



international



e-Navigation
underway 2016

e-Navigation Underway International 2016

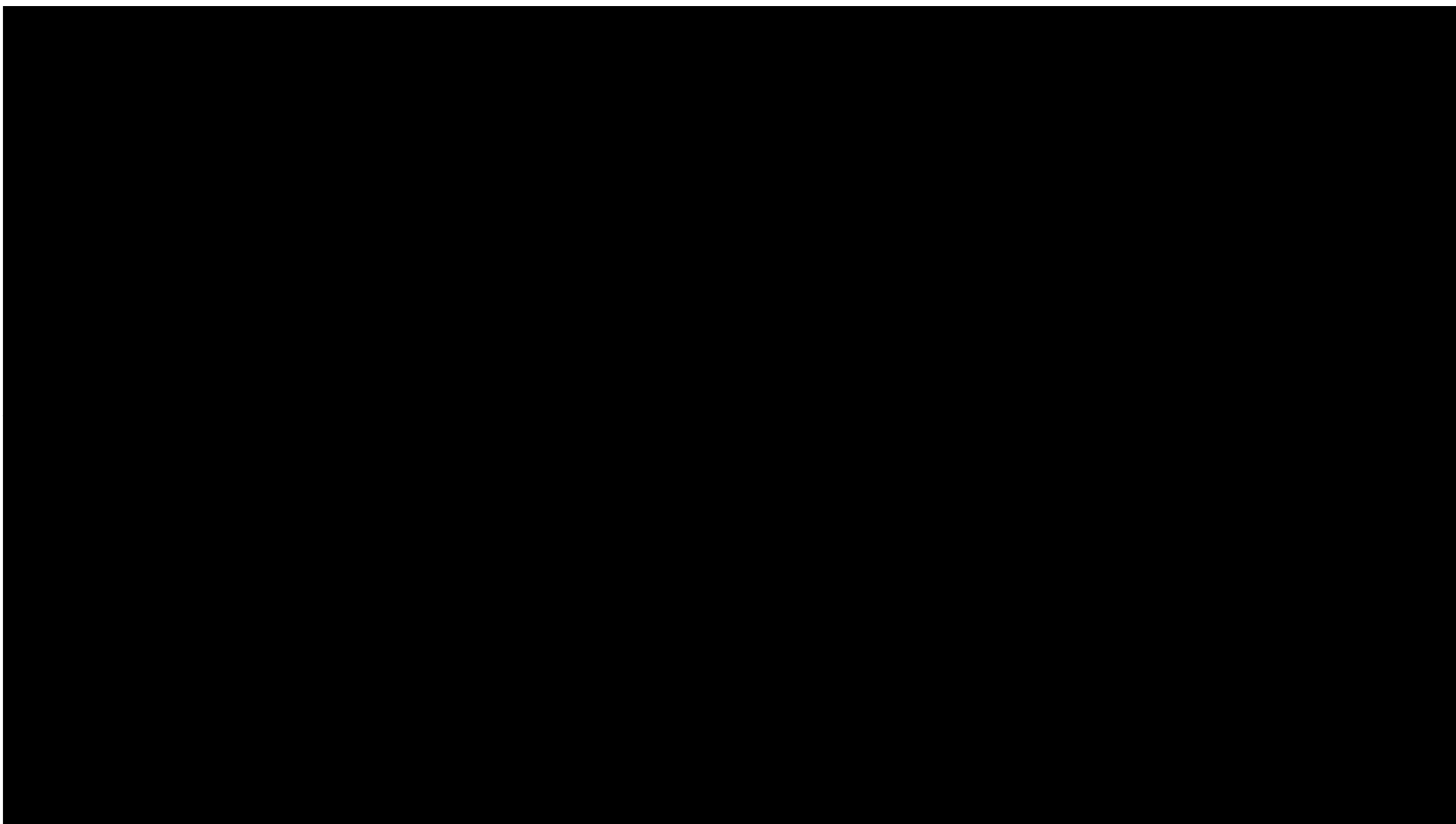
The **coordinated** approach



MONALISA 2.0 - Some Basic Facts

- Budget: 24.3 M€
- 50% co-financing from EU; TEN-T
- Project period: Sept 2013 – Dec 2015
- Lead Partner: Swedish Maritime Administration





Sea Traffic Management (STM)

What is STM?

STM takes a holistic approach to distributed service related to the **berth-to-berth voyage** enabling the efficient, safe, and environmentally sustainable sea transport

STM is a concept for sharing secure, relevant and timely maritime information with authorized service providers, by proposing a framework and standards for information management and interoperable services

Maximize the utilization of the facilities in ports

Minimize the use of energy to steam between two ports



Information management in sea transport

P
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Many competing autonomous actors with their own systems/solutions

Vendor specific solutions

Sub-optimized information sharing

High entry barriers for new service providers

Lack of standards for information sharing and service interaction

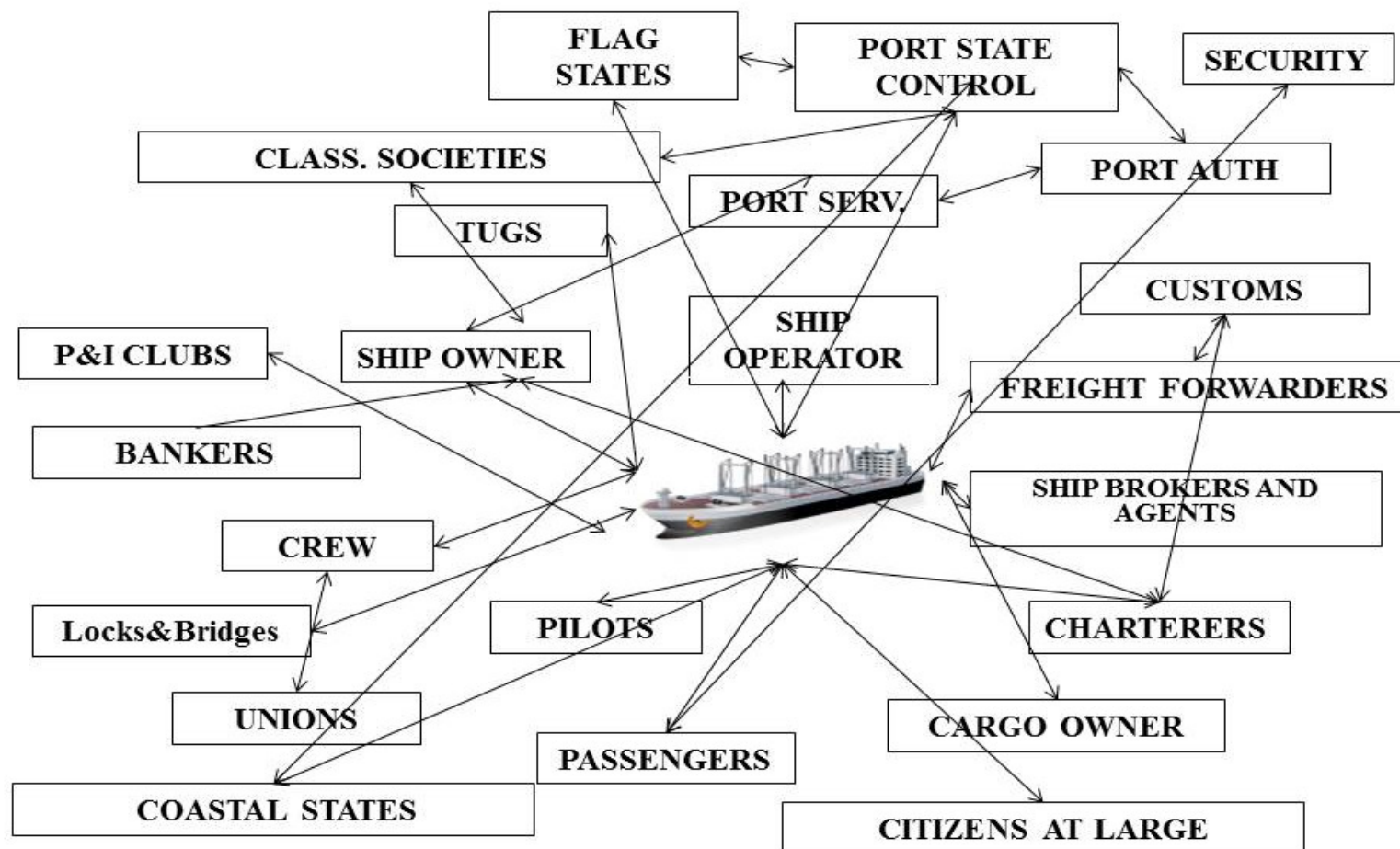


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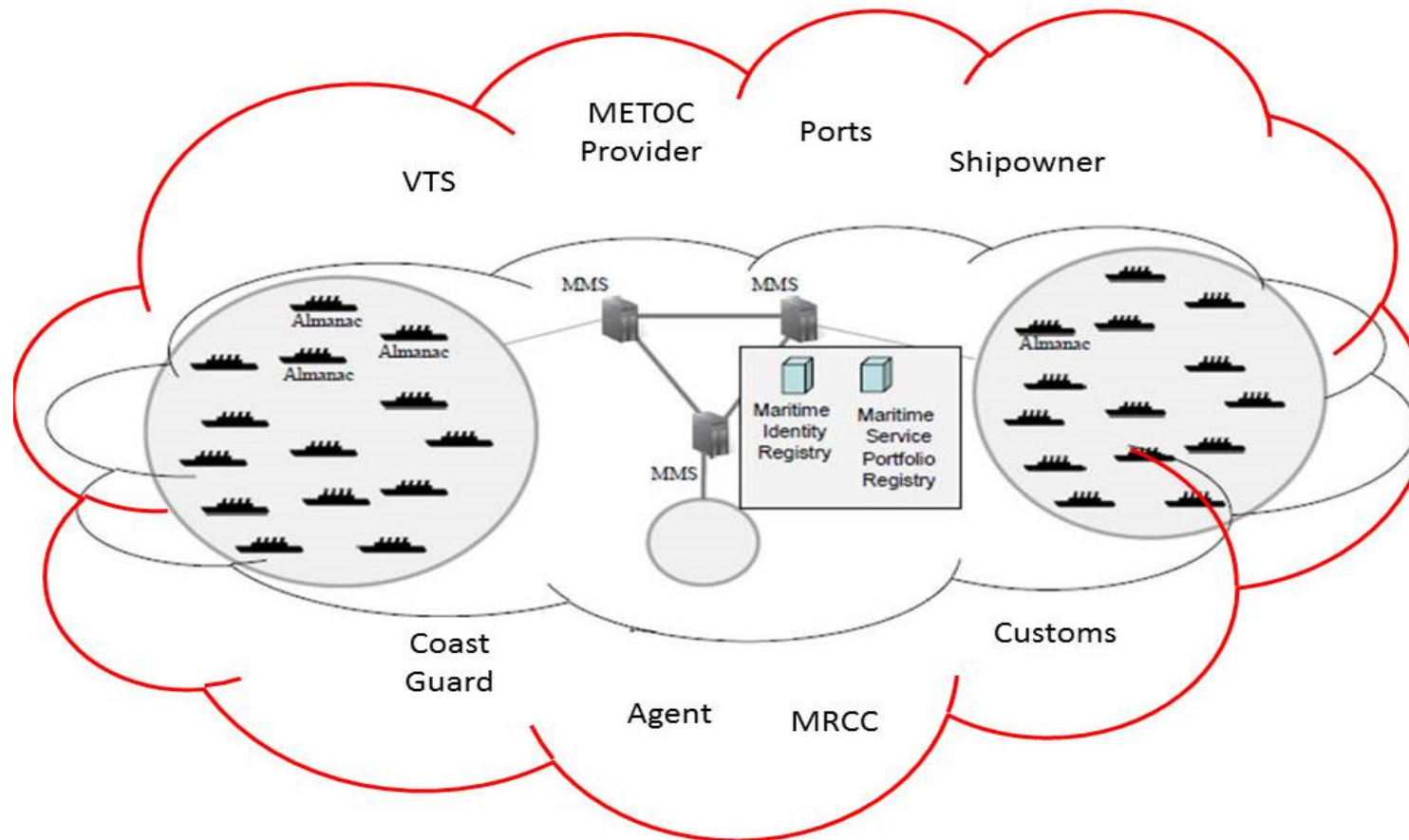
A common service distribution and information sharing environment promoting TRUSTED, NON-PROPRIATORY, AND FEDERATED COLLABORATION



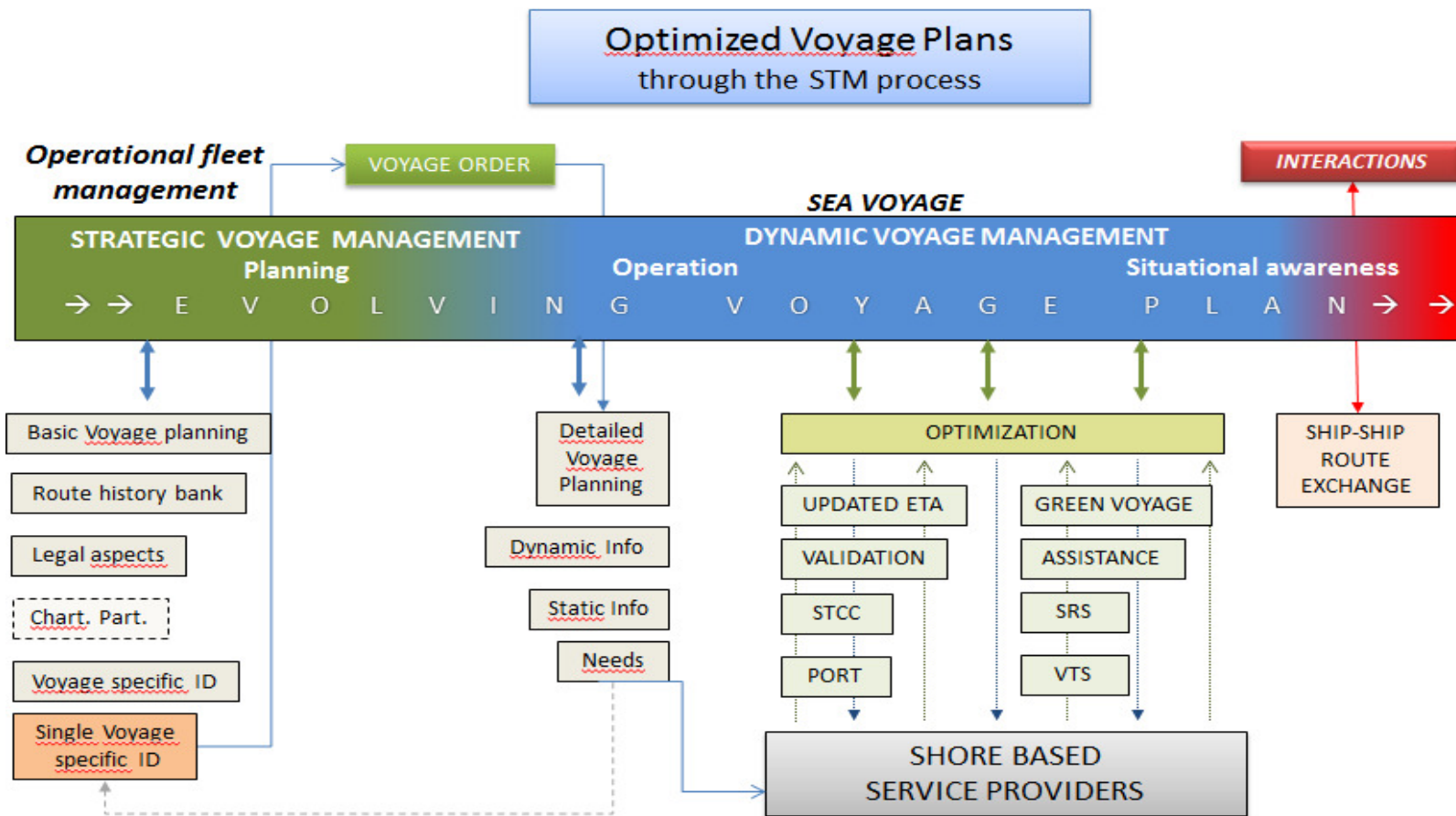
Information sharing infrastructure in shipping



The Maritime Cloud facilitating SWIM – The coordinated approach!



Linking Strategic Voyage Management to Dynamic Voyage Management

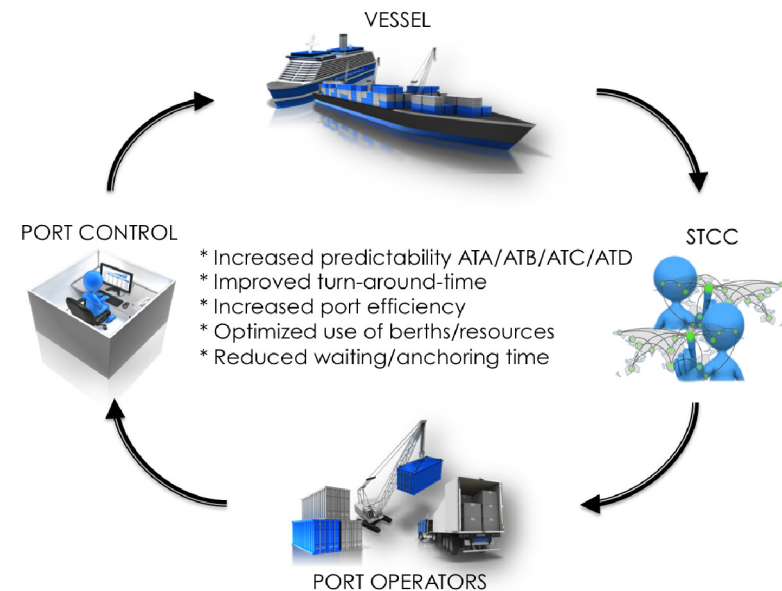


Port Collaborative Decision Making (Port CDM)

The overall objective of the concept:

to support the development of efficient operations so the actors involved in a port call process (arriving of the vessel, cargo operation and the departure of the vessel) are well informed and well prepared for their tasks, creating conditions for a smooth and seamless port call.

- Situational awareness for increased ability to predict state changes for optimized port calls
- A common measurement and information sharing framework for integration of processes with high efficiency resulting in just-in-time operations for involved actors in a port call.
- Increased collaboration between actors by information exchange for coordinated port calls – from dyadic interaction to shared situational awareness.



Why STM?

- Reducing sailed distance
- Green steaming
- Safety
- Intermodality



Why STM?

Reducing sailed distance

- Each % sailed distance in the Baltic costs 100 000 000 € per year.

CBA report, MONALISA 1

- The Sound: Potential 12% saving.

SSPA study, MONALISA 2.0



Why STM?

Green steaming

- In a Swedish port...
12% of ships anchor
for 18 hours (median)
- If they'd reduce speed by 3 kts for
20 hours...
- 34% save on energy and emissions!

*Green Steaming: A Methodology for Estimating
Carbon Emissions Avoided
Watson, Holm, Lind, 2015.*



Why STM?

Safety

- The maritime world suffers a 25 times higher rate of accidents than aviation.
- Sharing voyage plans will reduce accidents

Target Concept report, MONALISA 2.0



FSA – the safety case

Estimated reduction (%) of expected collisions and groundings by implementation of the Risk Control Measures.

| Risk reduction rate | Flow Management by flow optimisation | Flow Management by enhanced monitoring | Dynamic Voyage Management by route exchange | Weighted combined rate |
|---------------------|--------------------------------------|--|---|------------------------|
| Collisions | 58% | 5% | 52% | 83% |
| Groundings | 6% | 64% | 8% | 73% |

Depending on the number of ships adopting STM, total annual safety benefits in European waters may reach an order of 100 million € in terms of averted cost and loss of lives.



Where do we go from here?

- This far – conceptual development
- Improvement phases
 - Voluntary, business driven 2020
 - Regional (e.g. Baltic) 2025
 - Global? 2030

Legal Impacts report, MONALISA 1

Strategic Roadmap and Master Plan report,

MONALISA 2.0

- Now: STM Validation, test-beds





Large STM test-beds

- **Multivendor** environment supporting STM functions
- Operational **services adding value** to users
- VTS centres, icebreakers, MRCCs making use of **STM in existing services**
- 5 Shore centres doing **Voyage Management**
- 13 Ports doing **Port CDM**
- 300 ships **STM-ready!**



Co-financed by the European Union
Connecting Europe Facility

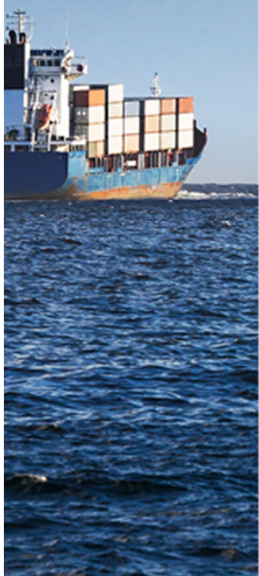


Why...

Boost system development – Set the standard

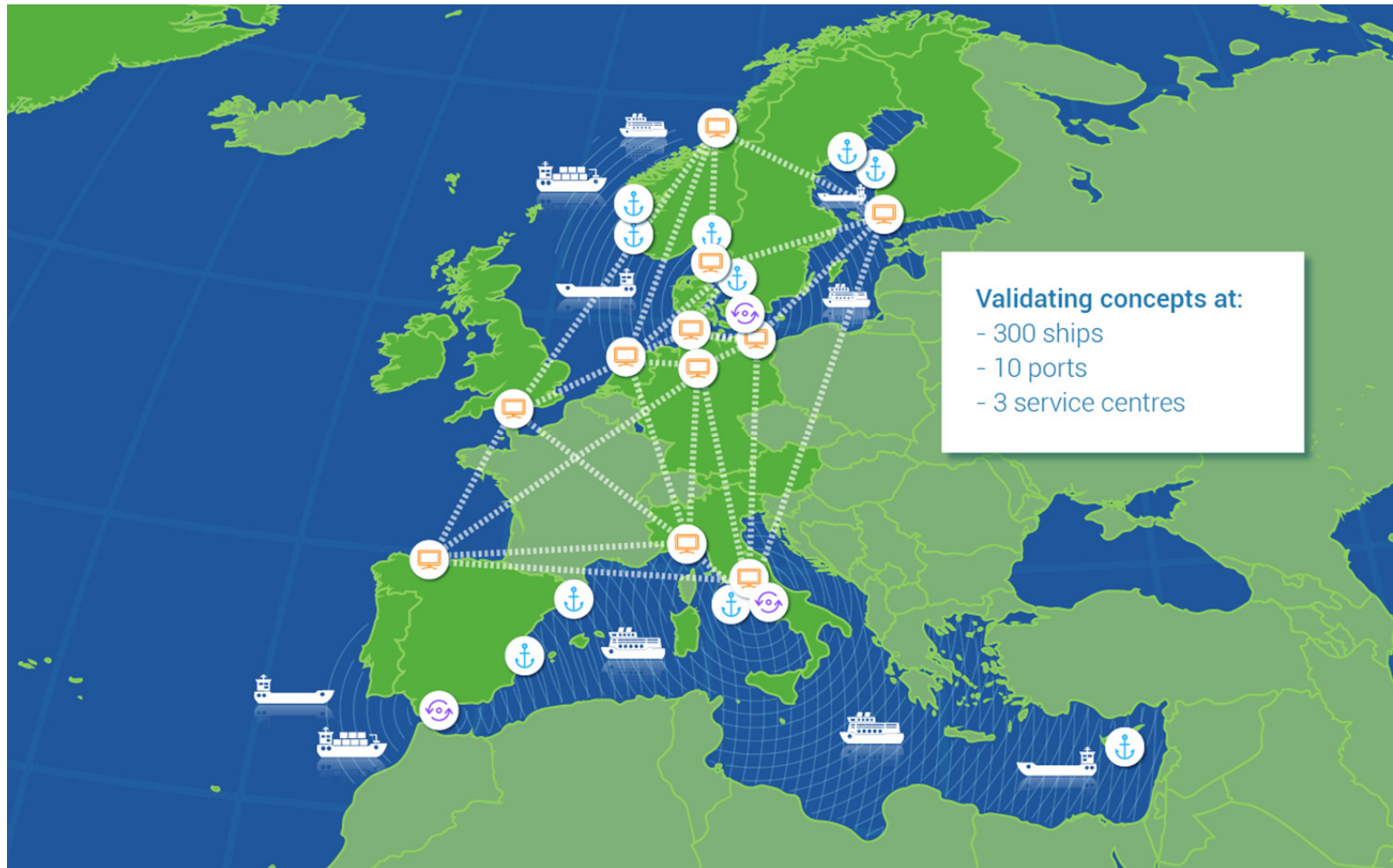
Evaluate the concepts & services – Validate

Roll out STM– Demonstrate



Co-financed by the European Union
Connecting Europe Facility

Where...



When...

| | | 2015 | 2016 | | | | 2017 | | 2018 | |
|----------------------------|------------|------|------|----|----|----|------|-------|-------|----|
| Task | Due date | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2-Q4 | Q1-Q3 | Q4 |
| Establish STM funct. spec. | 2016-03-28 | █ | █ | | | | | | | |
| Procurement of prototypes | 2016-06-30 | ▨ | ▨ | █ | | | | | | |
| Prototype development | 2016-11-30 | | | ▨ | █ | █ | | | | |
| Installation | 2017-02-28 | | | | | | █ | | | |
| Test bed | 2018-09-28 | | | | | | | █ | █ | |

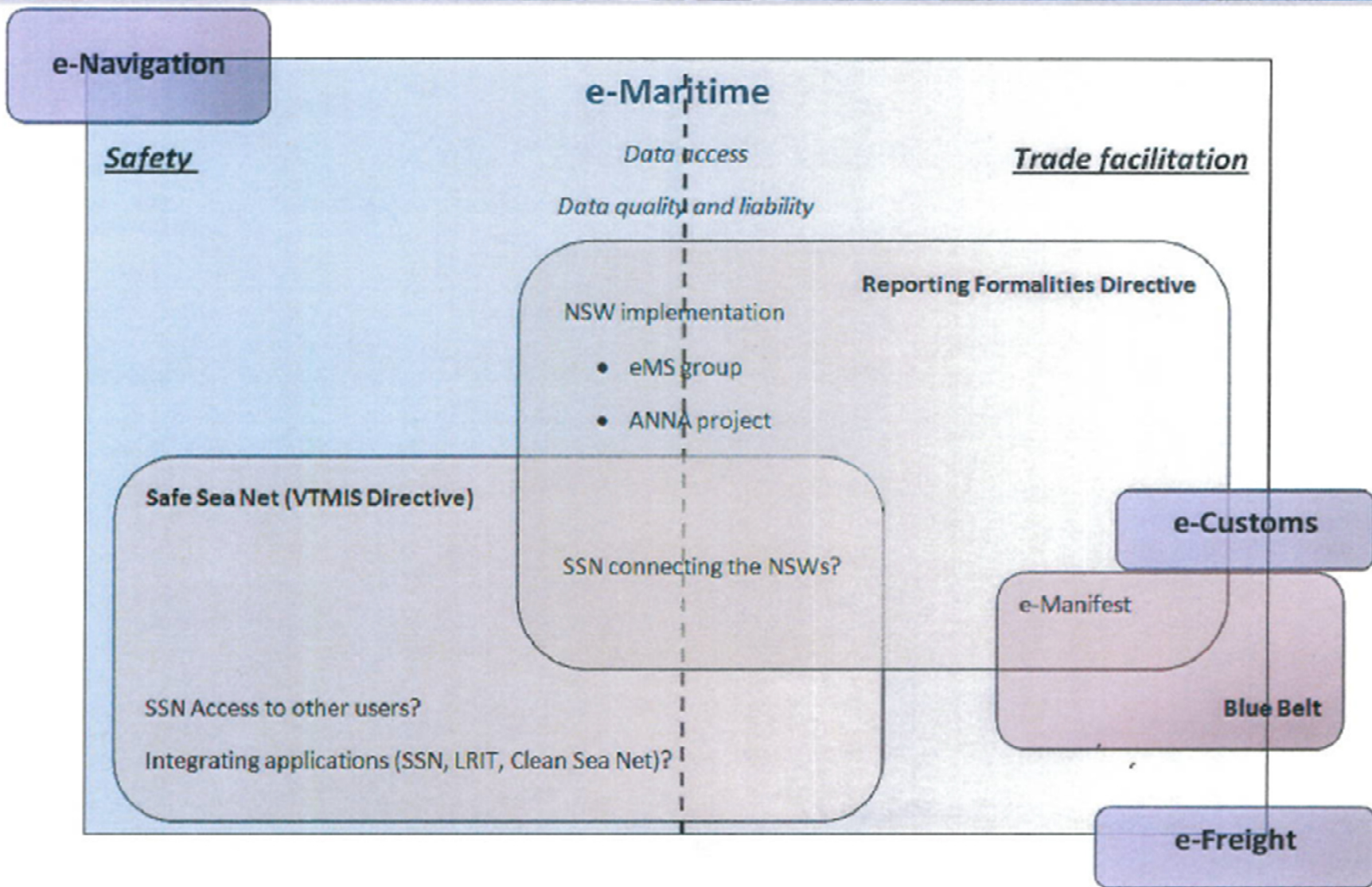


international



e-Navigation
underway 2016

e-Navigation underway International 2016
The coordinated approach





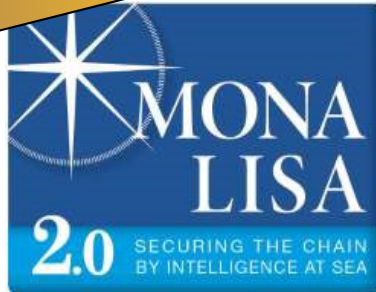
EfficienSea
Efficient, Safe and Sustainable Traffic at Sea



ACCSEAS

Safety, security, efficiency

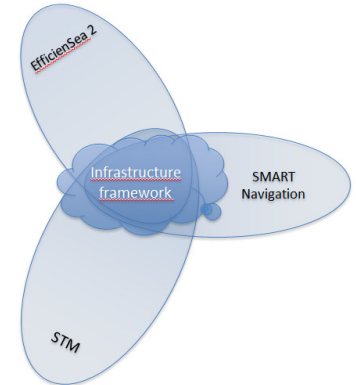
Supply chain & business efficiency



Korea's Strategy for e-Navigation
SMART-Navigation

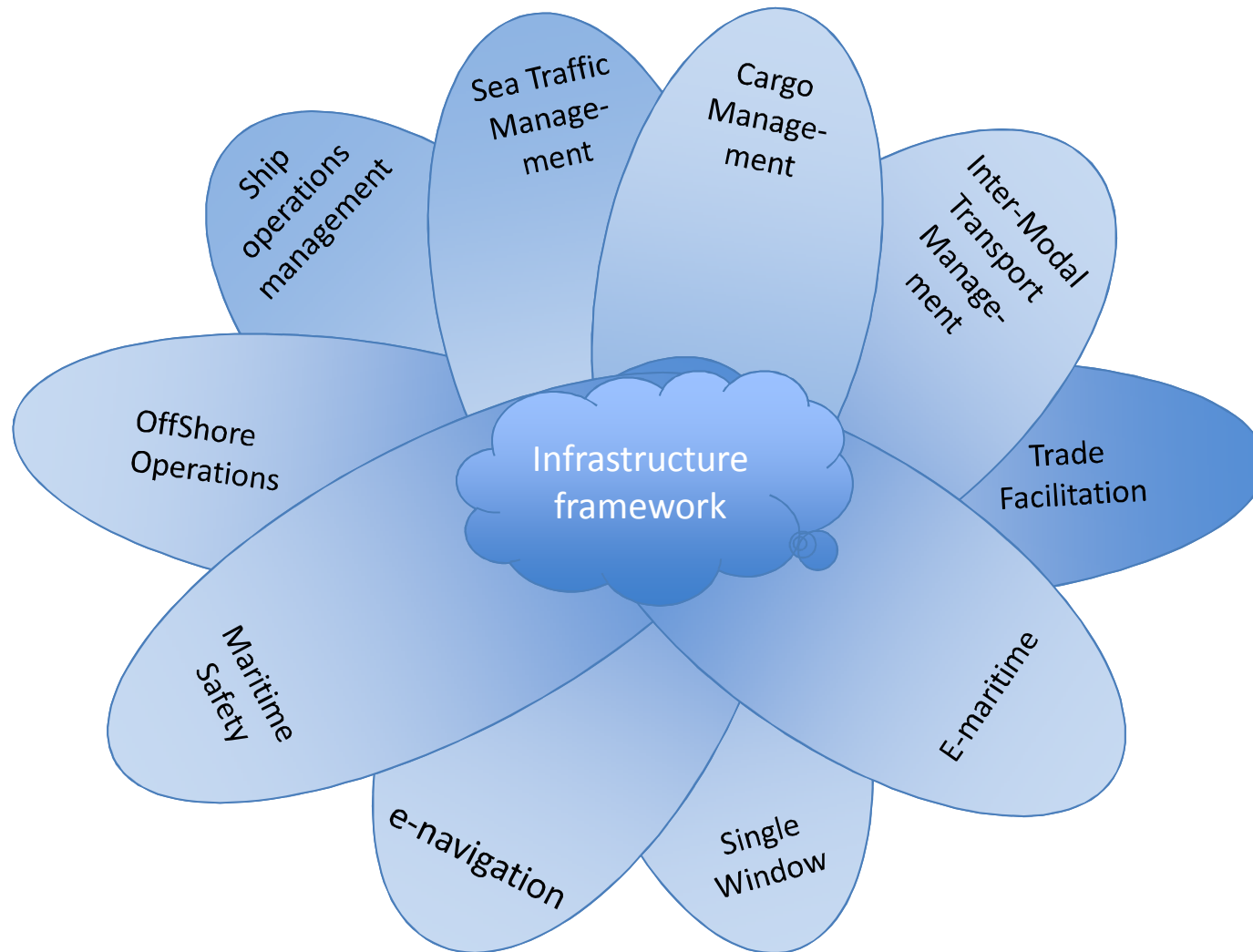


Presented by
Bu Young, Kim
28 May 2014



e-Navigation
Intelligent Vessel
Traffic Management

A maritime digital infrastructure?



Jens K. Jensen
Danish Maritime Authority



Mikael Lind
Viktoria Swedish ICT AB



Kwangil LEE
ETRI, Republic of Korea





Per Setterberg
Swedish Maritime Administration
per.setterberg@sjofartsverket.se
www.stmvalidation.eu