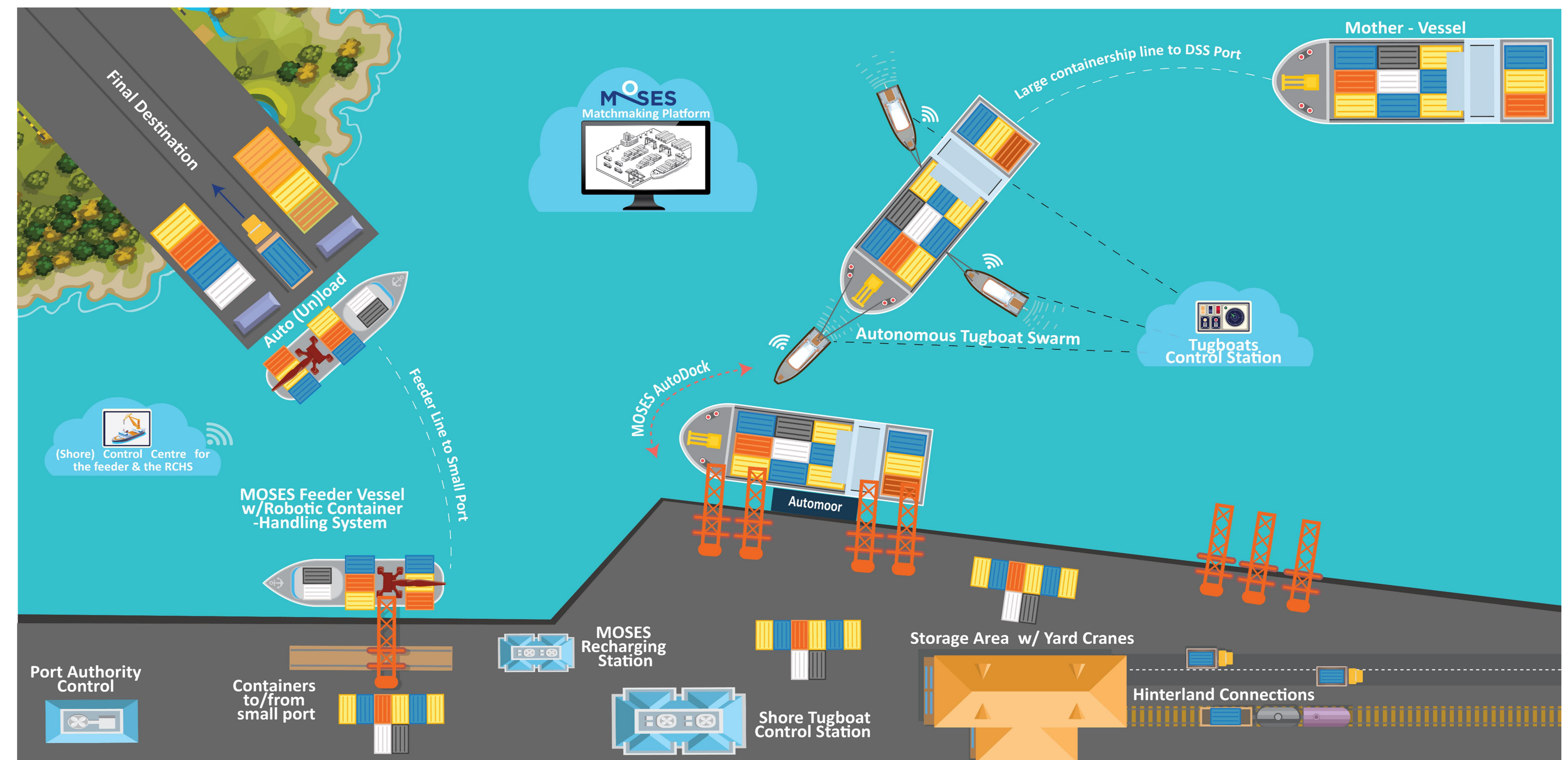
The aim of MOSES project is to enhance the Short Sea Shipping (SSS) component of the European supply chain by addressing the vulnerabilities and strains related to the operation of large containerships.

DSS ports efficiency

- Technological solutions for improving DSS ports inefficiencies
- Berthing time reduction
- Safety improvement

SSS feeder services

- Ship design for sustainable services
- No infrastructure requirement
- Logistics solution for balancing demand-supply

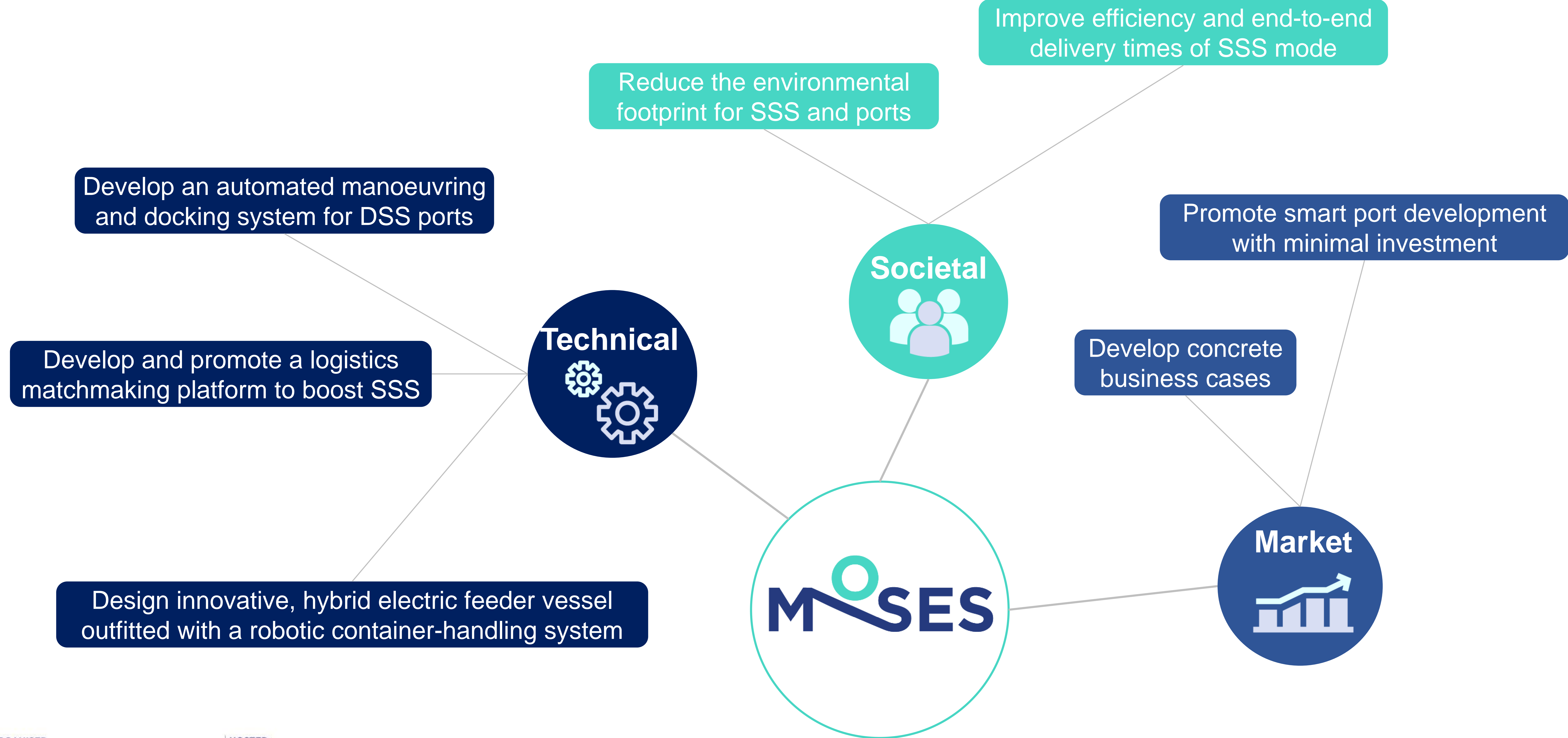


MOSES Facts & Figures

- **Project Title:** AutoMated Vessels and Supply Chain Optimisation for Sustainable Short Sea Shipping
- **Call identifier:** H2020-MG-2.6-2019
- **Topic:** “Moving freight by Water: Sustainable infrastructure and Innovative Vessels”
- **Duration:** 36 months
- **Funding scheme:** Research and Innovation Action
- **EU contribution:** € 8.122.150
- **Coordinated by:** National Technical University of Athens (NTUA), Greece



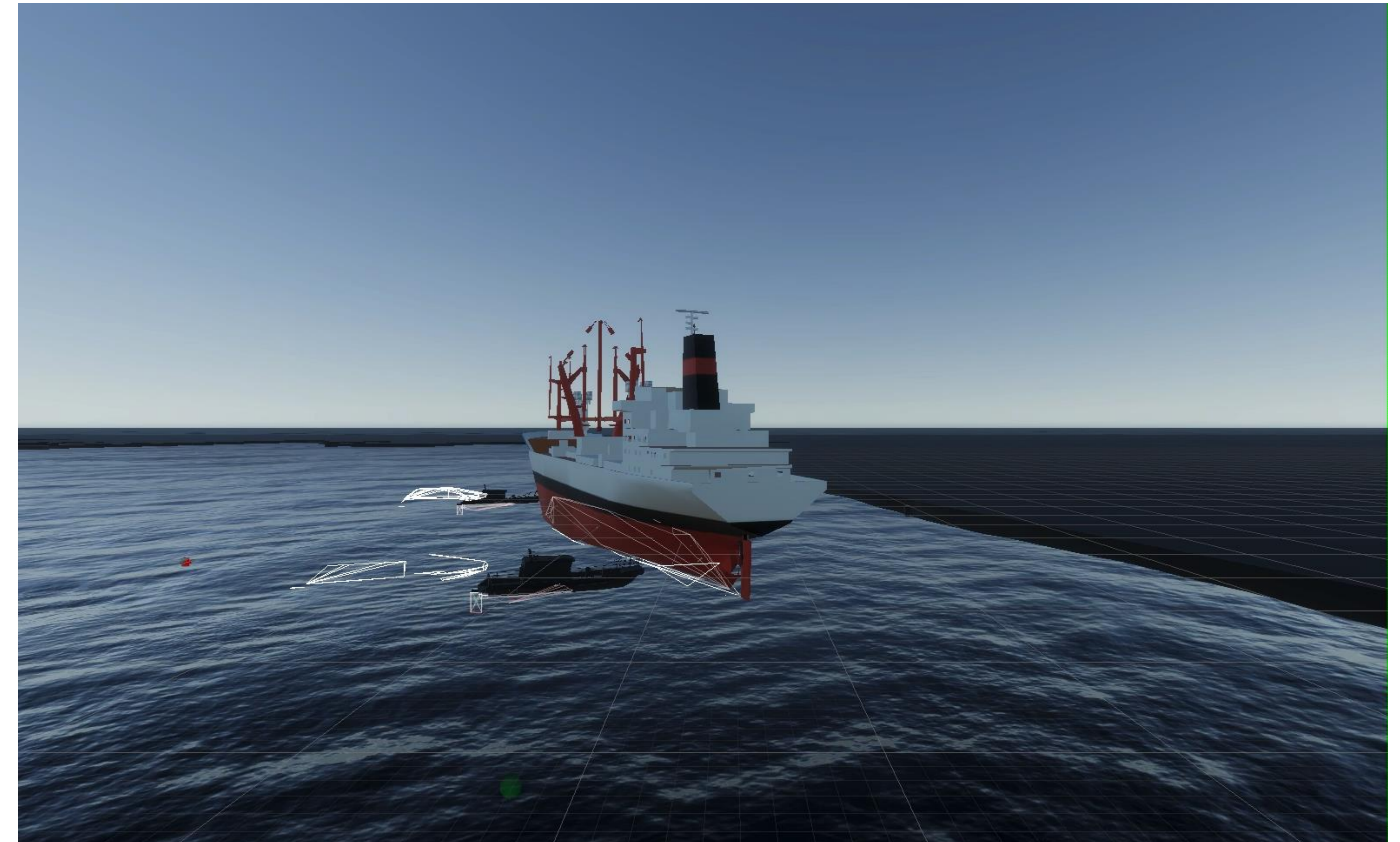
MOSES Objectives



MOSES Automation & Autonomy (1/2)

Autonomous Vessel Maneuvering & Docking

- Autonomous Tugboat Swarm operation
- AI algorithm



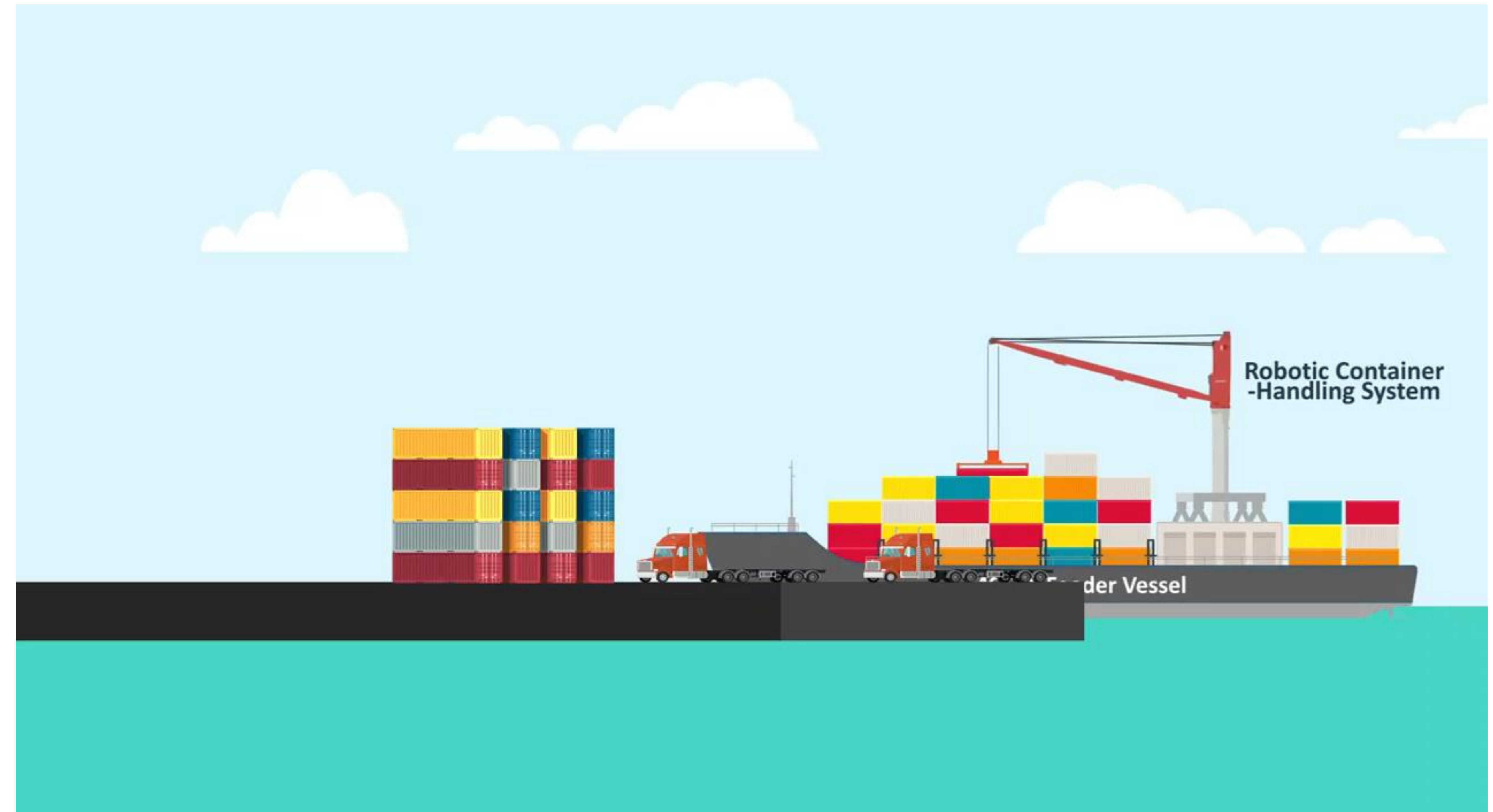
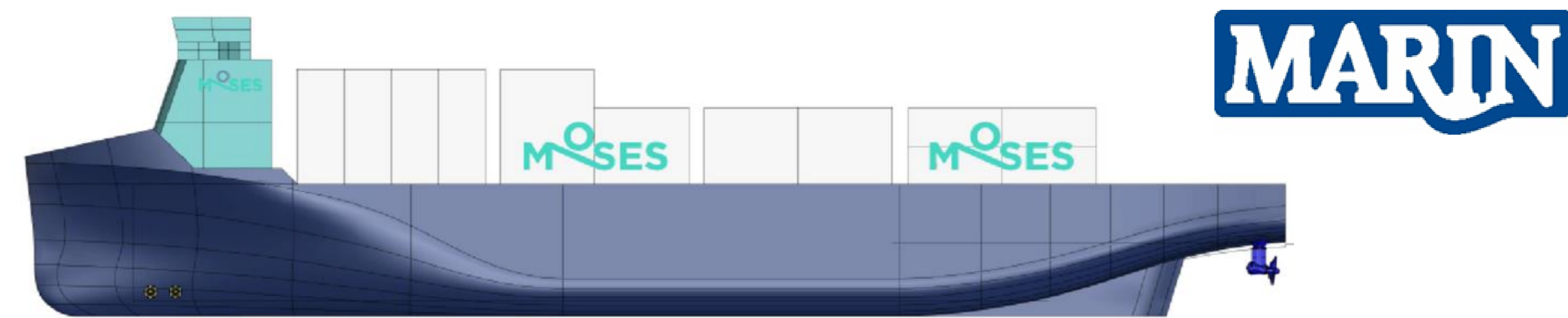
Automated Mooring

- Vacuum-based system for hands-free mooring and automated berthing (AutoMoor)

MOSES Automation & Autonomy (2/2)

Autonomous Navigation

- Innovative Feeder Vessel
- Hybrid electric propulsion
- Improved energy performance



Autonomous Container Handling

- Self-sufficient Robotic Container Handling System
- Onboard crane for container (un)loading
- Shared control between human operator and system

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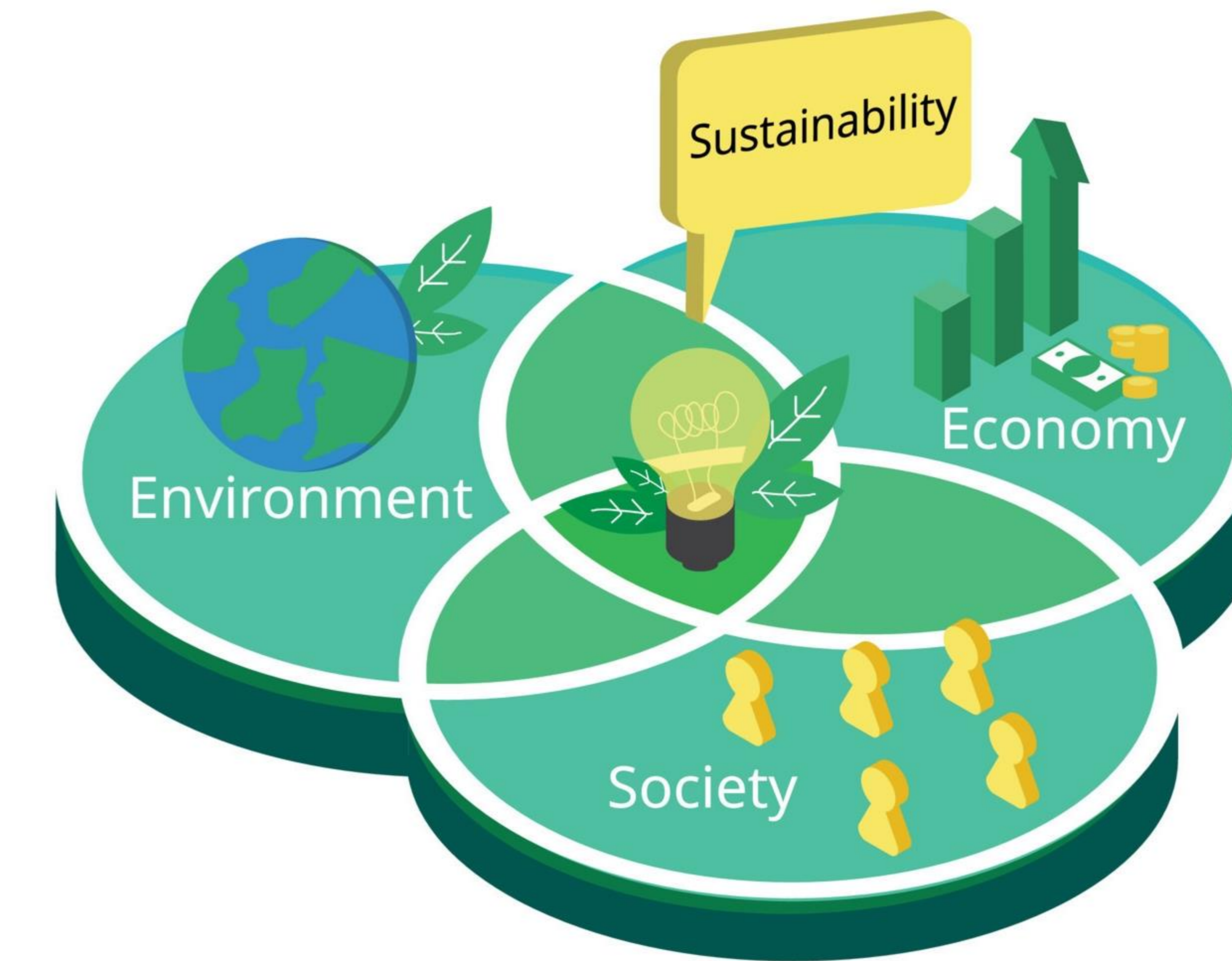
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MOSES Impact

- Increased situational awareness
- Reduction of docking time
- Reduction of port emissions
- Improved efficiency and delivery times
- Increased safety of port processes
- Enhancement of SSS
- Economic development for small ports with minimum investment
- Increased reliability of waterborne transport
- High market opportunities





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Thank you!