Towards the Realisation of Maritime Logistics Redesign through Automation

The SEAMLESS Project

Online, 05 June 2025

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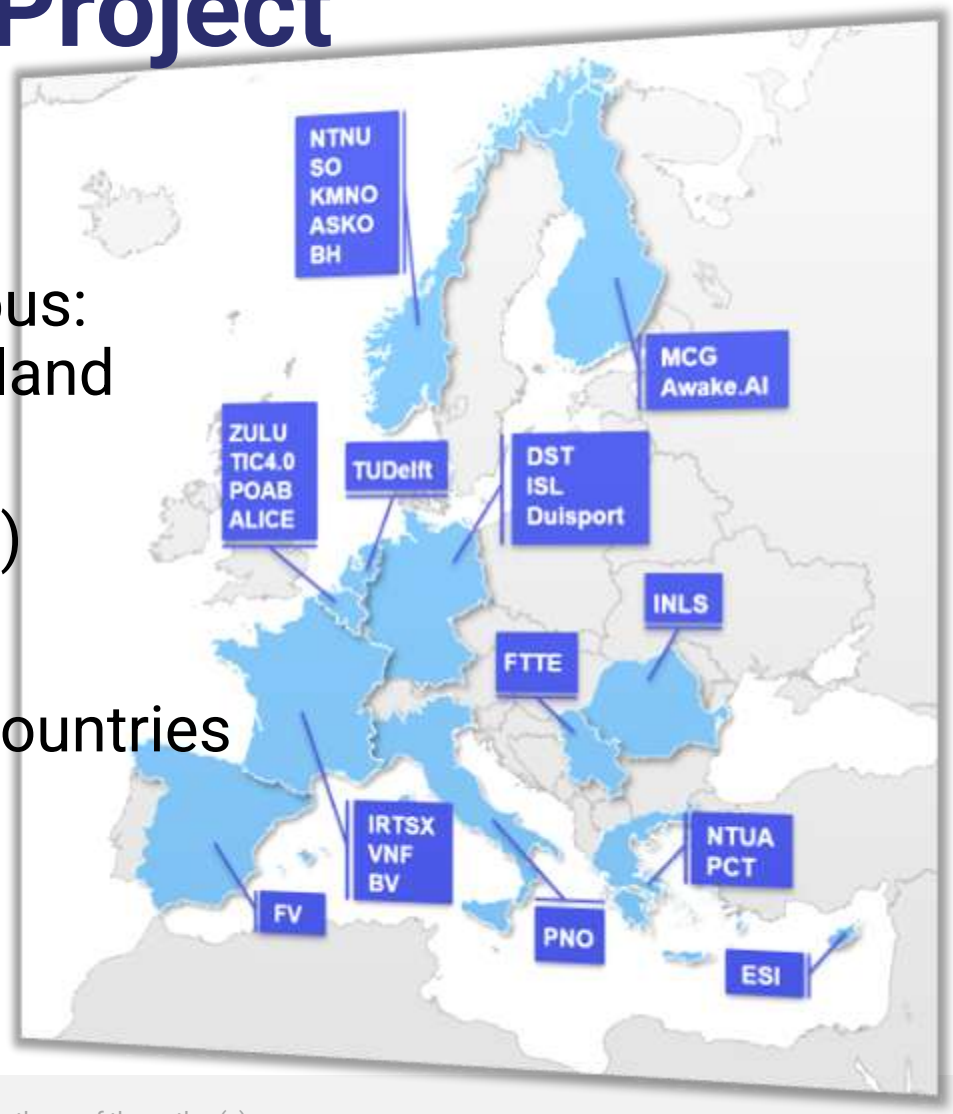
SEAMLESS

Facts about the SEAMLESS Project

- **Project Title:** **S**eamless, **E**fficient, and **A**utonomous: **M**ultimodal **L**ibrary of **E**uropean **S**hort sea and inland **S**olutions
- **Duration:** 01/01/2023 – 31/12/2026 (48 months)
- **Budget:**~15 million €
- **Consortium:** 26 Main Beneficiaries from 12 EU Countries



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Mission Statement

SEAMLESS will develop and adapt missing building blocks and enablers into a fully automated, economically viable and cost-effective, waterborne freight feeder loop service for SSS (Short Sea Shipping) and IWT (Inland Waterways Transport)*

SEAMLESS will develop and integrate autonomous systems in a way that ensures safe, resilient, efficient, and environmentally friendly operation to shift road freight movements towards waterways*

**SEAMLESS GA*

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SEAMLESS Mission Statement: Building Blocks

DockNLoad	Modular vessel and operations concepts	ModalNET
• Cargo handling • Mooring • Stowage planning • Port calling	• Low-attention Remote Operation Centre (ROC) design • Vessel control systems • Communication systems	• EMSW formalities • Resilient logistics engine

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SEAMLESS Mission Statement: Enablers

Regulatory framework

- Identification of challenges and regulatory gaps
- Simplification of complex administrational procedures
- Policy recommendations for the seamless service

Design/approval

- Framework for operational safety assessment of autonomous port infrastructure technologies
- Optimal powerplant selection/Rapid prototyping

Impact assessment

- Environmental impact assessment
- Social Acceptability

Business models

- Disruptive business models
- Cost Benefit analysis

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SEAMLESS Impact

Environment	Safety	Business
• Synchromodal synamic management of the logistics network • Techno-economic assesment of green configuration scenarios for autonomous vessels	• Identification of regulatory gaps and policy recommendations • Enhance cyber-threat catalogues • Reduce time for administrative procedures by 60%	• Reduce cargo handling costs by 20% • Investment cost comperable to road systems

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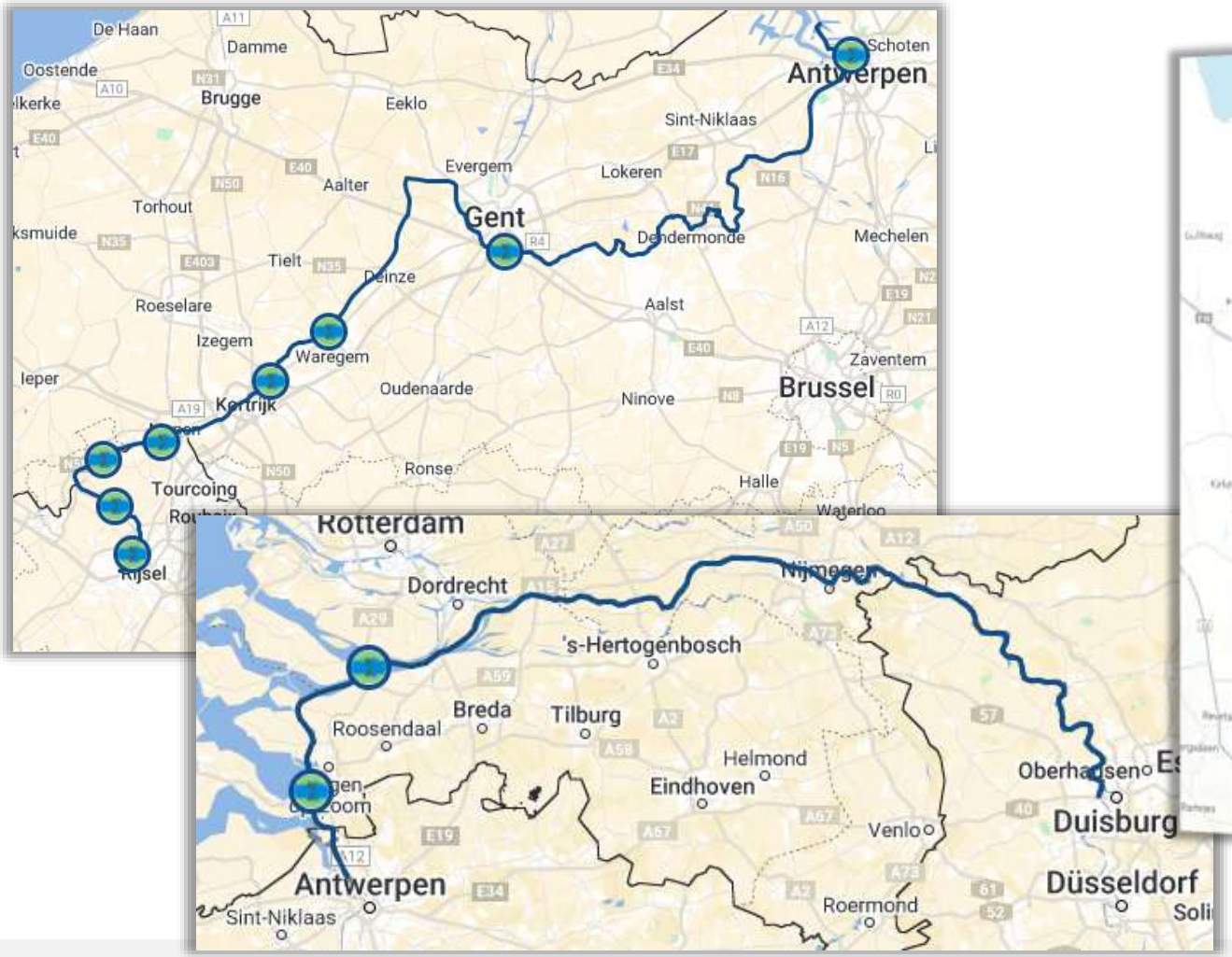
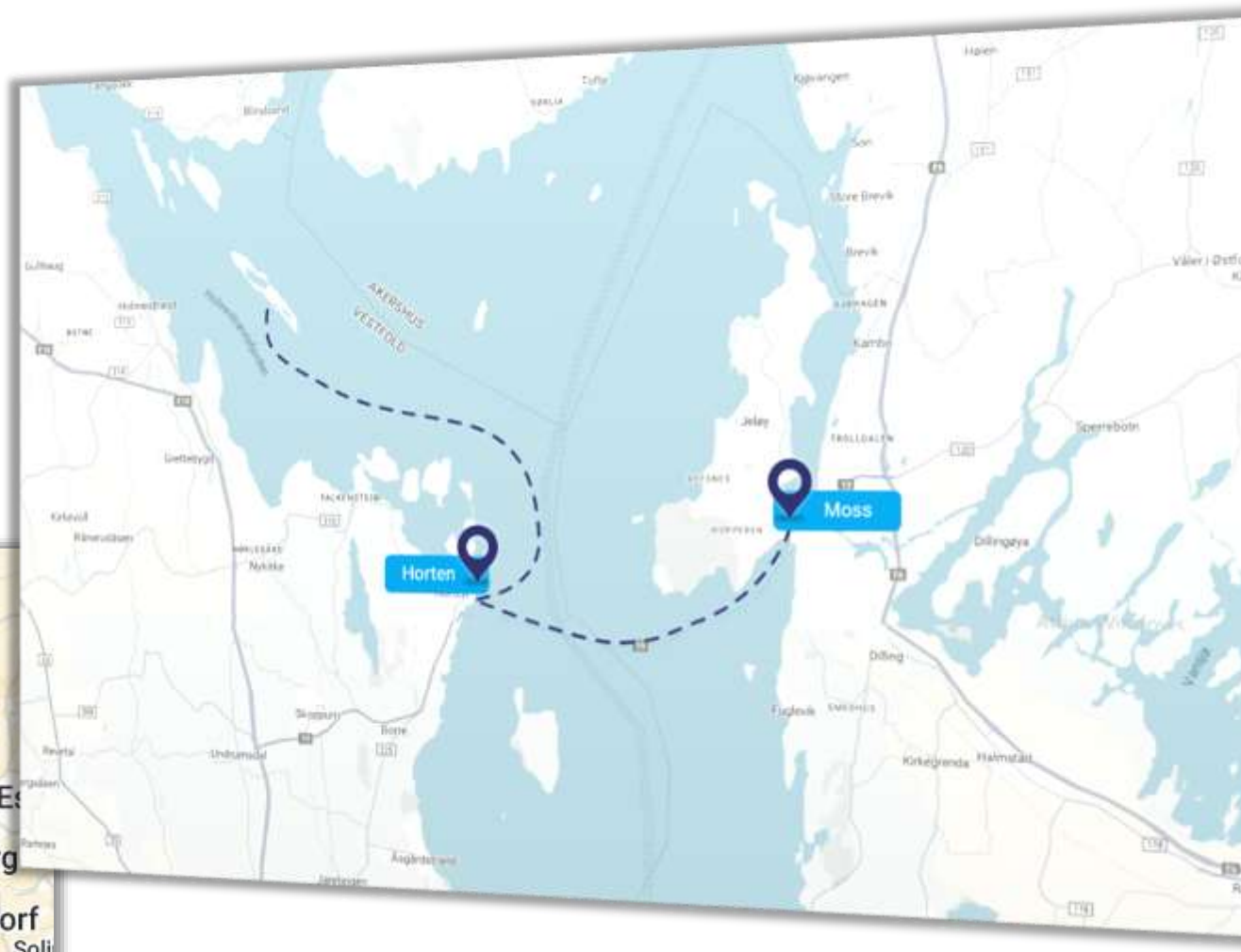
SEAMLESS Physical Demonstrations

Central European Demonstrations (IWT)



Northern European Demonstrations (SSS)



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Key takeaways

- SEAMLESS is about developing a waterborne **autonomous freight transport service**
- To realise this service, SEAMLESS will provide solutions through:
  - The SEAMLESS Building Blocks (technology-oriented)
  - The SEAMLESS enablers (desktop studies)
- The Building blocks will be demonstrated at full scale in real world scenarios*

**SEAMLESS Call Topic description:* https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl5-2022-d5-01-05

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Thank you

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