



GETTING
CONNECTED
FOR EFFICIENT,
SAFE AND
SUSTAINABLE
TRAFFIC AT SEA

EfficienSea2: From testbeds to real-life implementation

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Overall aim

CO-CREATE AND DEPLOY
INNOVATIVE AND
SMART SOLUTIONS FOR
EFFICIENT, SAFE AND
SUSTAINABLE TRAFFIC
AT SEA

FACTS

Length: **36** months

Start: May **2015**

End: April **2018**

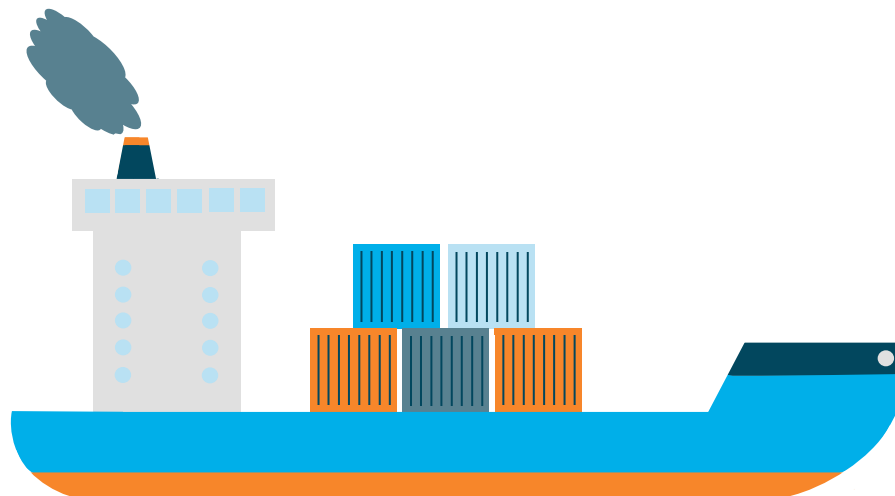
Budget: **11.5** M Euro

EU funding: **9.8** M Euro

Partners: **32**

Partner countries: **12**

Total work: **1164** man months



Overall aim – getting connected

- The EfficienSea2 project creates and deploys innovative and smart solutions for efficient, safe and sustainable traffic at sea through improved connectivity for ships.
- EfficienSea2 develops the essential solutions that are the prerequisites for taking e-Navigation from testbeds to real-life implementation.
- EfficienSea2 is a demonstrator in the Arctic and Baltic Sea and the first generation of a coherent e-Navigation solution.
- Through global collaboration, use of open source software and an explicit aim for standardised solutions, Efficiensea2 is paving the way for a global roll out of e-Navigation.

Challenge – risk of accidents and inefficiency

- Today, information exchange between ships and shore is unstable, costly and marked by old technology and non-standardised solutions.
- This increases the risk of accidents, inefficiency and administrative burdens.
- Furthermore, incentives to comply with emission regulations are limited, which adversely impacts the environment.
- The need for operational solutions in the maritime domain is significant.

Partners

32 dedicated partners, all carefully selected to ensure maximum impact of the developed solutions



Project scope – four areas of focus

- 1 End user services – smart navigation and administration
- 2 Platforms for services – web and onboard equipment
- 3 Communication framework – The Maritime Cloud
- 4 Communication channels – smart roaming and VDES

Movie time

www.maritimecloud.net

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End user services – smart navigation and admin.



- Maritime Safety Information
- Notices to Mariners
- Meteorological Information on Route
- Ice Charts
- Crowd Sourcing of Ice Information
- Nautical Charts based on S100 Standards
- Smart Buoy Interaction
- Route Optimisation
- Route Exchange
- No-go Areas & Comfort Zones
- Arctic Live Position Sharing
- Arctic SAR Tool
- Space Weather Forecast
- Automated reporting to Port, VTS and SRS
- Standardised templates and reporting form
- Reliable Port Information
- Sulphur Emission Monitoring



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End user services – smart navigation and admin.

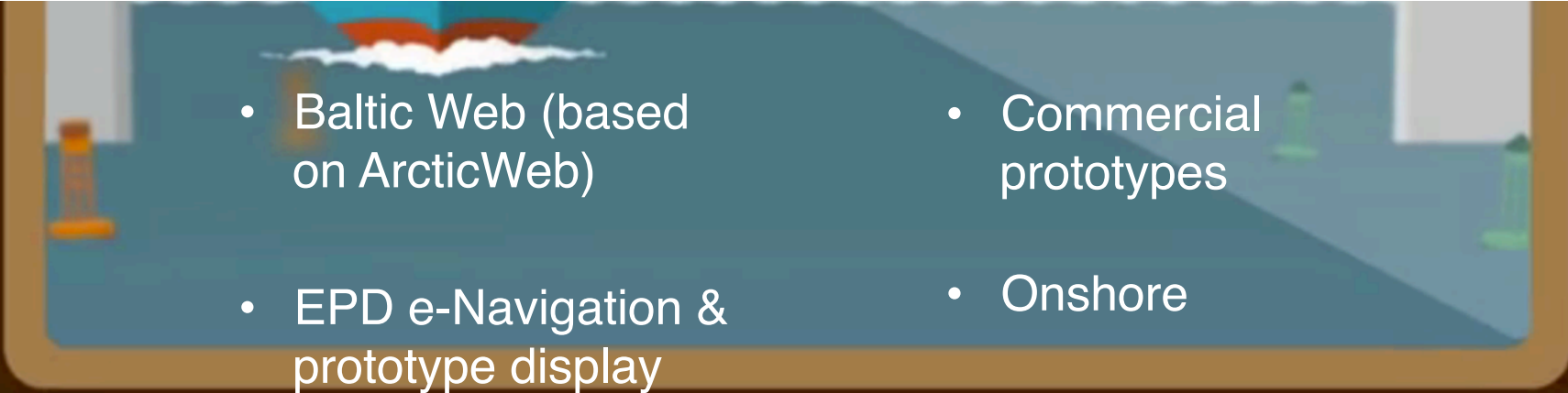
- EfficienSea2 identifies, develops, tests and, where possible, standardises and implements solutions that reduce the risk of accidents, increase the efficiency of the transport chain and lower the administrative burdens and environmental impacts.

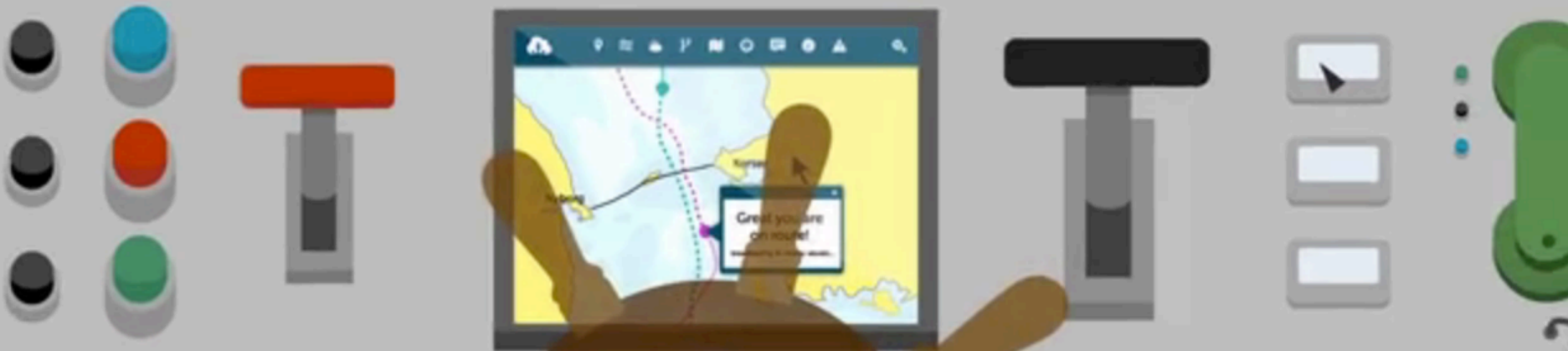
Output: 15 e-Navigation and e-Maritime services

- EfficienSea2 develops more than 15 end user services, at different stages of maturity. Some services, like basic navigation and weather solutions, will be tested and implemented in real world platforms.
- Other more advanced services will be tested at experimental levels. Focus on open source software and providing input to relevant standardisation bodies. Some services are anticipated to reach new global standards within the project scope.

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Platforms for services – web and onboard equipment

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- Baltic Web (based on ArcticWeb)
 - EPD e-Navigation & prototype display
 - Commercial prototypes
 - Onshore



2

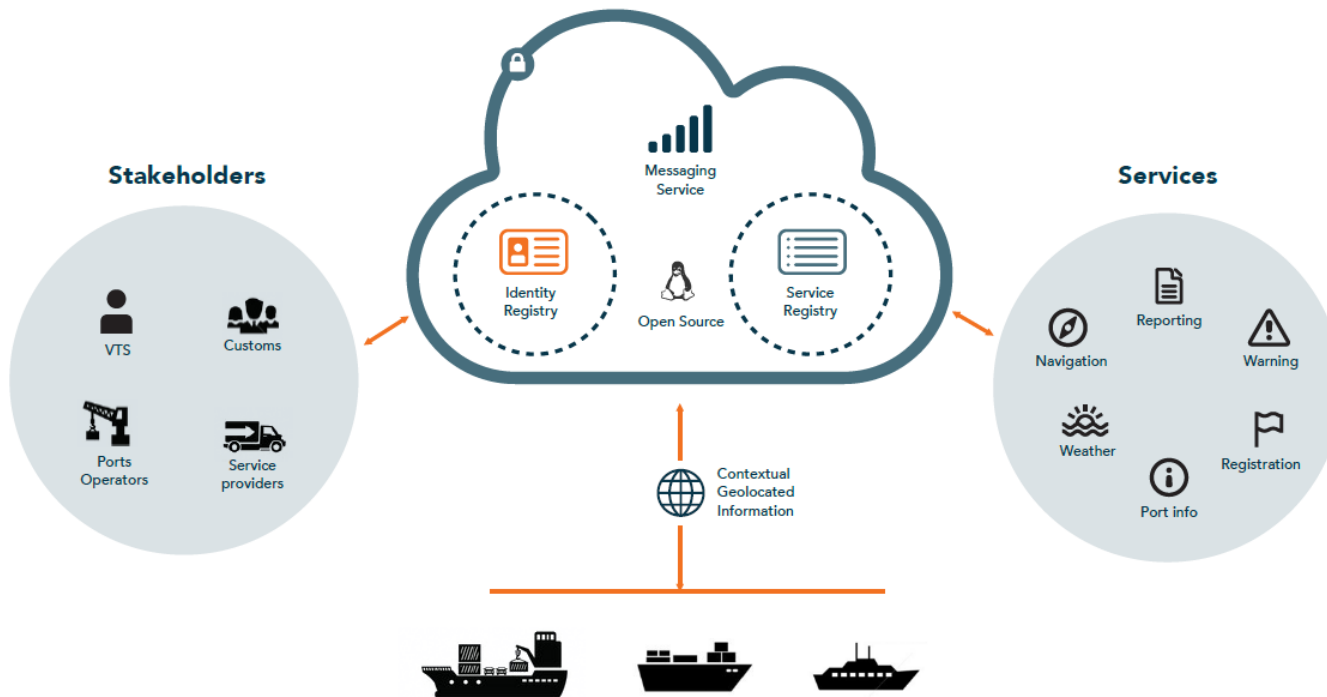
Platforms for services – web and onboard equipment

- EfficienSea2 makes services available for the end user by developing webbased platforms focusing on the Arctic and Baltic areas.
- For the long term roll-out, services will also be prototyped and tested in commercial onboard and shore equipment.

Output: Implementation of BalticWeb

- EfficienSea2 provides a working prototype of a cloud embedded single point of access to e-Navigation and e-Maritime services in the Baltic Sea (based on the existing ArcticWeb).
- With five to six integrated e-Navigation services, BalticWeb will be accessible on all internet connected systems, e.g. tablet and PC.

Communication framework – The Maritime Cloud



Communication framework – The Maritime Cloud

- EfficienSea2 creates and implements a communication framework that enables efficient, secure and reliable information exchange in and around the maritime sector.
- The Maritime Cloud connects all maritime stakeholders with maritime information services of all kinds. The Maritime Cloud includes an Identity Registry for secure identity management, a Service Registry for registering, discovering and using relevant services and a Messaging Service for intelligently exchanging information between communications systems connected to the cloud.
- The Maritime Cloud has potential to break ground by enabling the maritime internet of things.

Communication framework – The Maritime Cloud

Output: Implementation of The Maritime Cloud

- EfficienSea2 provides a working prototype of the communication framework with operational functions such as a single logon for all services, identity management and discovery of maritime services.
- Elements of The Maritime Cloud will be made operational in the Arctic and Baltic Sea.

Communication channels – smart roaming and VDES

- VDES – VHF Data Exchange Systems
- Available & emerging communication technologies



- Robust, seamless & cost-effective roaming
- Connection to ship systems



Communication channels – smart roaming and VDES

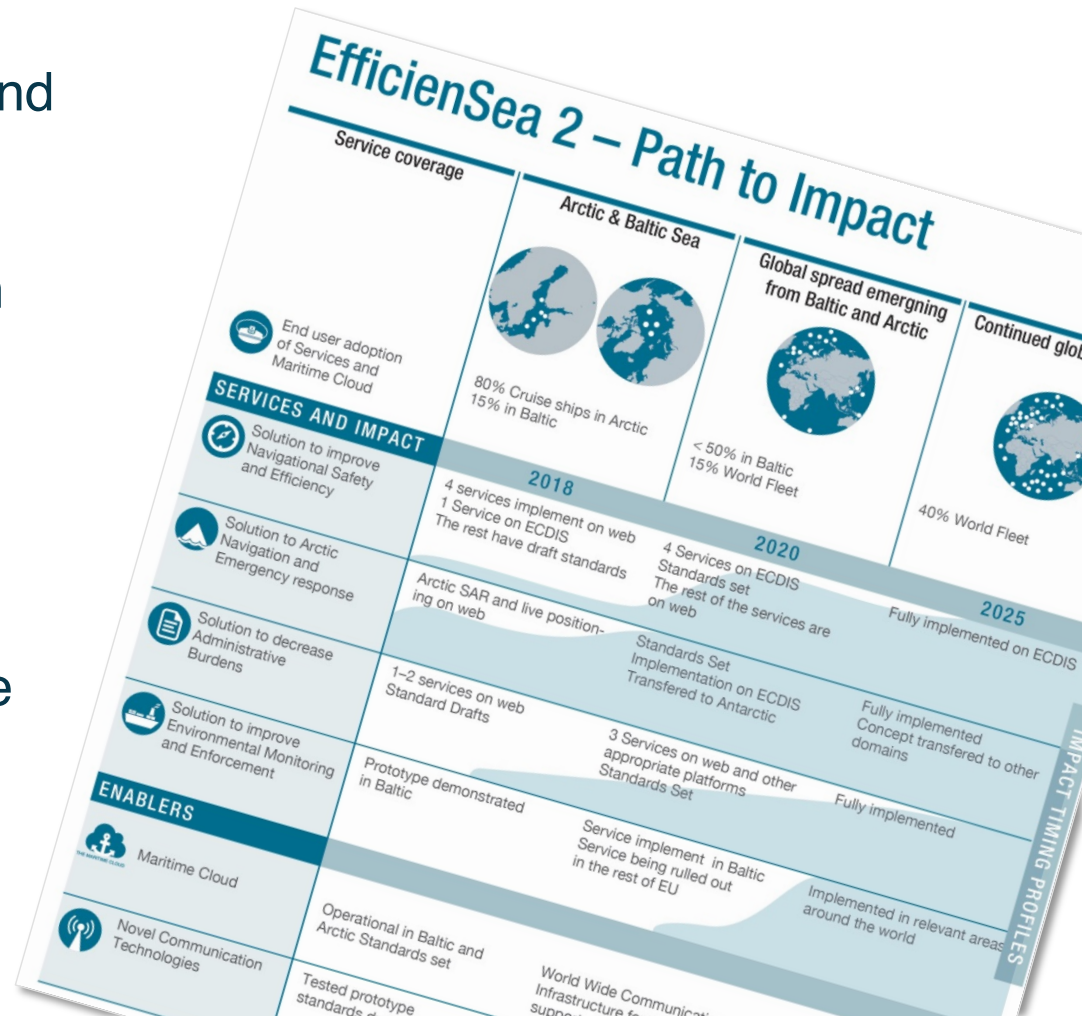
- EfficienSea2 develops, prototypes and tests concepts for cost-effective and seamless roaming between communication channels, as well as, the new communication channel VDES (VHF Data Exchange System).
- Thereby, it addresses the challenge of weak connectivity and high cost communication.

Output: Maturation of VDES – VHF Data Exchange System

- EfficienSea2 provides field testing of the on-air parameters performed on a dedicated test platform of a new, globally interoperable and potentially cost free ship-to-ship and ship to shore digital communication link that is dedicated to data transfer via radio channels.

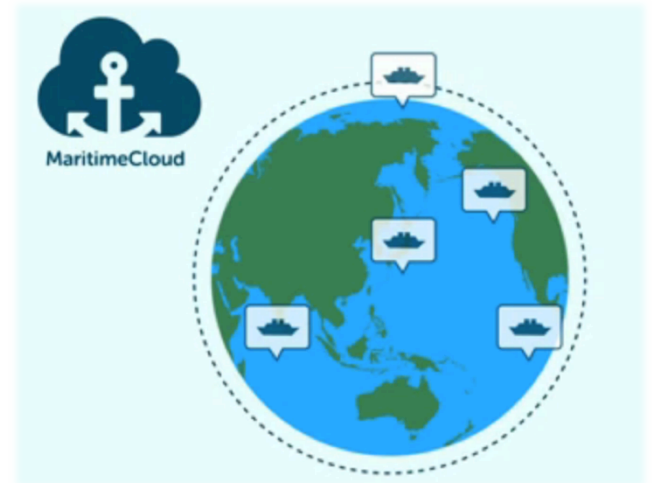
Maximising Impact

- Standardisation
- Coordination with projects and policies
- Interaction and support from stakeholders
- Governance and business model
- Ensuring that it works for the users



Output

- 15 e-Navigation and e-Maritime services
- Implementation of BalticWeb
- Implementation of Maritime Cloud
- Maturation of VDES – VHF Data Exchange System



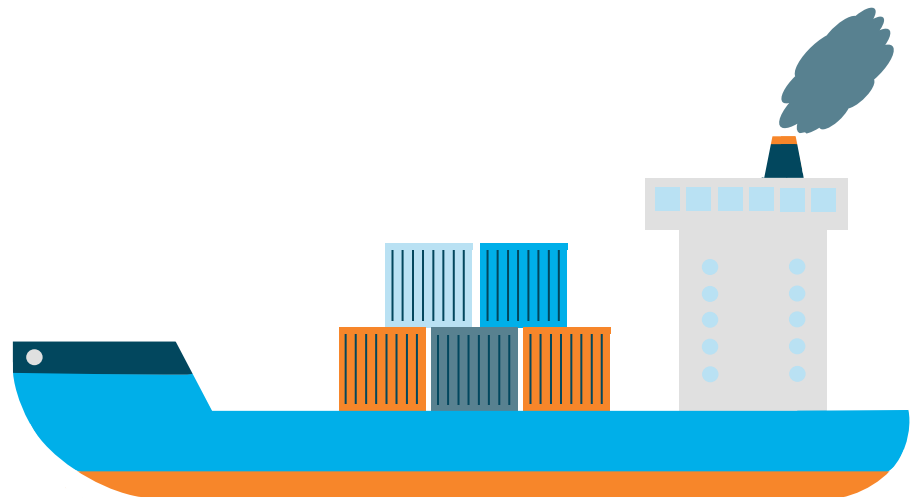
Stay connected

Learn more about efficienSea2 and how we work for efficient, safe and sustainable traffic at sea at:

www.efficiensea2.org



Join our EfficienSea2 LinkedIn group to get project updates



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