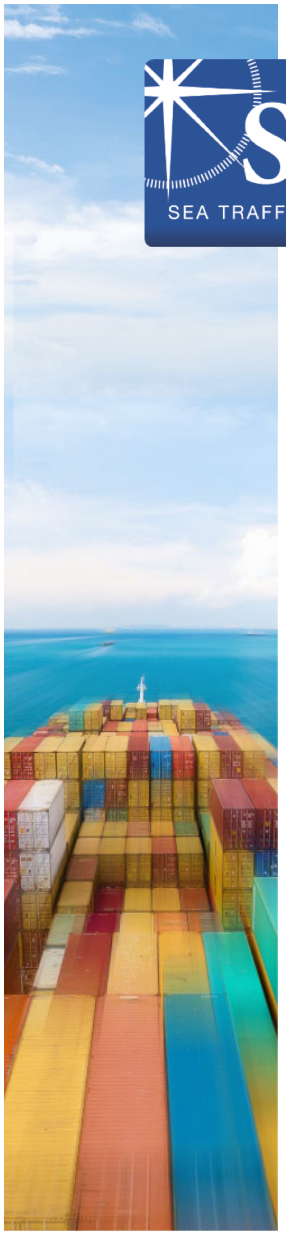
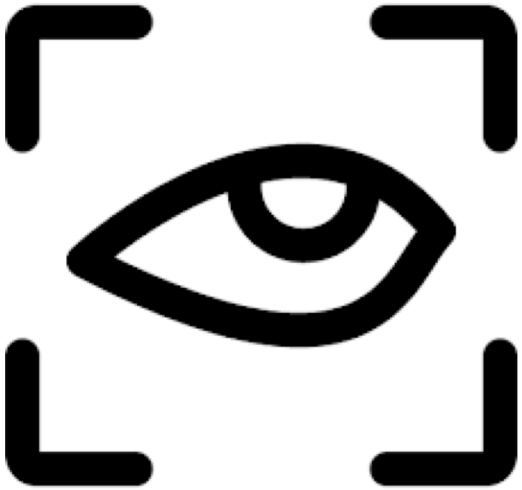

STM
SEA TRAFFIC MANAGEMENT
Co-financed by the European Union
Connecting Europe Facility
PORTCDM 2.0, ASSIGNEMENT
RISE VIKTORIA 2018-03-28

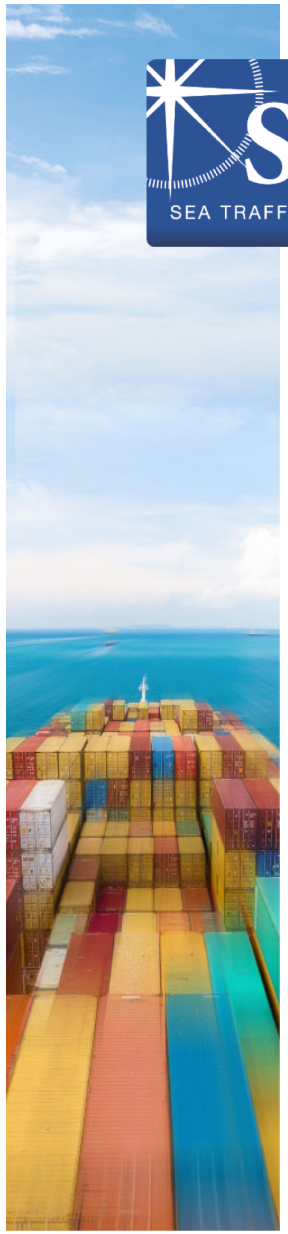


Agenda for today



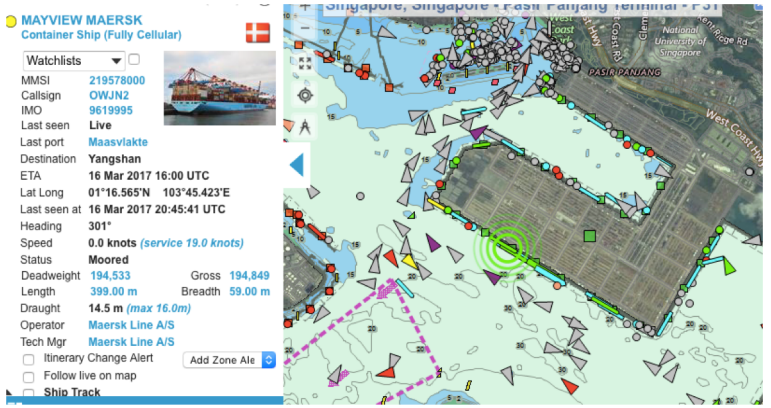
- About STM and PortCDM?
- The assignment, basis and expected deliverables?
- Support and Contact persons?

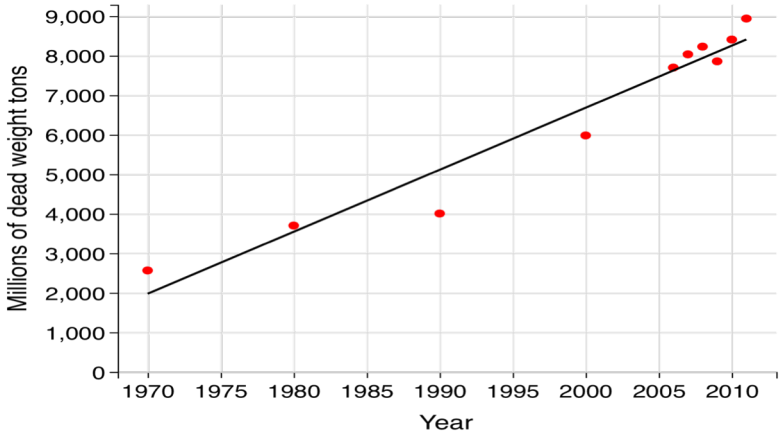
Co-financed by the European Union
Connecting Europe Facility



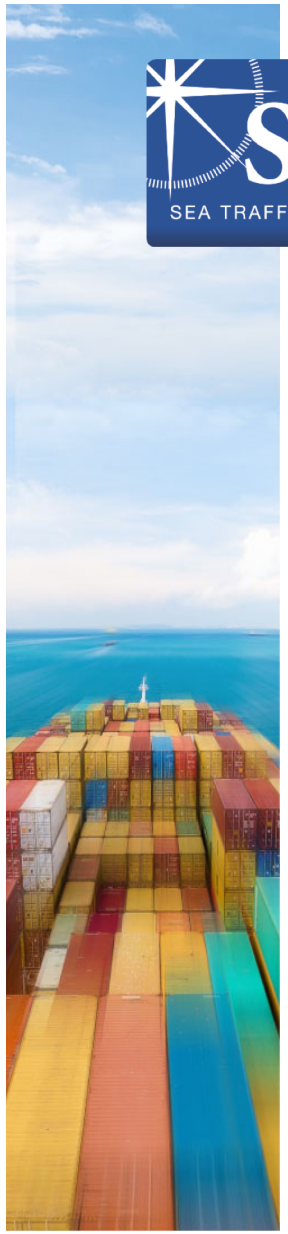
Importance of shipping

- Maritime transport is essential for the world economy
  - Approximately 90% of the world's trade carried by sea
  - Economic impact of USD 436 billion
- 4.3% growth rate in 2012
- 2.7% of estimated global CO_2 emissions in 2007
- Will grow 2-3 times by 2050





Co-financed by the European Union
Connecting Europe Facility



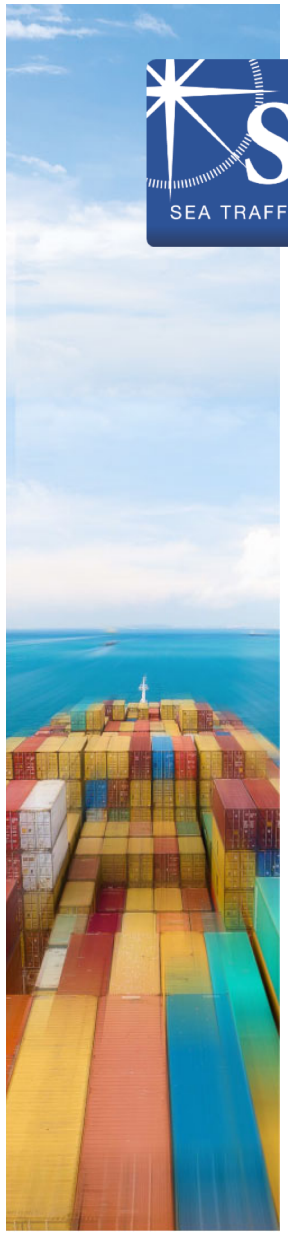
The shipping market

- Self-organized ecosystem with autonomous competing actors
- Many actors are looking for new opportunities in digitizing the maritime sector
- Many proprietary solutions being developed creating sub-optimization

Facts / assumptions

- ~90 000 merchandize ships
- ~6 000 ports
- ~3 800 port calls per port and year
- Long-tail distribution of port calls among ports
- Largest container vessels carry >18 000 units
- Largest ports manages more than 200 000 port calls per year
- ~25 actors involved in every port call

Co-financed by the European Union
Connecting Europe Facility



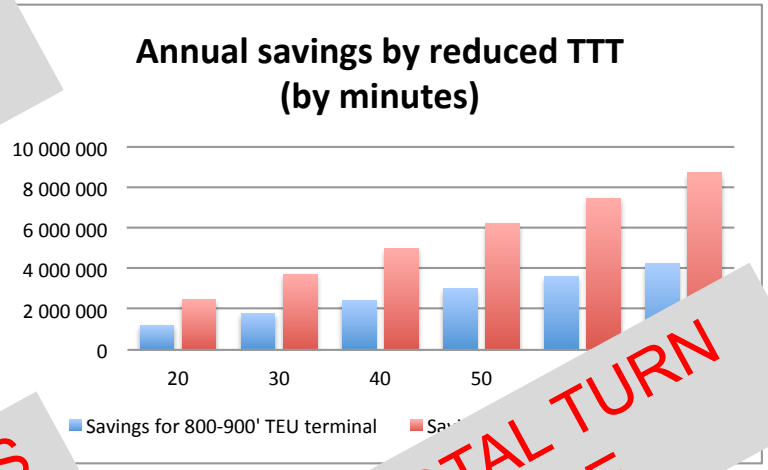
STM
SEA TRAFFIC MANAGEMENT

Business Drivers…

Savings for a large shipping
(40 000 port calls per y
between 65 MUSD an
for just-in-ti

Assum… …er vessel
consum… …ull speed (23
kn… …uel at 10 knots)

JUST-IN-TIME ARRIVAL
and GREEN STEAMING



Very many times shi…
not leave in tim…
rise to additi… …
costs, c… …me
wind… …ort, and
d… …ing vessels

JUST-IN-TIME DEPARTURES
and REDUCED CHASING

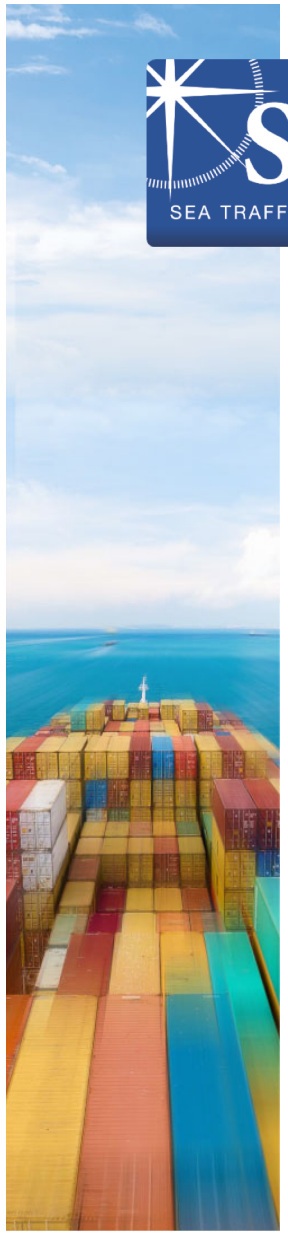
…eductio… …can
…ake av… …n a route of
5… …sing 4 ships (if
…ully loaded)

…ONG INCENTIVES FOR
ENHANCED INTERACTION
BETWEEN SHIPS AND PORTS

REDUCED TOTAL TURN
AROUND TIME

Co-financed by the Eu… …ion
Connecting Europe Facility

RI.SE



FACTS IN FIGURES

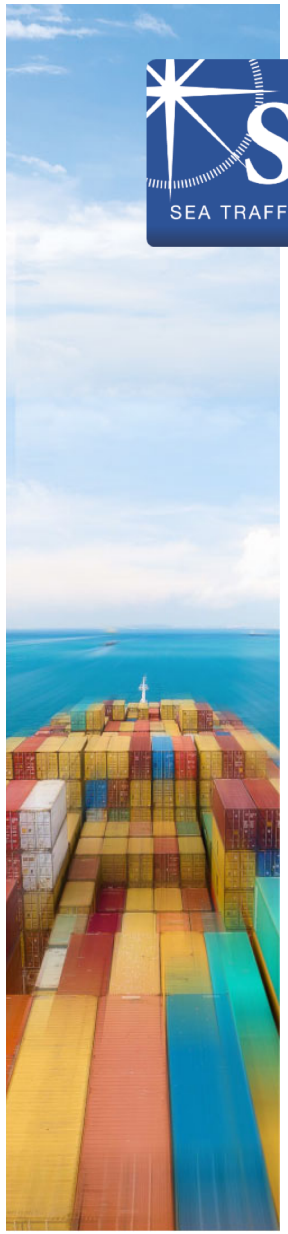
MONALISA 2.0 (2013-2015)

- **Definition** of the Sea Traffic Management concept
- 39 Partners
- 24 MEuro

STM validation project (2015-2018)

- **Validation** of the Sea Traffic Management concept
- 57 partners
- 43 MEuro

Co-financed by the European Union
Connecting Europe Facility

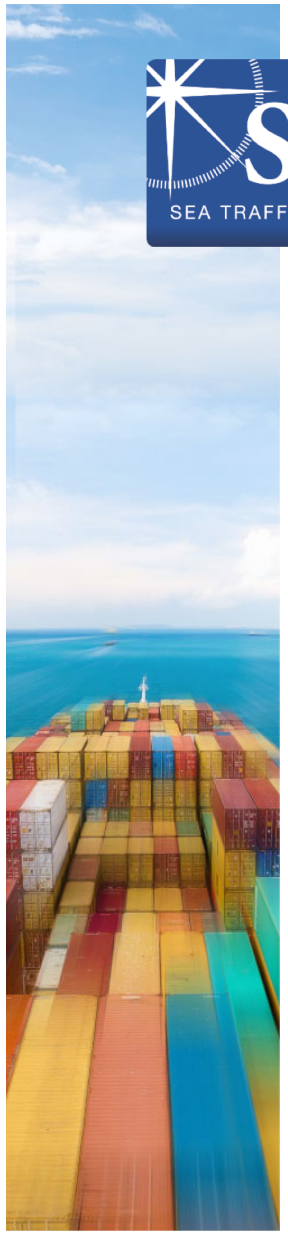


Project Beneficiaries

Public sector	Private sector	Academia
Swedish Maritime Administration (SE)	Valencia Port Foundation (ES)	Chalmers University of Technology (SE)
Swedish Meteorological and Hydrological Institute (SE)	Carnival Corporation (UK)	Novia University of Applied Sciences (FI)
Danish Maritime Authority (DK), Ministry of Infrastructure and Transport (IT)	Costa Crociere (IT)	Southampton Solent University (UK)
Ministry of Transport and Communications (FI)	CIMNE (ES)	University of Southampton (UK)
SASEMAR (ES)	GS1 (SE)	University of Flensburg (DE)
Norwegian Coastal Administration (NO)	HiQ (SE)	Maritiem Instituut Willem Barentsz (NL)
Port Authority of Valencia (ES)	TRANSAS (IE)	Cyprus University of Technology CY)
Port Authority of Barcelona (ES)	Furuno (FI)	OFFIS (DE)
	SAAB (SE)	University of Oldenburg (DE)
	Jeppesen (DE)	SSPA (SE)
	Navicon (DK)	Polytechnical University of Catalonia (ES)
	Signalis (DE)	Fraunhofer CML (DE)
	Frequentis (AT)	Rörvik Maritime Safety Center (NO)
	SAM-Electronics (DE)	Viktoria Swedish ICT (SE)
	Svitzer (SE)	
	Magellan (PT)	

Associated partners: Port of Gothenburg, Kvarken Ports (Umeå/Vaasa), IBM, Ericsson, Cygate, Raytheon, Kongsberg UK Hydrographic Office, BIMCO, SSAB, Rheinmetall, STENA

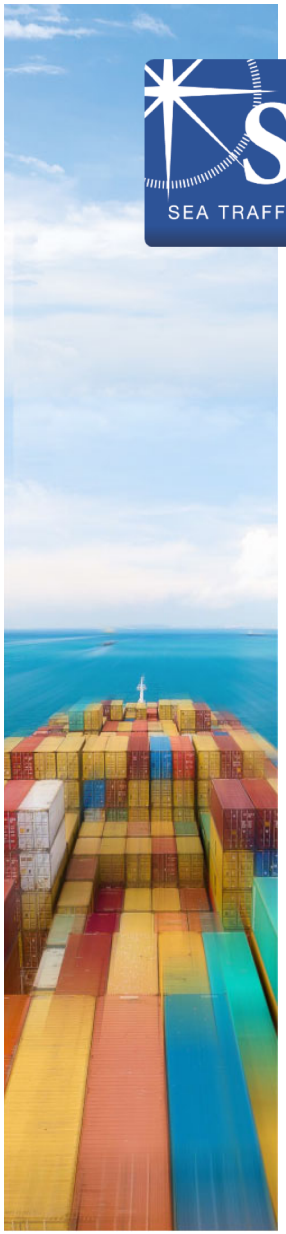
Co-financed by the European Union
Connecting Europe Facility



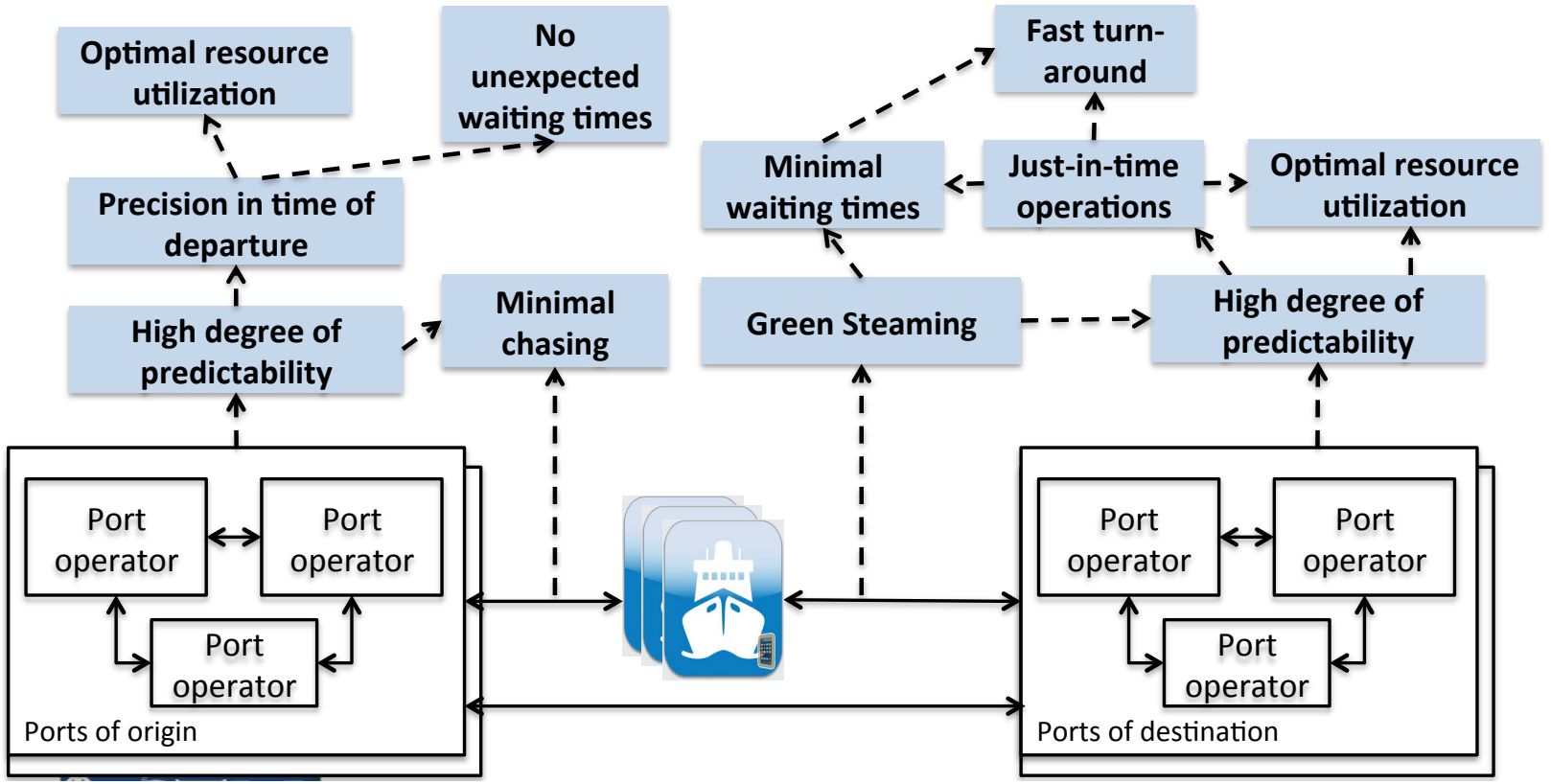
PortCDM movie

https://www.youtube.com/watch?v=ZS5SjDAol90

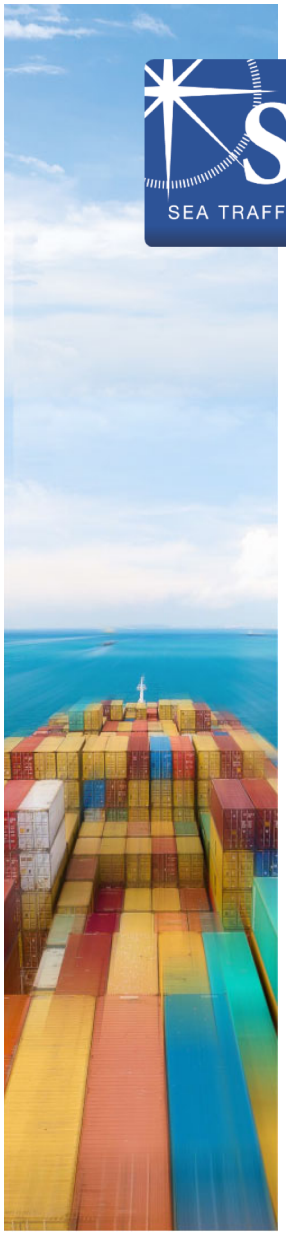
Co-financed by the European Union
Connecting Europe Facility



Objectives of PortCDM



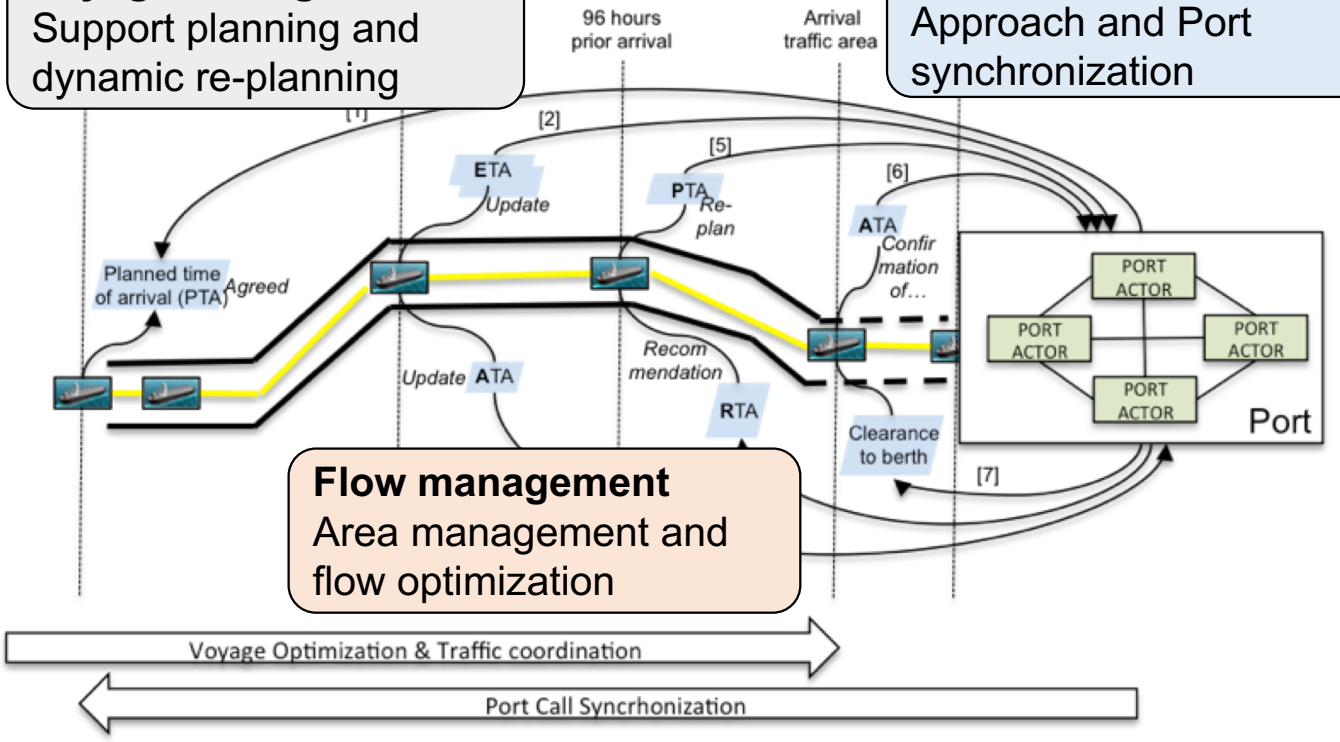
Co-financed by the European Union
Connecting Europe Facility



STM Strategic Concepts

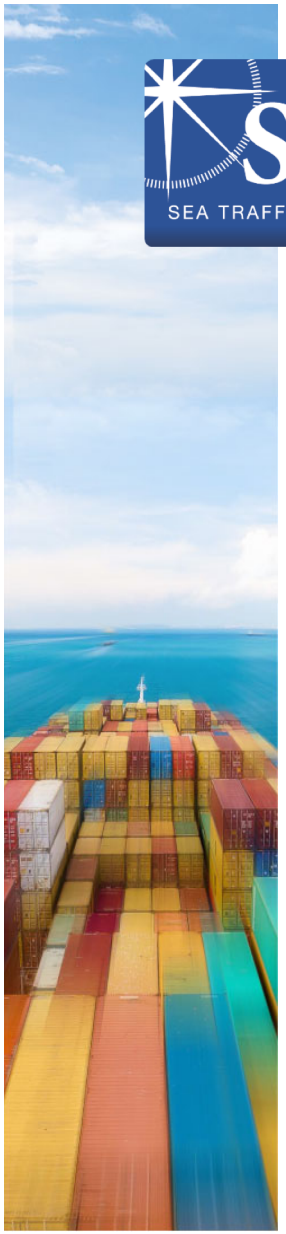
Voyage management
Support planning and dynamic re-planning

PortCDM
Approach and Port synchronization

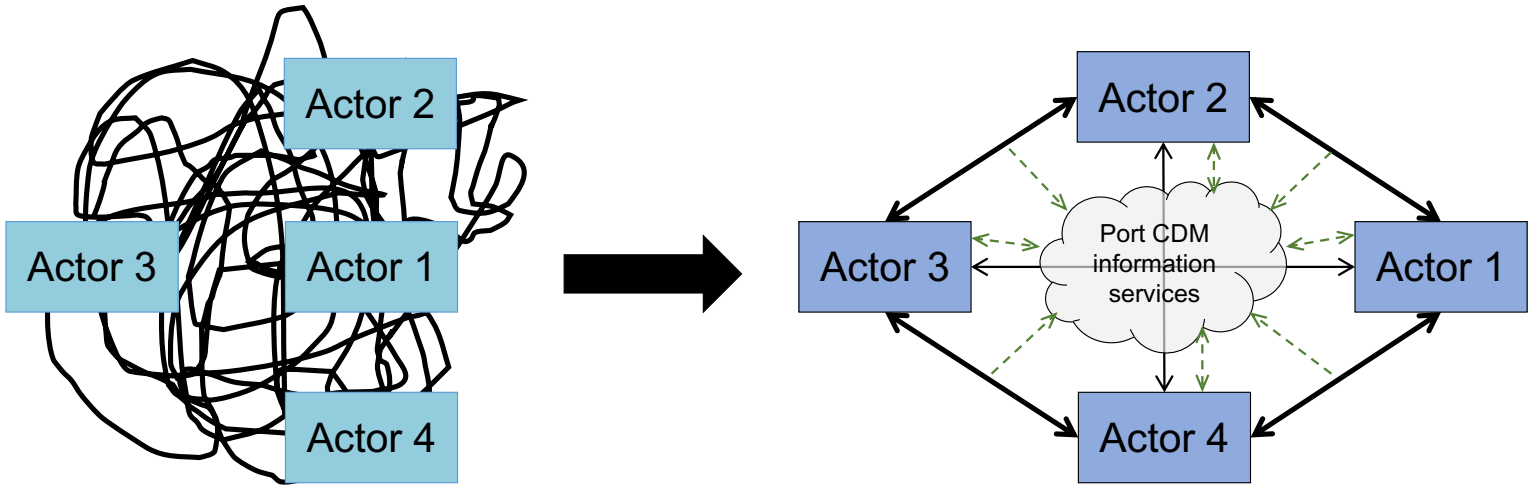


Flow management
Area management and flow optimization

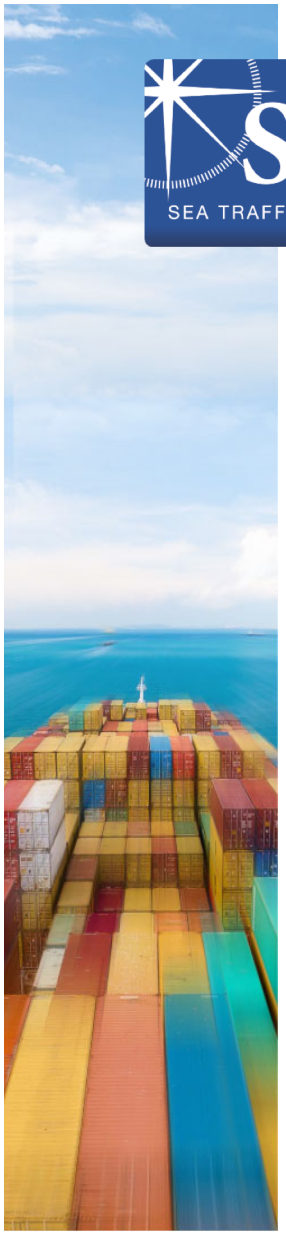
Co-financed by the European Union
Connecting Europe Facility



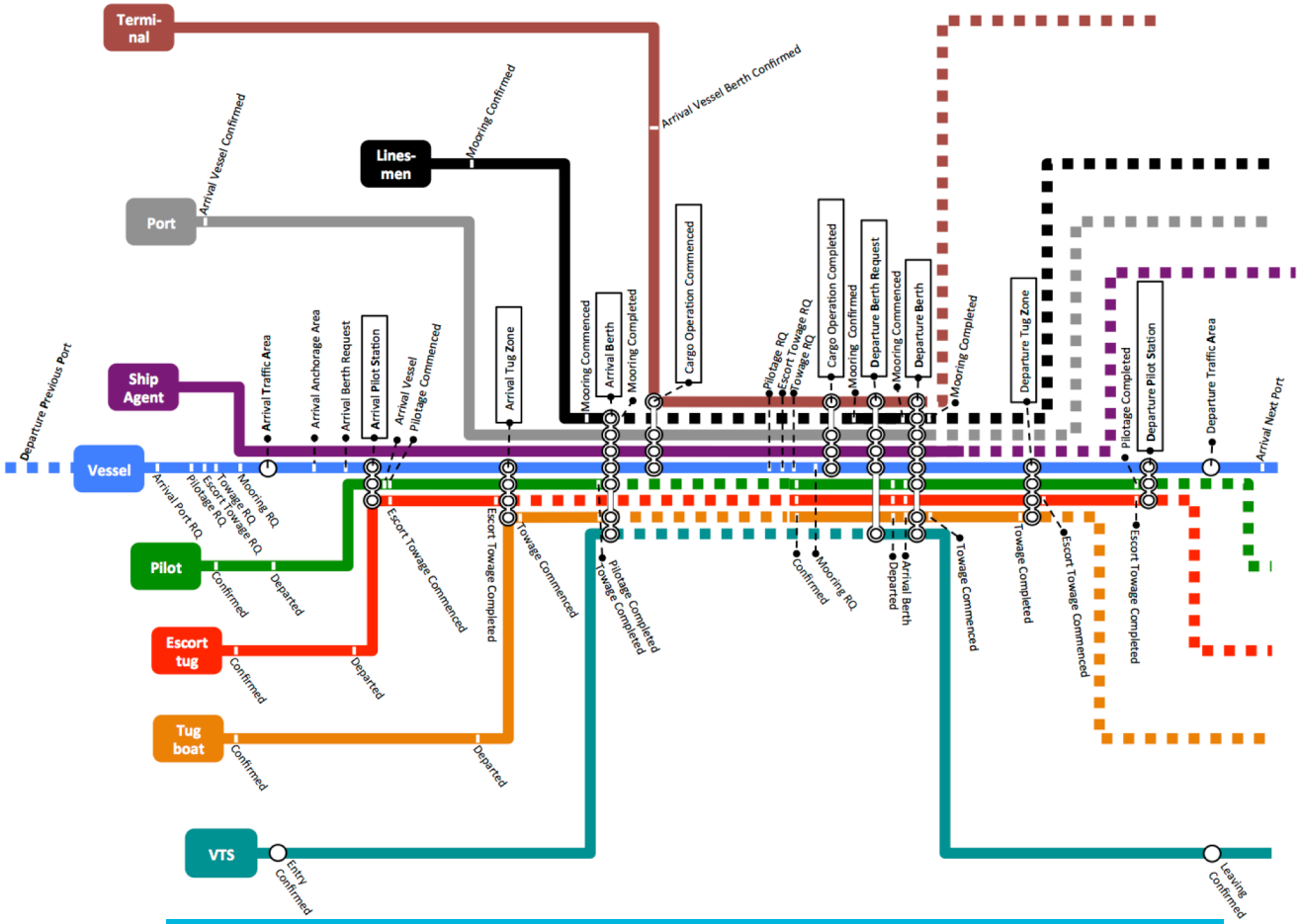
Towards common instant information sharing



Co-financed by the European Union
Connecting Europe Facility

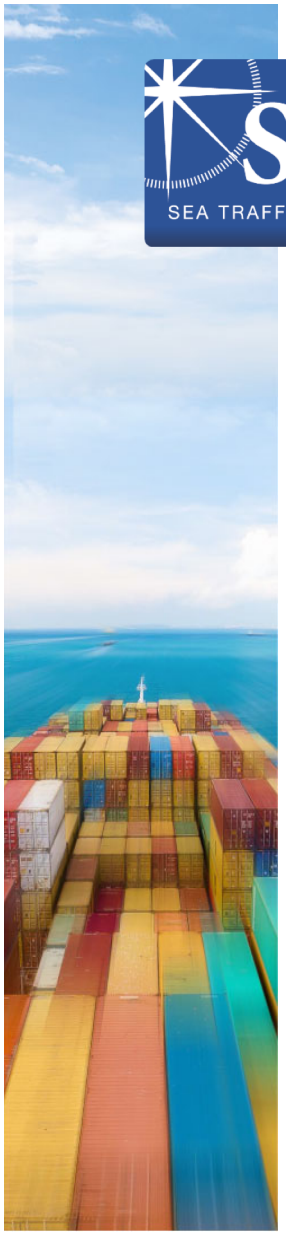


The Metro map an event driven approach



Lind M., Haraldson S., Karlsson M., Watson R.T. (2016) Overcoming the inability to predict - a PortCDM future, 10th IHMA Congress – Global Port & Marine Operations, 30th May – 2nd May 2016, Vancouver, Canada

Co-financed by the European Union
Connecting Europe Facility

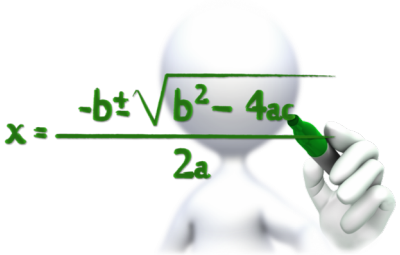


At the core of the port call process

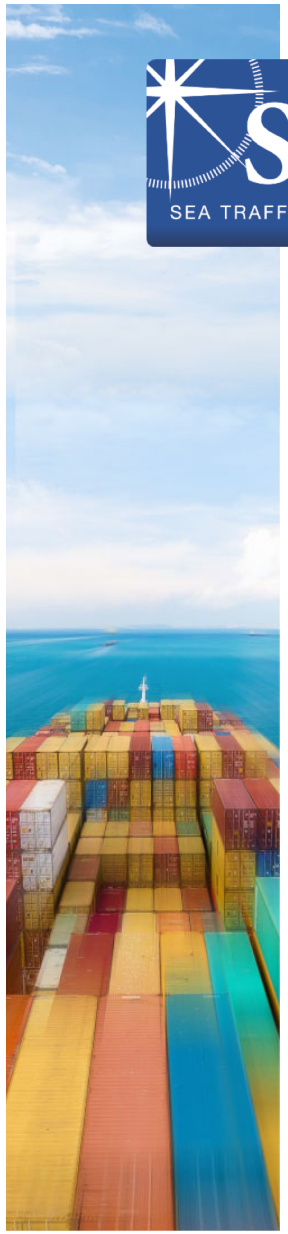
- **The vessel making** a visit for a particular **purpose**
- **PortCDM** is based on three foundations to **enhance precision** of time stamps
- Combining multiple data sources

- Synchronizing involved actor's conception of different time stamps

- Evaluating the likelihood that an action will occur according to plan



Co-financed by the European Union
Connecting Europe Facility

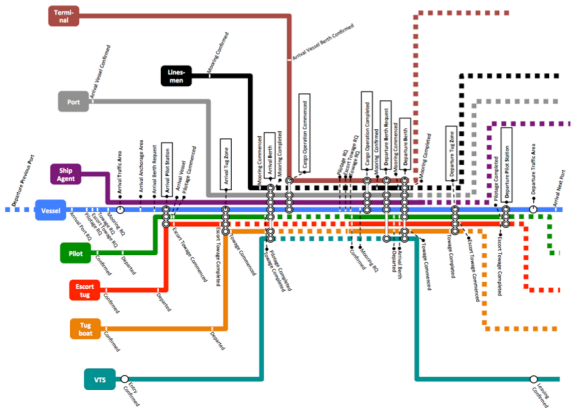


PortCDM: 3 foundations

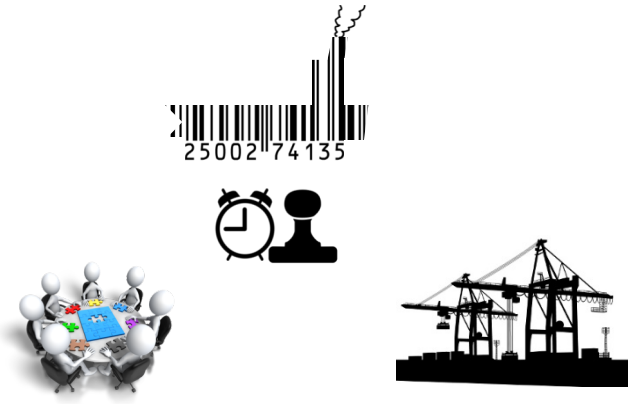
- Multiple data sources for same state
- Alignment of actor's conception of time stamps
- Evaluation of the reliability that events will occur according to plan

Is based on

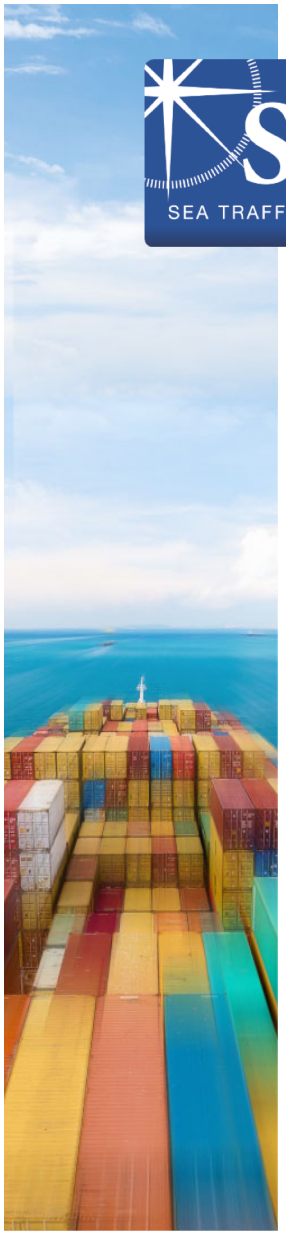
- Situational awareness among port call actors



- Shared time stamps by different port call actors associated to the same port call identifier



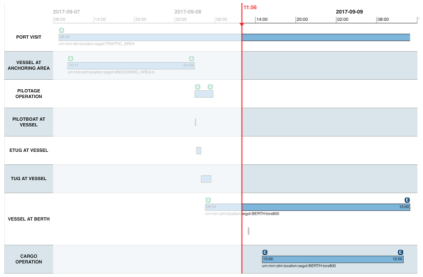
Co-financed by the European Union
Connecting Europe Facility



PortCDM: 3 foundations

- The common situational awareness of the port call process
- Shared time stamps between port call actors related to port calls
- **Is expected to result in**

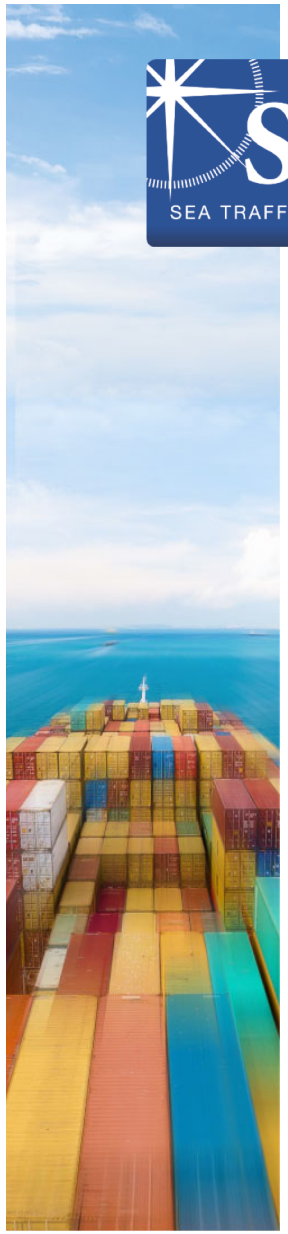
- Basis for enhanced JIT operations and efficient capacity utilization



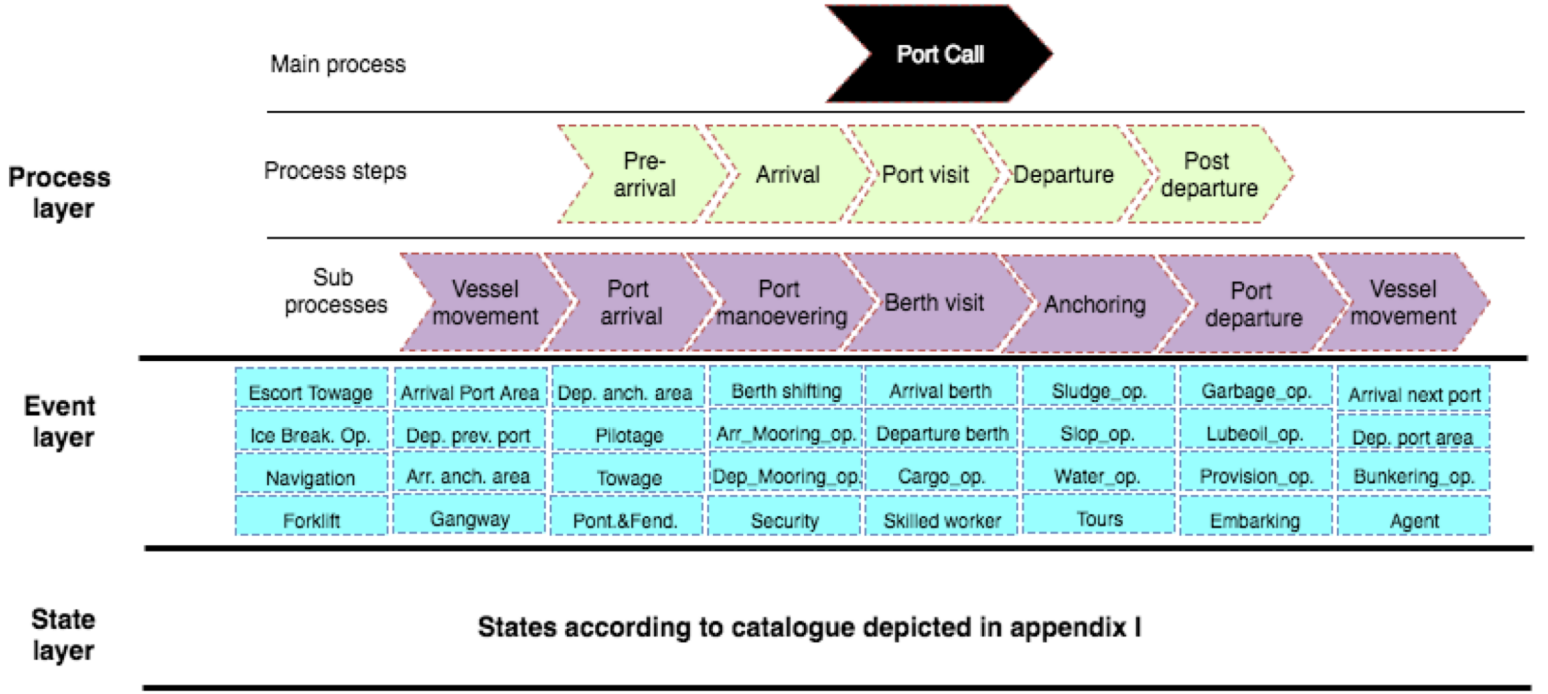
- Basis for shipping lines to make JIT arrivals and JIT departures to facilitate planning inbound- and outbound sea voyages

- Basis for port-to-port collaboration independent of a shipping line or terminal

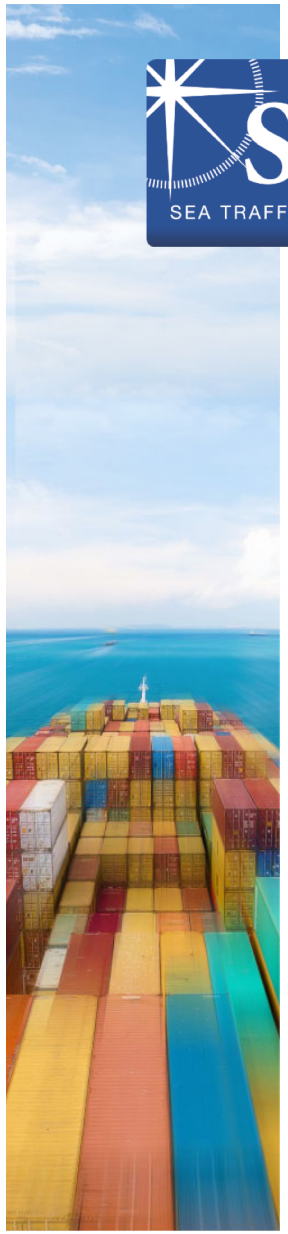
Co-financed by the European Union
Connecting Europe Facility



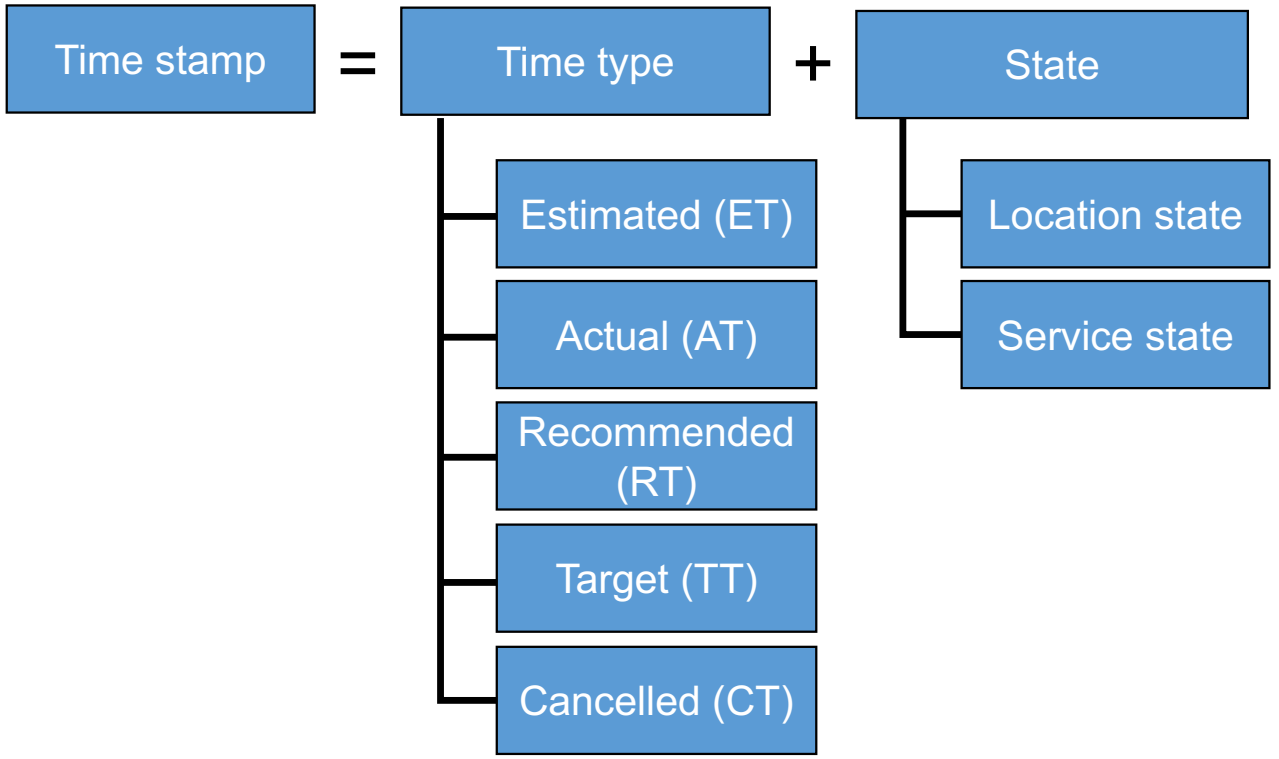
Port Call layered model



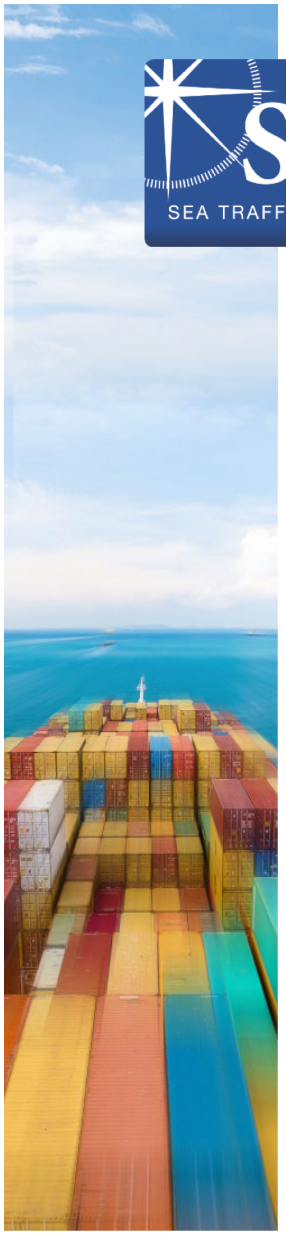
Co-financed by the European Union
Connecting Europe Facility



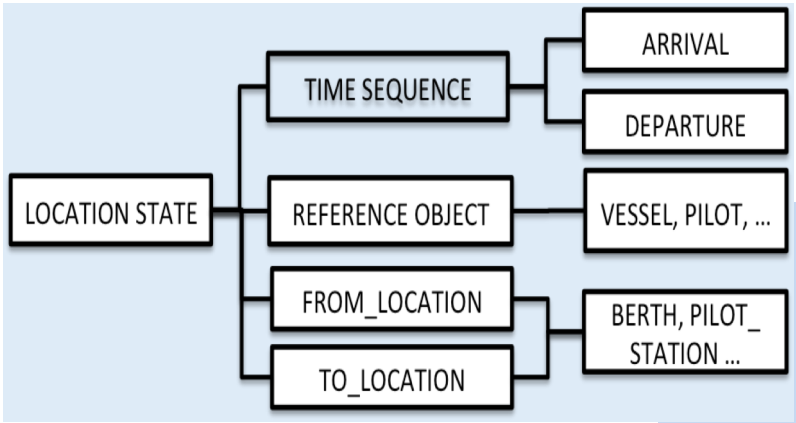
Structure of a time stamp

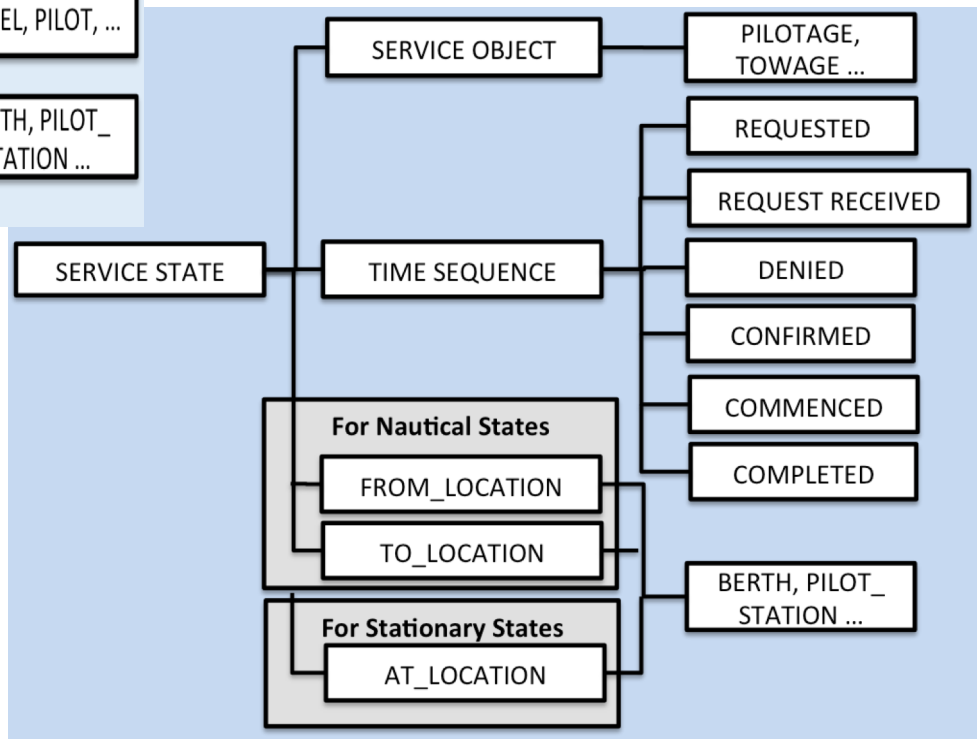


Co-financed by the European Union
Connecting Europe Facility

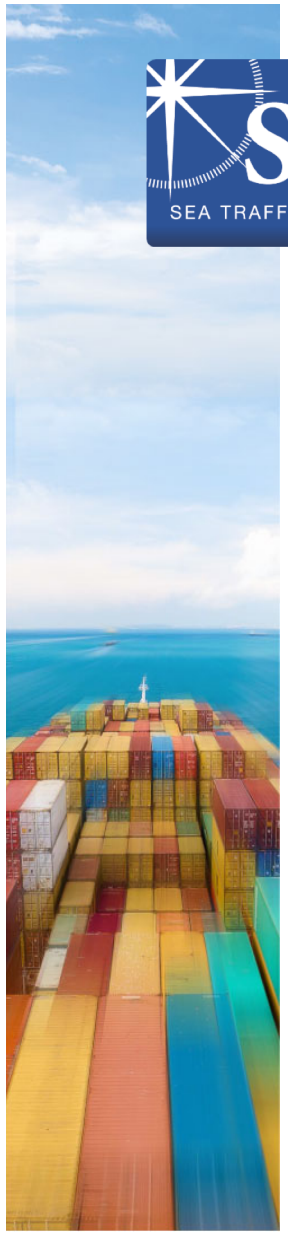


Location State and Service State





Co-financed by the European Union
Connecting Europe Facility

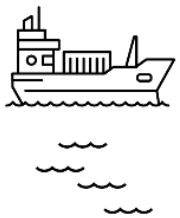


PortCDM is being validated in the STM validation project

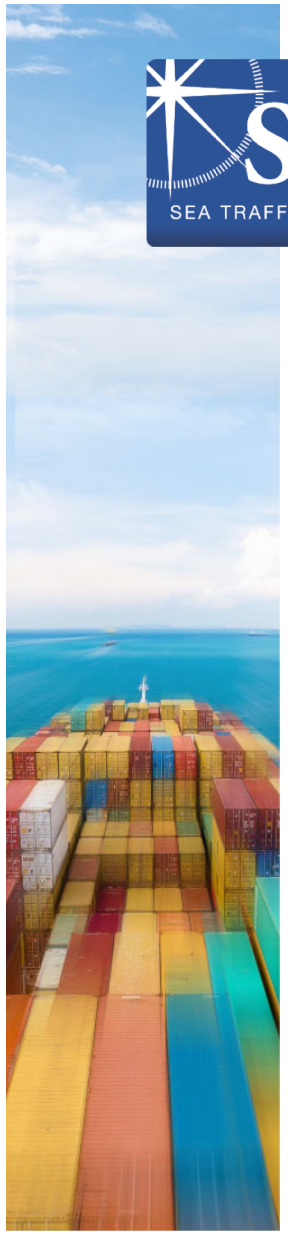
STM Validation Project

The STM Validation Project will demonstrate the STM concept in large-scale test beds in both the Nordic and Mediterranean Seas, encompassing around 300 vessels, 14 ports and 4 shore based service centres as well as using the European Maritime Simulator Network.

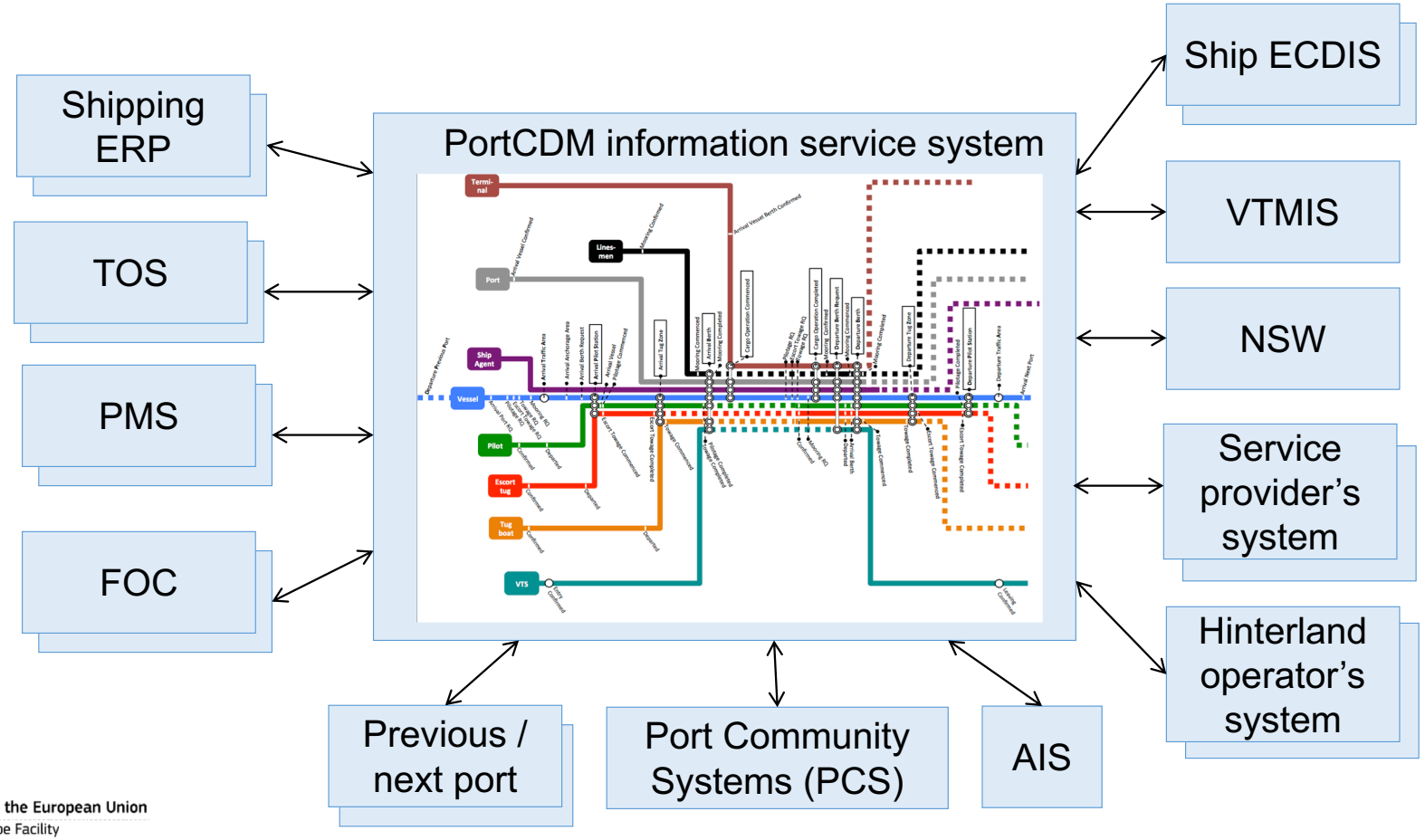
- Simulation centre in European simulation network (EMSN)
- Port CDM Port
- Shore centre
- Test bed for STM-services
- Country with project partner(s)



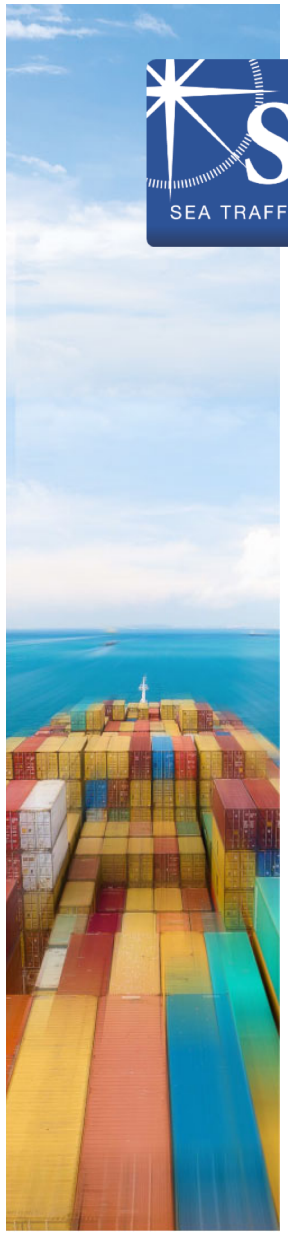
Co-financed by the European Connecting Europe Facility



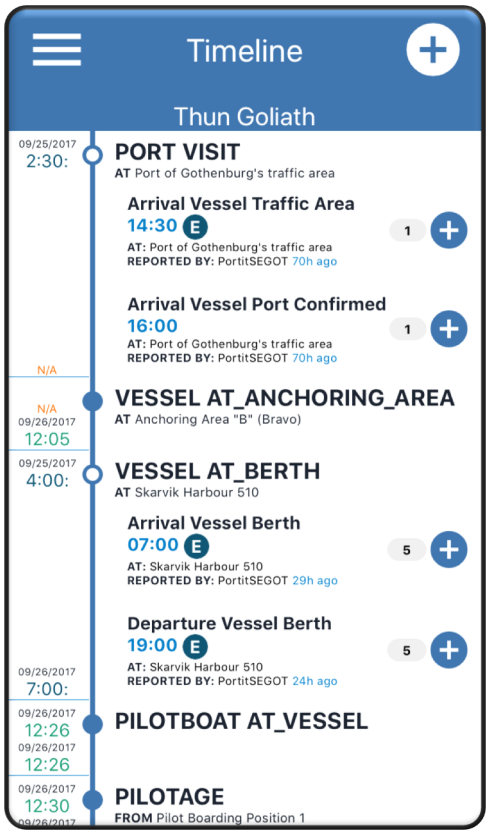
Inter-operable platform for sharing time stamps

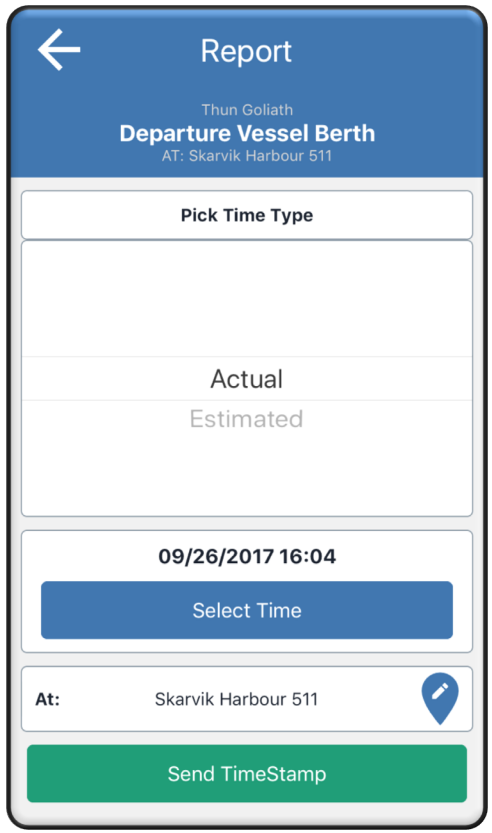


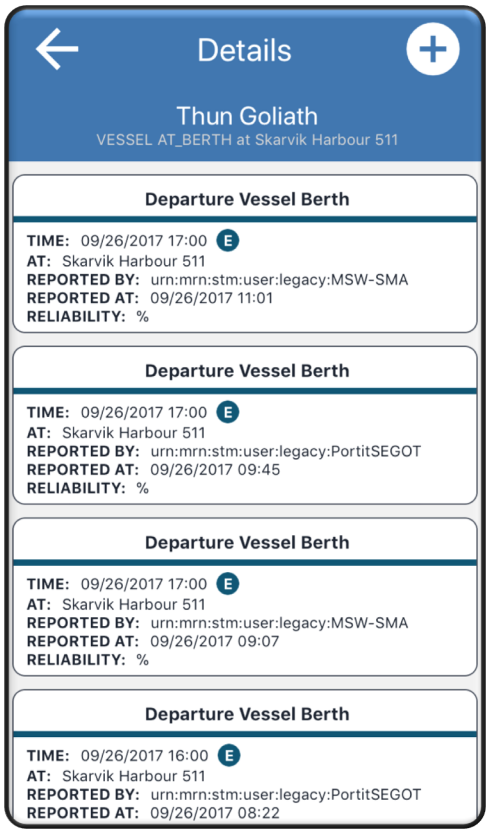
Co-financed by the European Union
Connecting Europe Facility



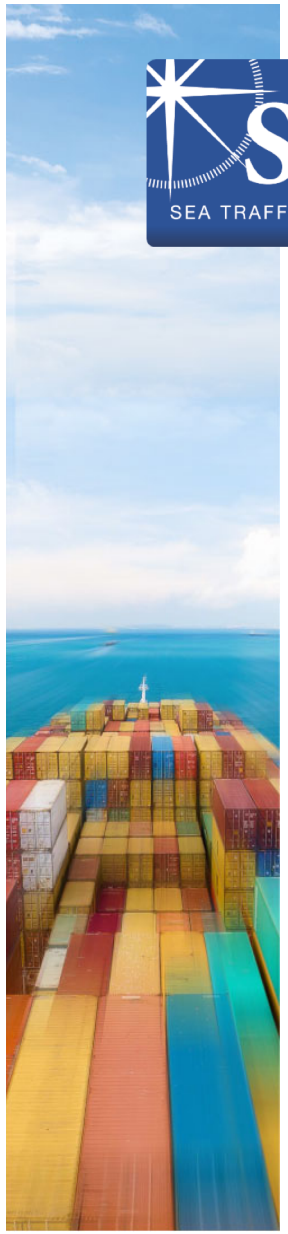
The Assignment







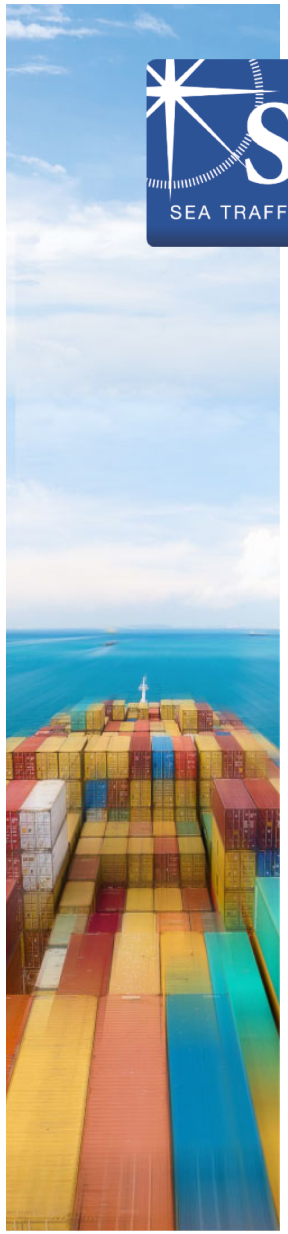
Co-financed by the European Union
Connecting Europe Facility



Assignment

- 10 Groups → 10 Actors
- Develop connectivity to PortCDM by using PortableCDM (APP), developed within the PortCDM concept, to further developed to suit a specific operator with the functionality to submit and subscribe on PortCDM-information and to create a tool that will fit the specific actors environment.

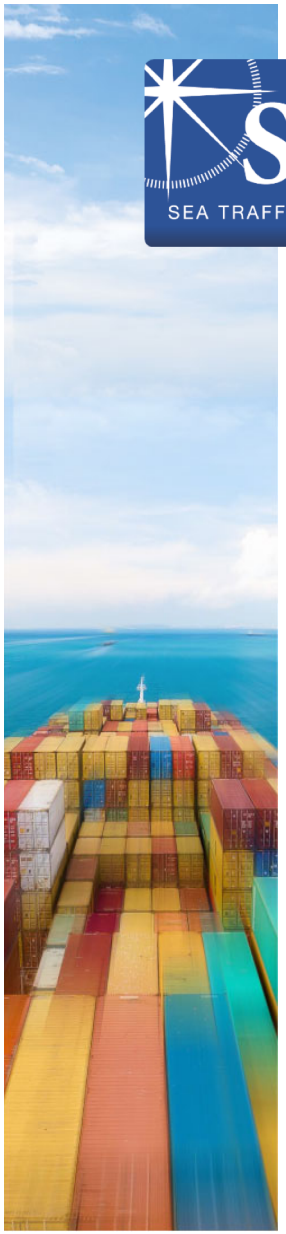
Co-financed by the European Union
Connecting Europe Facility



Basis

- A scenario taking the vessels turn around process as point of departure.
  - States (information) to be exchanged throughout the port call process
- Custom made PortableCDM for a defined actor to be used for:
  - Submitting time stamps to PortCDM
  - Subscribing on PortCDM time stamps

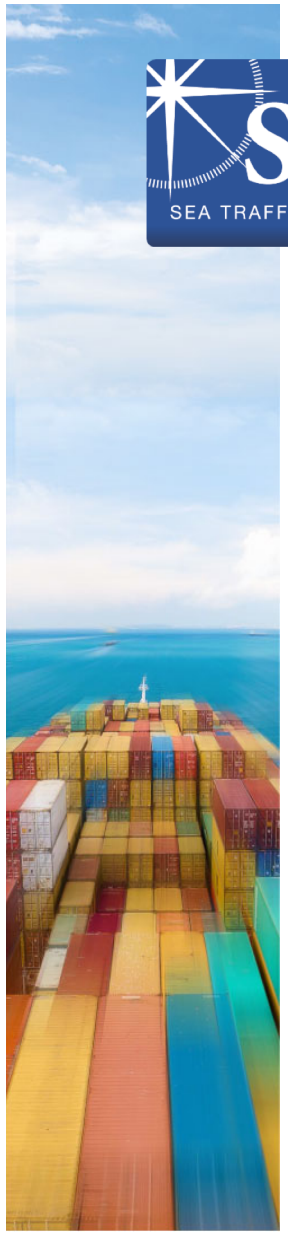
Co-financed by the European Union
Connecting Europe Facility



Expected Deliverables

- PortableCDM, adapted to suit different port call actor in their organisational environment
- Connectivity to PortCDM as an assigned actor role – provision of, and subscription to, time stamps
- Identify essential time stamps to subscribe to (in real-time) to maximize the value for the port call actors value proposition

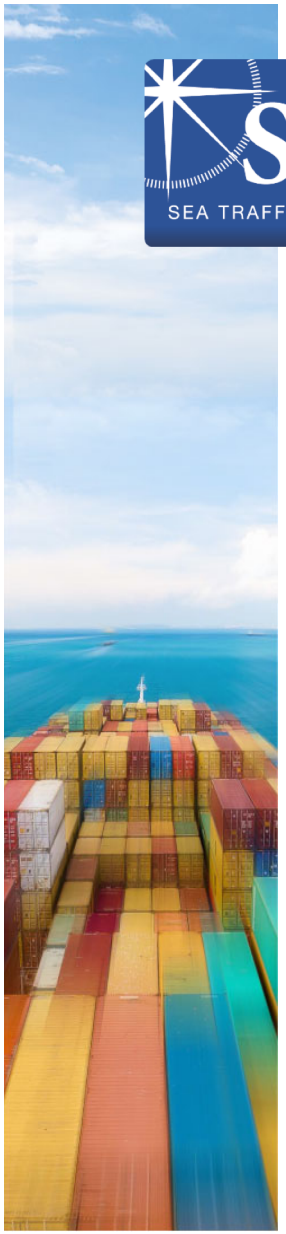
Co-financed by the European Union
Connecting Europe Facility



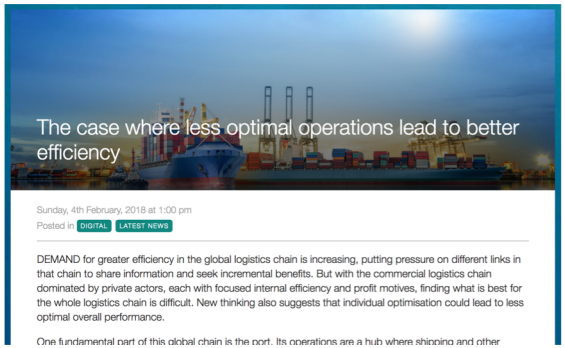
10 Business Operators

- Vessel
- Lots
- Port Control
- Sludge Operator
- Ship Agent 1
- Ship Agent 2
- Towage operator
- Terminal 1
- Terminal 2
- Mooring Organisation

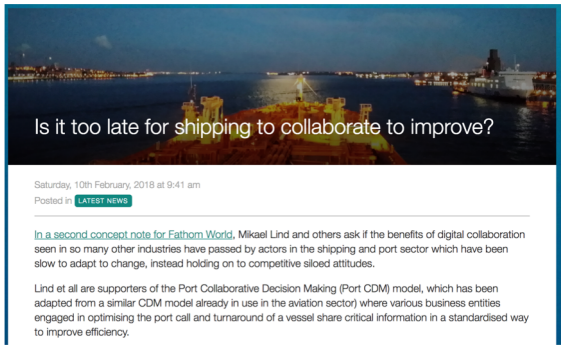
Co-financed by the European Union
Connecting Europe Facility



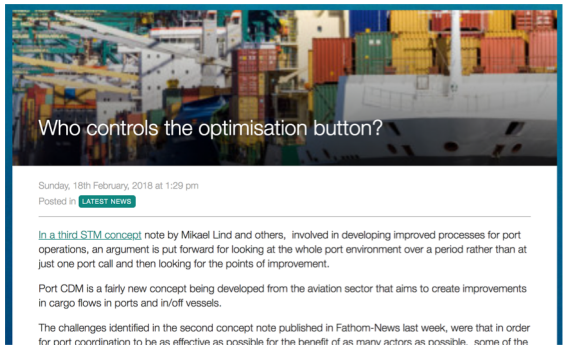
PortCDM in Press



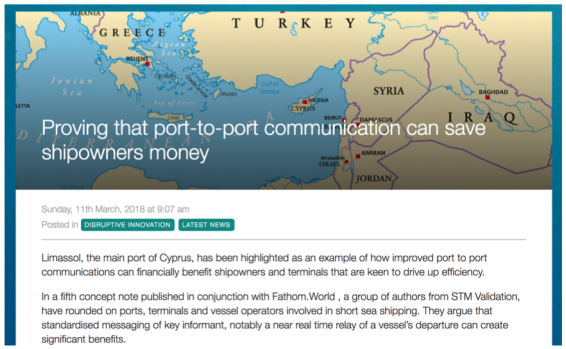
Sunday, February 4th, 2018



Saturday, February 10th, 2018

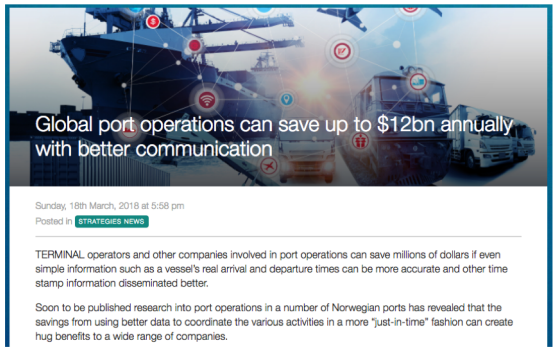


Sunday, February 18th, 2018



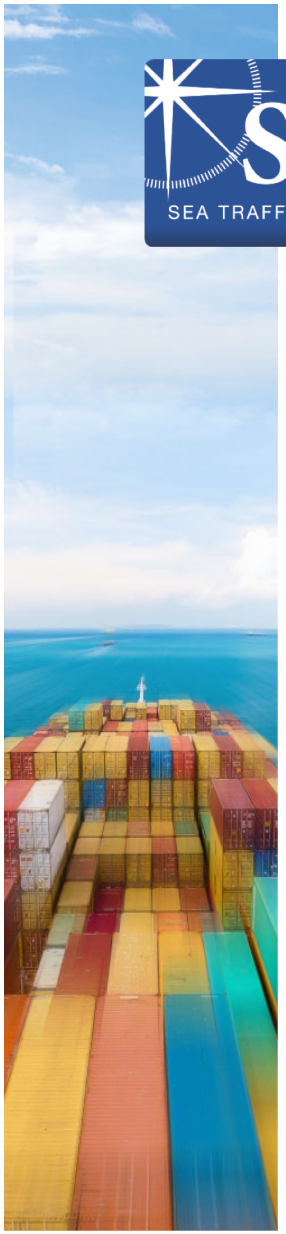
Sunday, 11th March, 2018 at 9:07 am

Sunday, 4th March, 2018 at 7:49 pm



Sunday, 18th March, 2018 at 5:58 pm

Co-financed by the European Union
Connecting Europe Facility



STM
SEA TRAFFIC MANAGEMENT

THINK DIFFERENT

MAKE THINGS HAPPEN

MAKE A DIFFERENCE

For questions do not hesitate to contact:

Sandra Haraldson/ Mathias Karlsson

Sandra.Haraldson@ri.se/ Mathias.karlsson@ri.se

Co-financed by the European Union
Connecting Europe Facility

RI.SE