

Black Sea e-Maritime Conference 2010
BULGARIAN MARITIME DAY

***e-Navigation
and
Baltic Sea projects***

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Swedish Maritime Administration

IMO 's definition

- e-Navigation is the harmonised collection, integration, exchange, presentation and analysis of maritime information onboard and ashore by electronic means to enhance berth to berth **navigation** and **related services**, for safety and security at sea and protection of the marine environment

Important IMO documents

- A coordinated approach to the implementation of the e-Navigation strategy
- A draft strategy for the development and implementation of e-Navigation (NAV 54/25 annex 12)

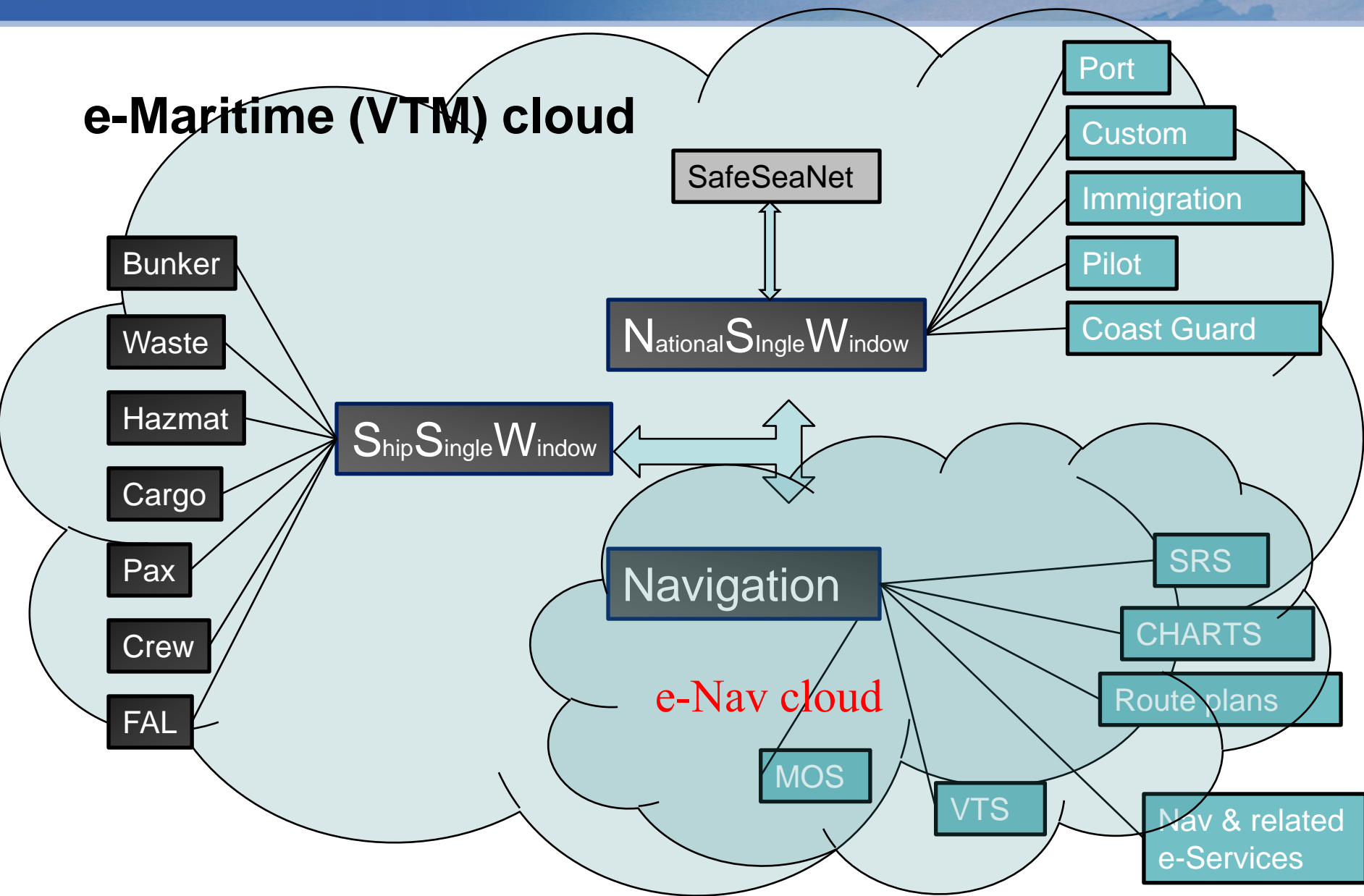
IMO PROCESS 2009-2012

- COMSAR, MSC, NAV and STW WORKING
- Step 1 : User's needs and requirements, onboard or on land
- Step 2 : Architecture, conceptual, functional and technical
- Step 3 : GAP Analysis, differences in needs and possibilities
- Step 4 : Cost Benefit Analysis and risk identifications

Latest news from NAV 56, July 2010

- **e-Navigation user needs identified by Sub-Committee**
 - Significant progress on IMO's e-navigation strategy implementation plan, including the identification of e-navigation user needs
- **The vision behind the e-Navigation strategy**
 - is to integrate existing and new navigational tools, in an all-embracing transparent cost-effective and compatible system that will contribute to enhanced navigational safety while simultaneously reducing the burden on the navigator.

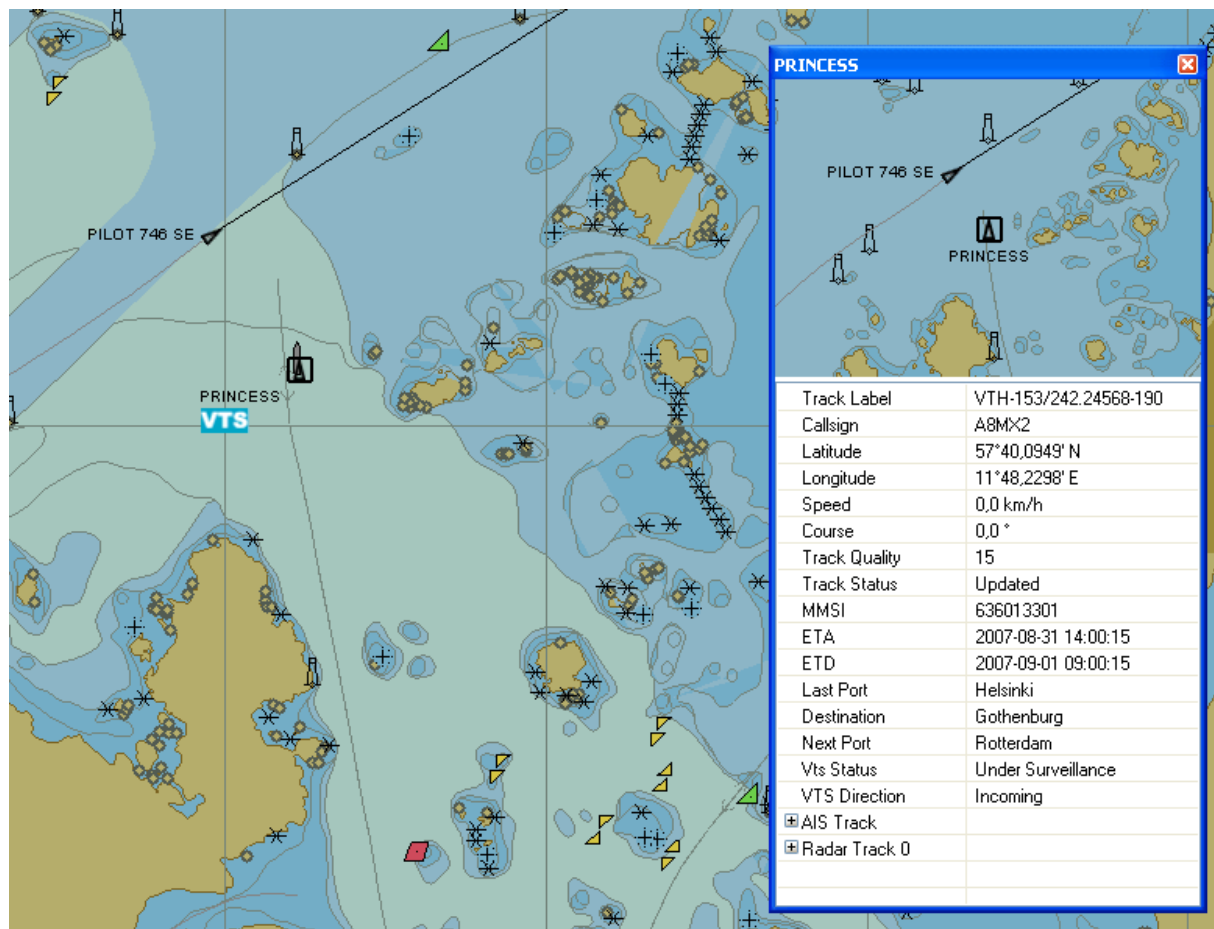
e-Maritime (VTM) cloud



Systematic terminology

- **Single window** is the one-stop-shop principle applied when entering ships data via web application. (The ships data is given only once and will automatically be distributed to all other stakeholders formulas)
- **National Single Window** is the web-portal where all entering of data starts
- **Ships Single Window** is the intranetengine onboard, buffering all data for further transfer into NSW either in realtime or afterwards
- **Safe Sea Net** is the nodeserver managing metadata for all NSW
- **SOA Service Oriented Architechture.** Is a distributed Internet technology system organized as a structure of communicating services

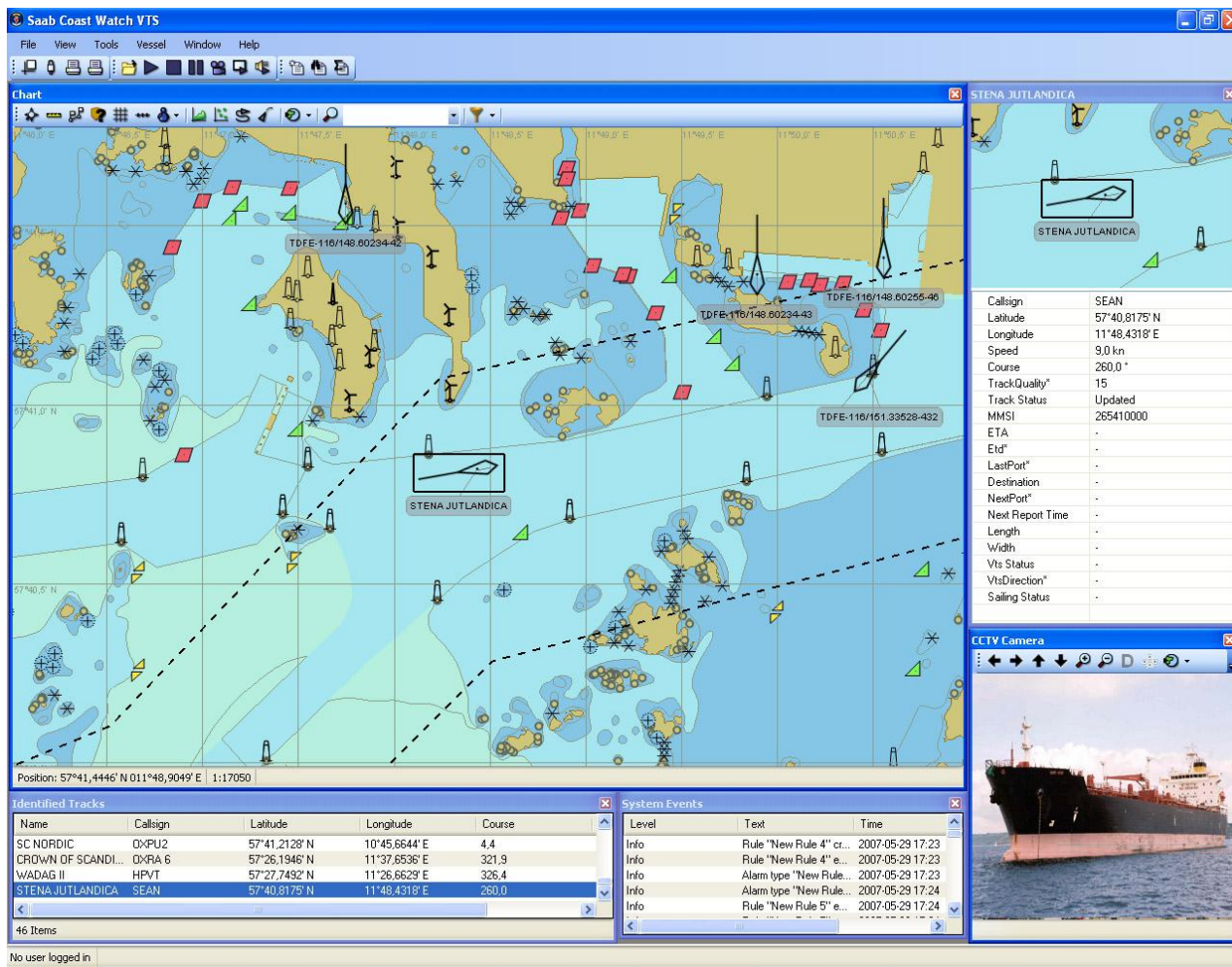
Digital charts, ENC



Positioning system



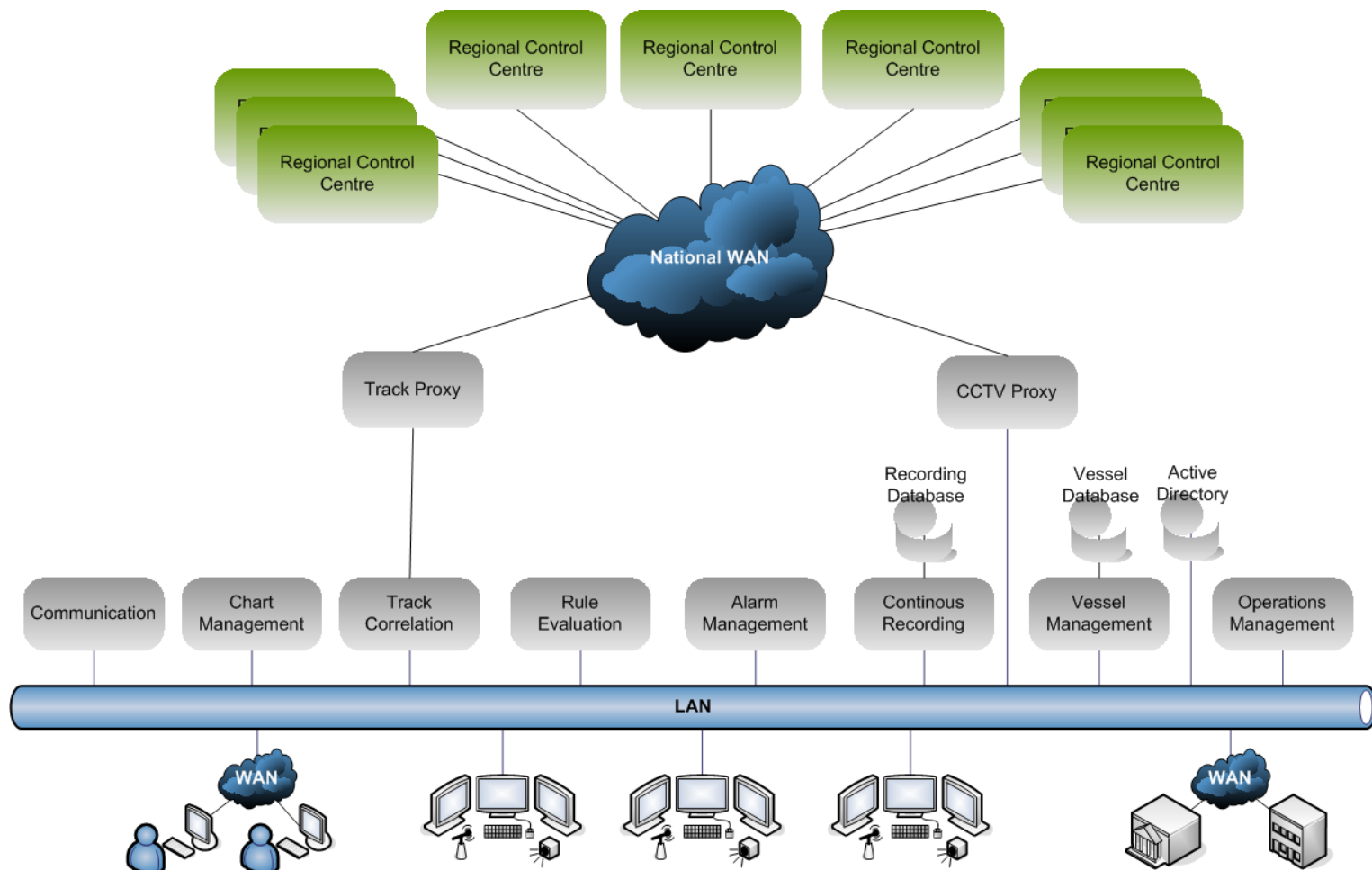
Presentation



Communication



Datastorage and processing



Informatic's och Methodology

- **What** is it actually that will be exchanged and processed?
- **How** shall it be processed and used?
- **How** shall the processes and routines be harmonized?

e- Navigation: different kinds of services

- Single Window
- Demands from authorities
- Commercial services
- Free public services
- Aid to Navigation
- Intermodal exchange of informations



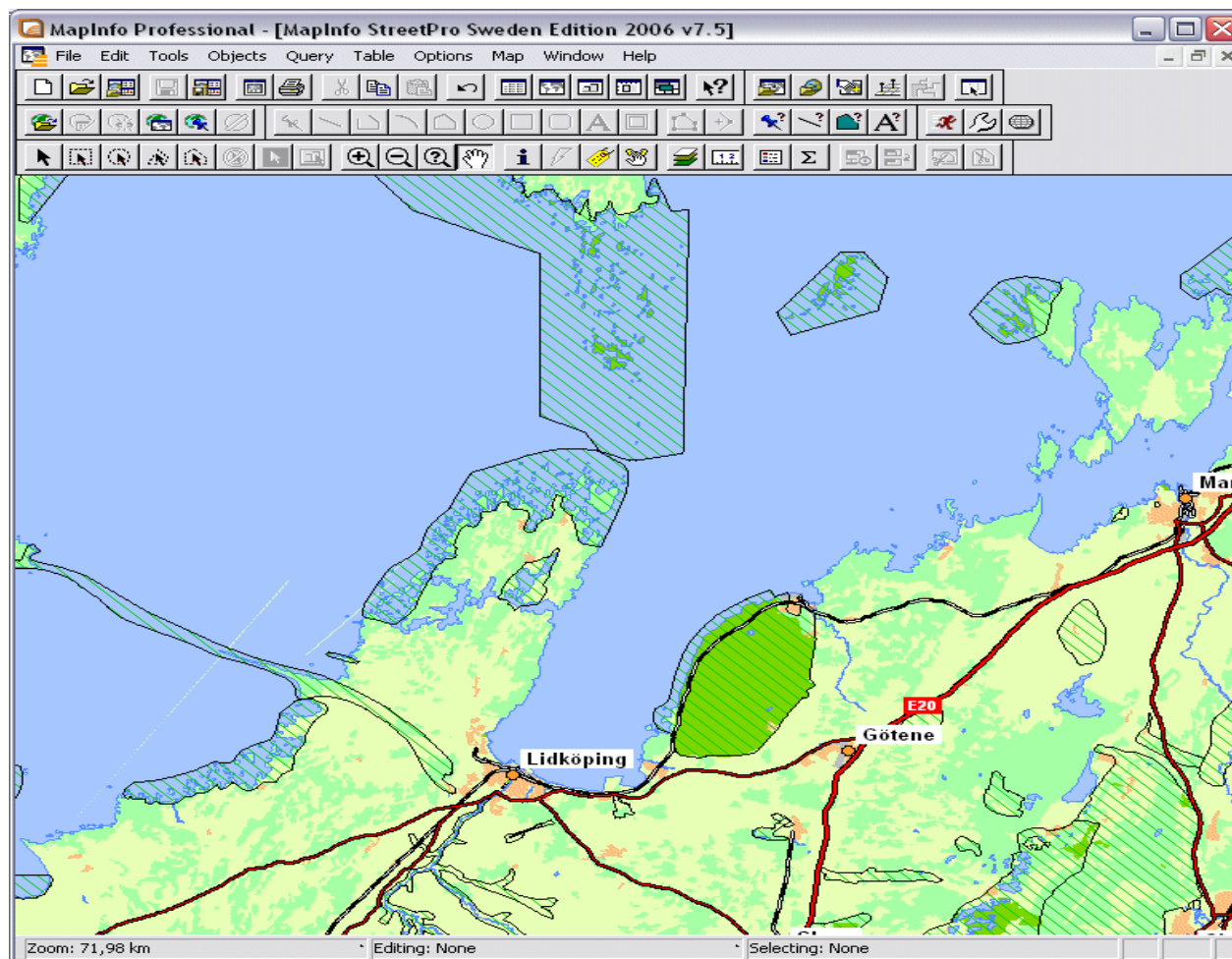
e-Navigation: Commercial services

- ENC uppdatings
 - To be done by packages at request
 - In realtime during passage
- Weather reports
 - Ships and routedesigned special prognosis
 - Special areas
- Chartservices
 - Specialmaps or charts over desired areas

e-Navigation: Free public services

- Weather transmission (Gale warnings etc)
- Navigational warnings
- Complete information about fairways
- Ordering of pilots
- Integrated port and agent services
- WMS services. Retrieving assorted maps from geospatial databases. *Inspire directive*
- (The OpenGIS® Web Map Service Interface Standard)

e-Navigation: WMS services



e-Navigation: Aids to Navigation

- Interactive between land and ship or ship-to-ship
 - Open sea pilotage
 - Ship Assigned Passage Plans
 - Navigational assistance in fairways or Routenings
 - Advanced Navigational Assistance

e-Navigation: Interactive charts

- Interactive charts executing services by clicking on the screen
 - Click on the ports name and enter the NSW
 - Lighthouse
 - Ordering pilots
 - Fairway Information
 - Bridge or a lock
 - Webcameras over docks and piers



**A maritime project with
Sweden in lead with
Denmark and Finland
as associated partners**



CHALMERS



SWEDISH MARITIME
ADMINISTRATION

GateHouse



SAAB



**Liikenne
viro
sto**

Finnish Transport Agency

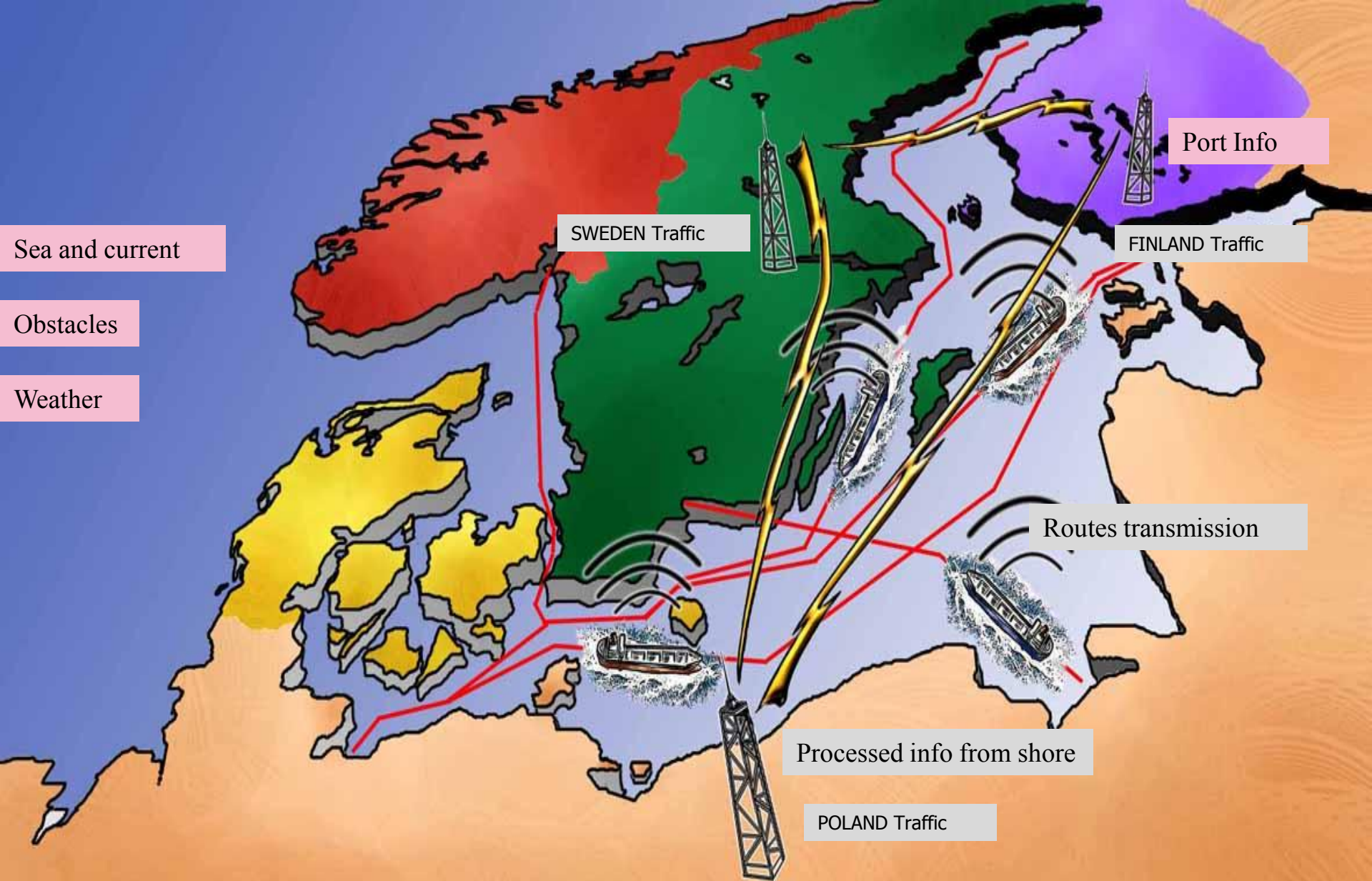


FARVANDSVESENET
Danish Maritime Safety Administration

Dynamic & Proactive Routeplanning!

Everybody sees where everybody's going!!

- "Green routes" with reduced costs and emissions
- All ships will have it's unique designed route
- Monitoring, guidance and assistance
- All routes monitored from controlcenters
- Anti-collision aid
- Ship to Ship exchanging of routes



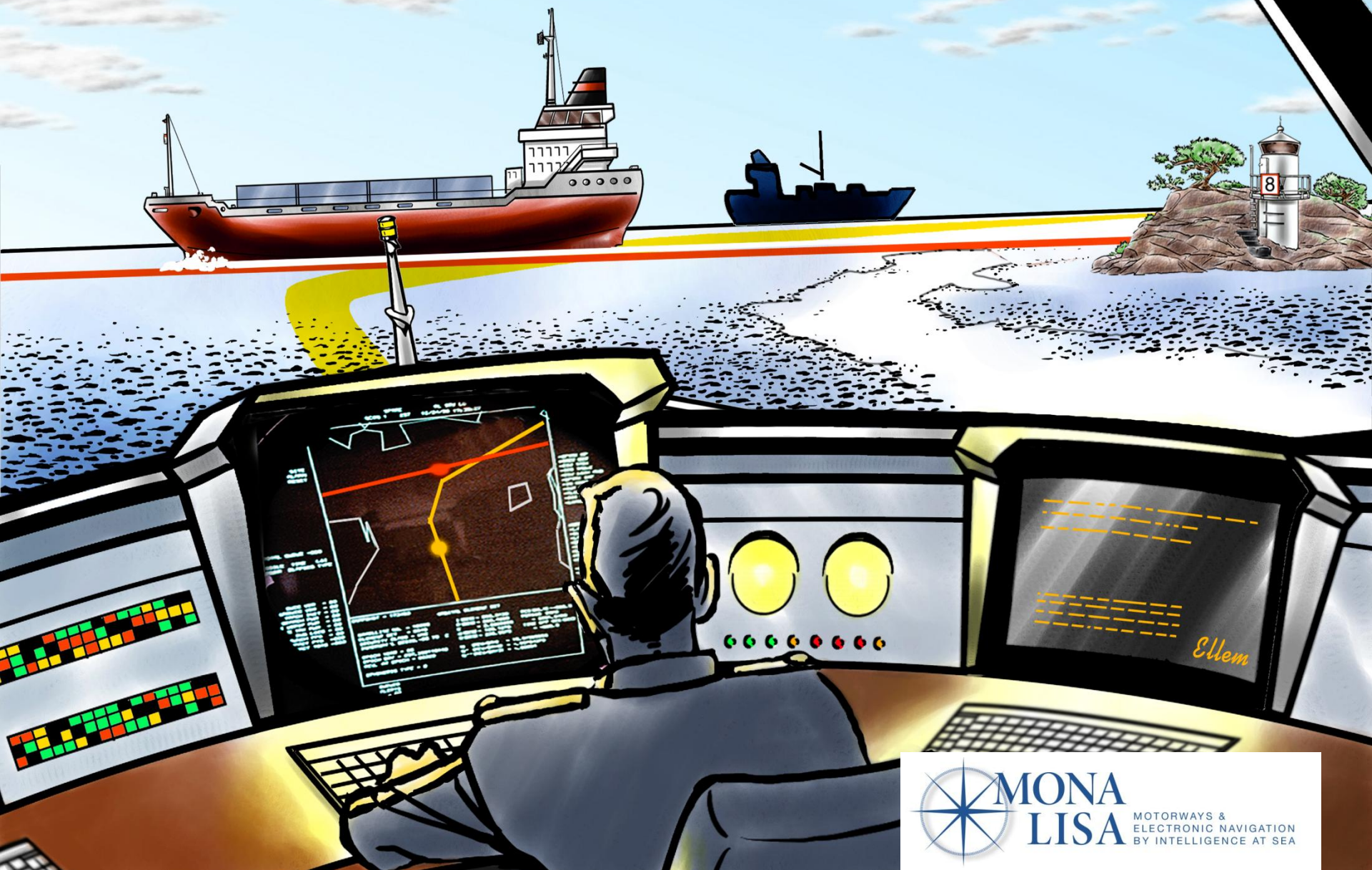
e-Nav Area Baltic Region

Workflow

1. Ship entering e-Nav Area
 2. Ship transmit it's preliminary route to MOS
 3. MOS center processes relevant data
 4. MOS transmit prepared route back to ship
 5. Master confirm and follow agreed route
- Ships monitored by MOS
 - Ships monitored in common server for entire e-Nav Area
 - Routes interacting with each other
 - Routes updated continuously



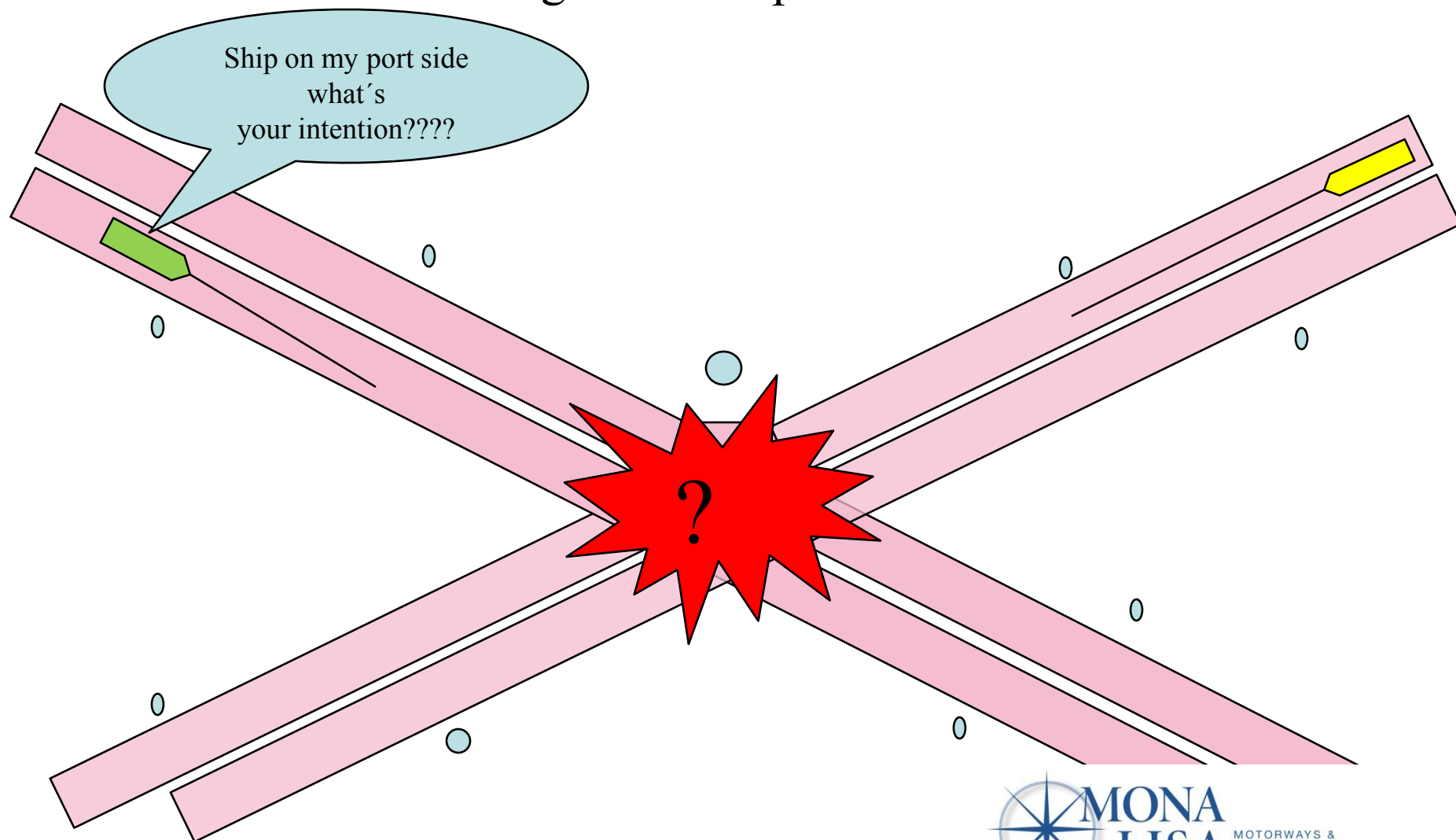
Ships bridge view



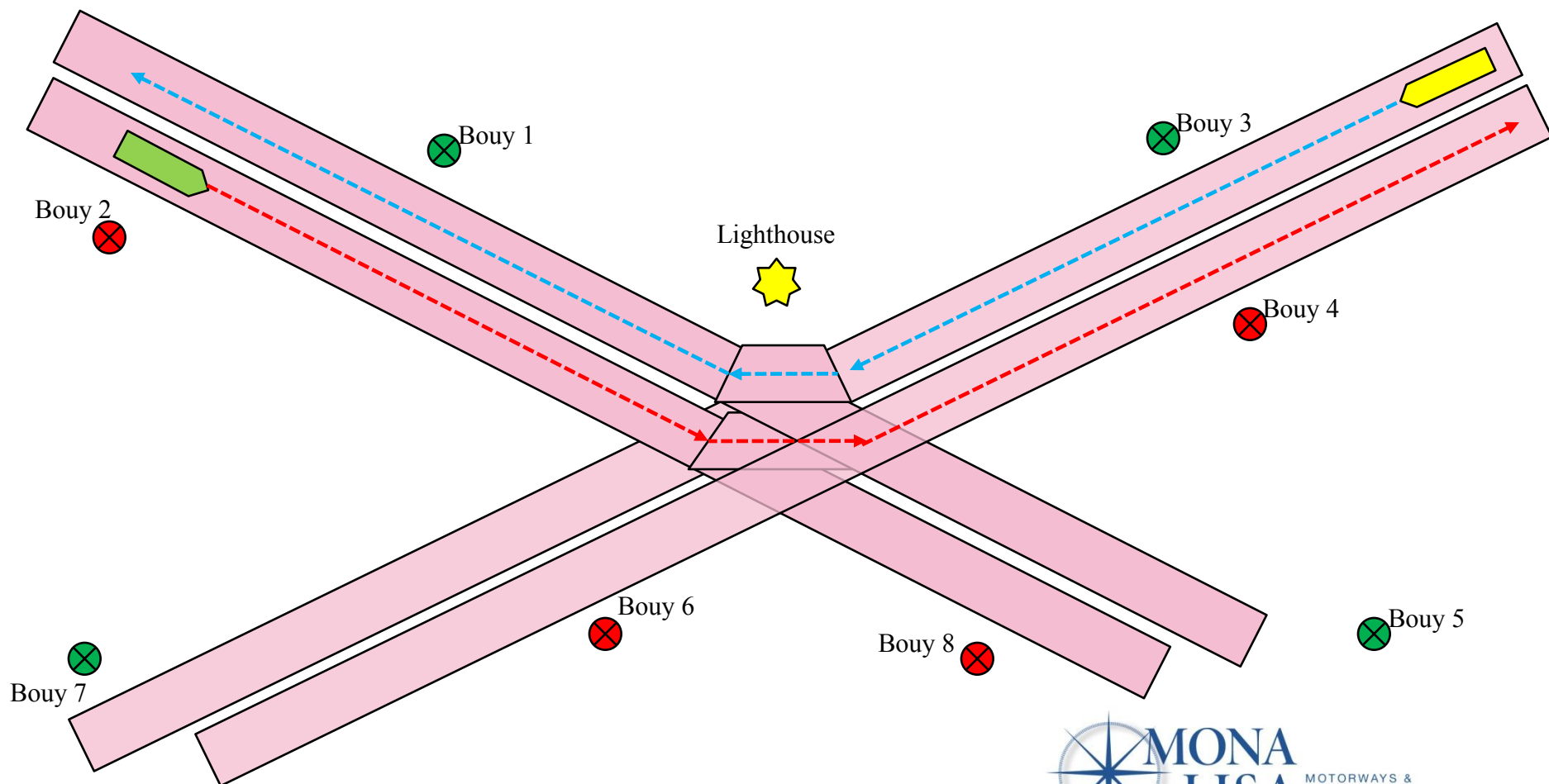
**MONA
LISA**

MOTORWAYS &
ELECTRONIC NAVIGATION
BY INTELLIGENCE AT SEA

Regular radar picture



Routes on NAV Monitor



Dynamic & Proactive Routeplanning

Improved: environment, safety and security

- Optimal way calculating with weather, current, ETA, pilots, etc
- Reduced fuel consumption
- Timeoptimized ETA
- Reduced "Carbon footprint"
- Lower costs
- Surveilling authorities can focus on "riskvessels"



Automatic Verification System

Question? How to be sure of officers:

- **Valid certificates for :**
 - **Actual vessel?**
 - **Position?**
 - **Pilot exemption ?**
- **Actual time on watch?**



Automatic Verification System

- A new international ID smartcard (ICC) will be issued to all watchkeeping officers and masters containing data of:
 - Nautical and engineers certificates
 - Cargo related certificates
 - Radio certificates
 - Pilot exemptions certificates
 - Etc.
- **ICC card to be inserted in a card reader connected to the AIS equipment onboard during all on-watch period**



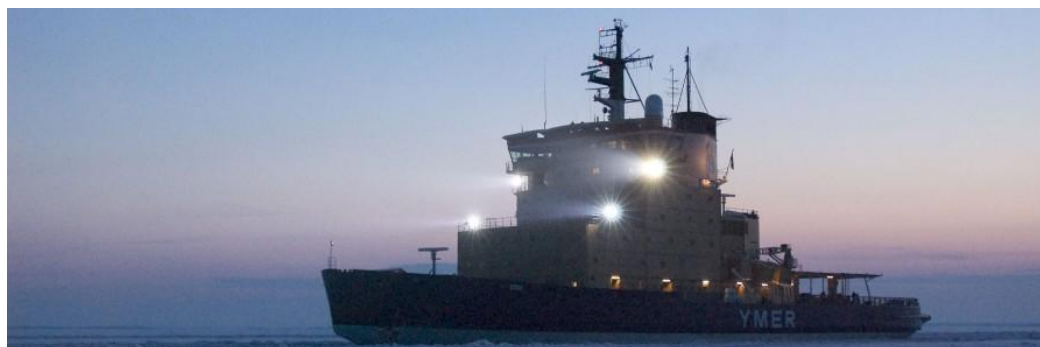
Automatic Verification System, work flow

- Certificates automatically matched with requirements for
 - Actual ship
 - Present position in sailing waters (open sea or pilot area)
 - Actual time on watch (verifying workhours regulations)
- **In case of discrepancies with any regulation, the ship will be flagged accordingly on MOS centers monitors**

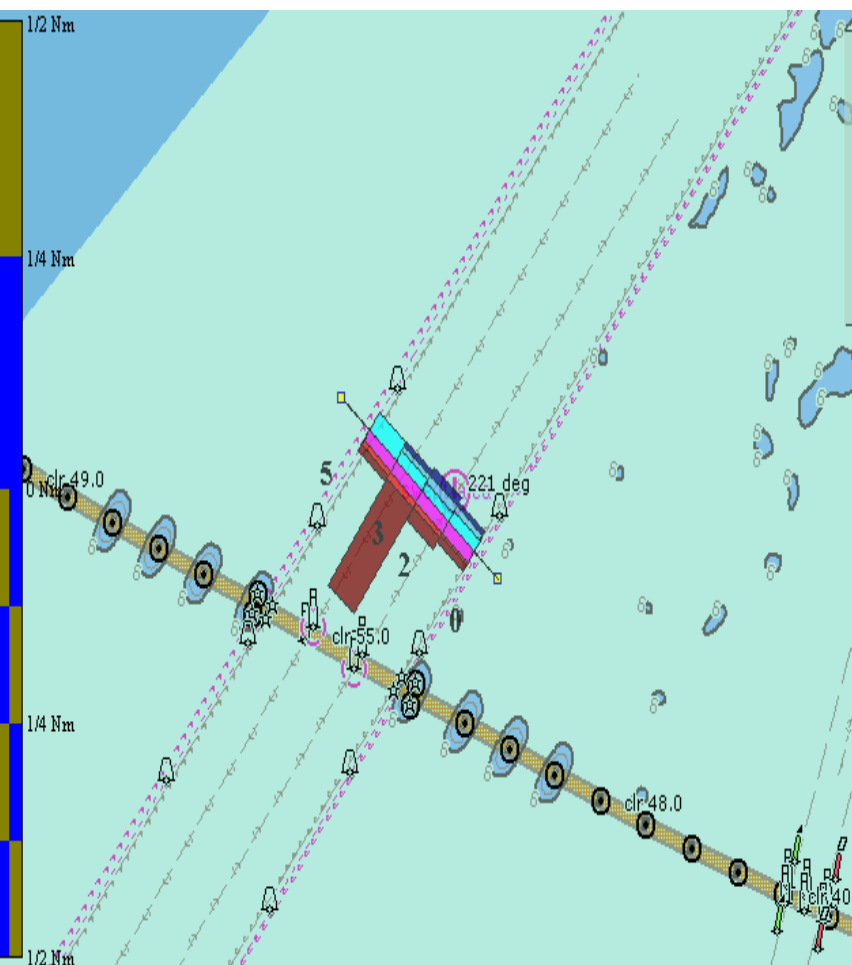


AIS in the Baltic region, some examples

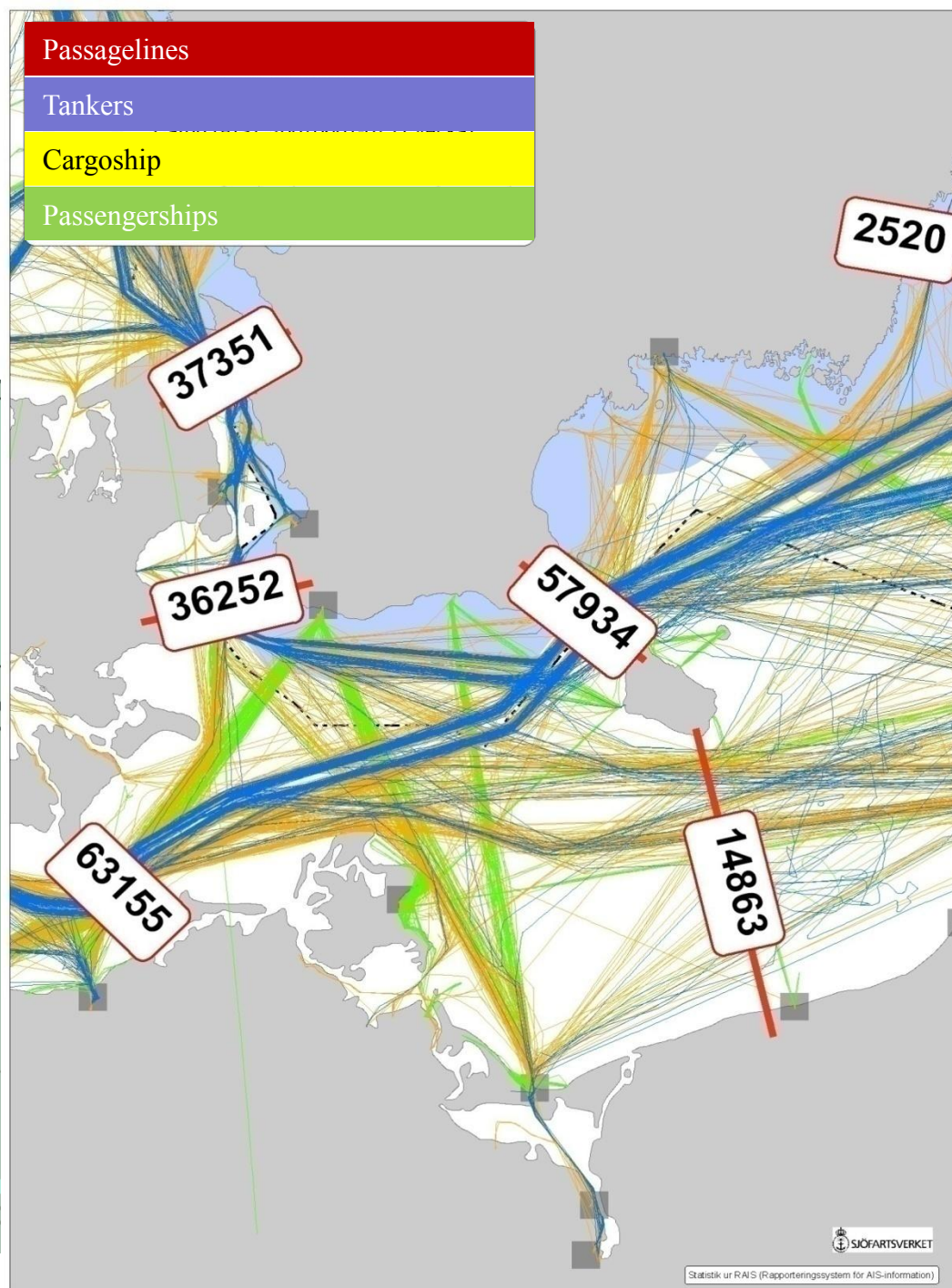
- **Helcom** server gathers and exchange all AIS data for Baltic Sea area
- AIS system is used for transmitting Wind-current data
- MOB cases transmitted via AIS in Stockholm archipelago
- Icebreaking command uses AIS for safe routening
- AIS for auto detecting violence of regulations in TSS areas
- AIS for auto detecting of non-compliance with reporting acc. to VTM directive

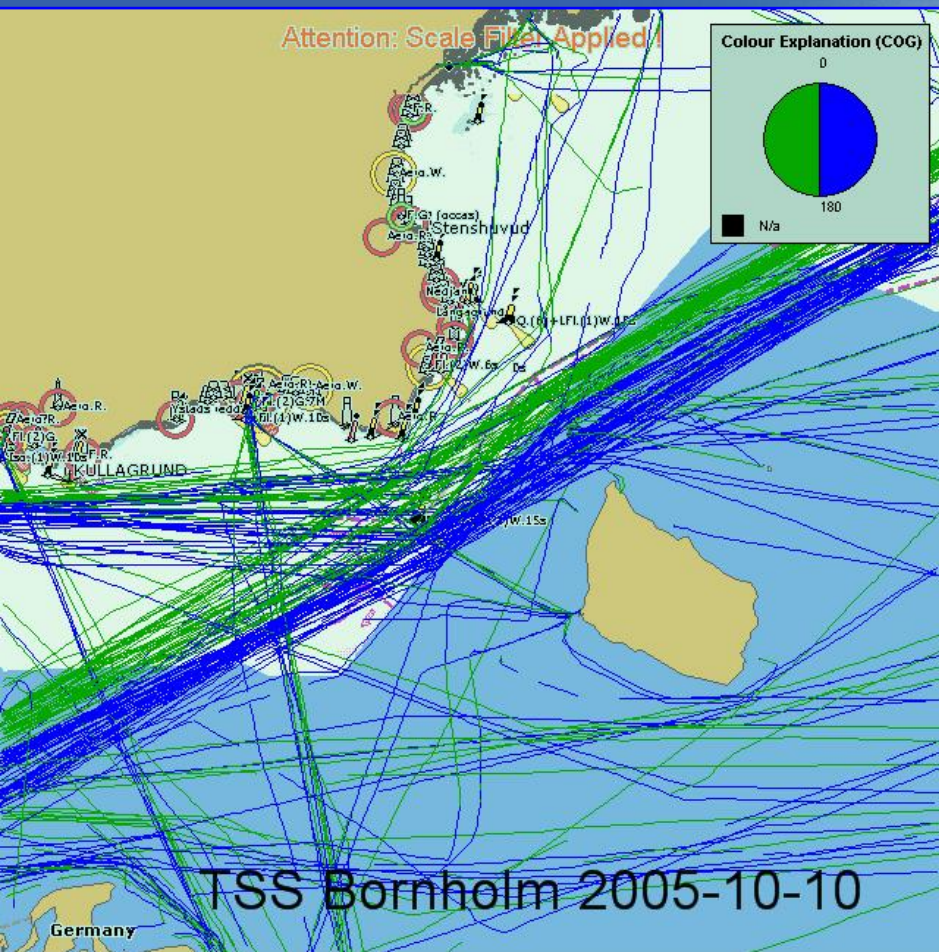


AIS use it!

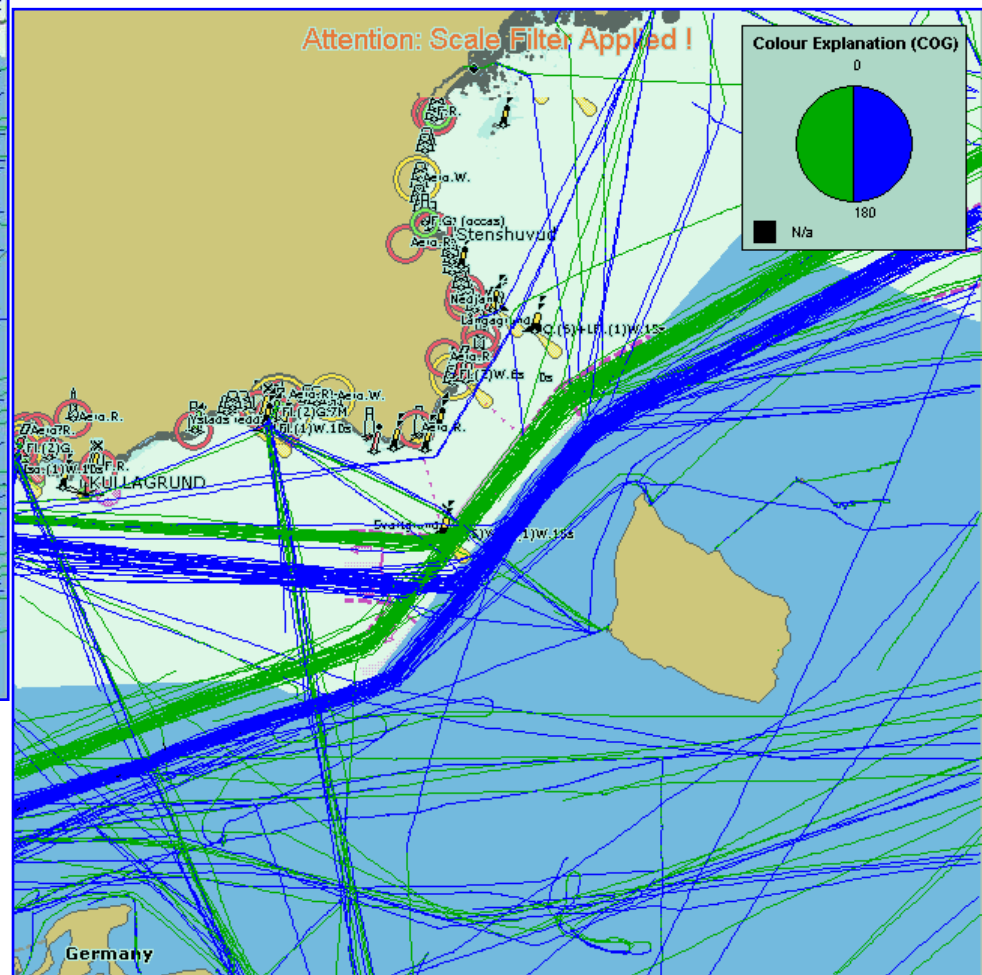


Safe shipping for people and environment

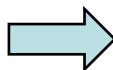




TSS Areas, Before



After separation



Projects under the EU Baltic Sea Regional Programme

16 partners whereof 7 authorities from Denmark, Sweden, Norway, Finland, Poland and Estonia

Lead partner; Danish Maritime Safety Administration

Timeframe 2009 – 2011

Budget 8M Euro

Partners & Cooperation



The EfficienSea project

Four (4) Thematic Workpackages	Lead
WP3 Competence and Recruitment Challenges	SMA
WP4 e-Navigation	DaMSA
WP5 Vessel Traffic Data and Maritime Planning	NCA
WP6 Dynamic Risk Management	FTA

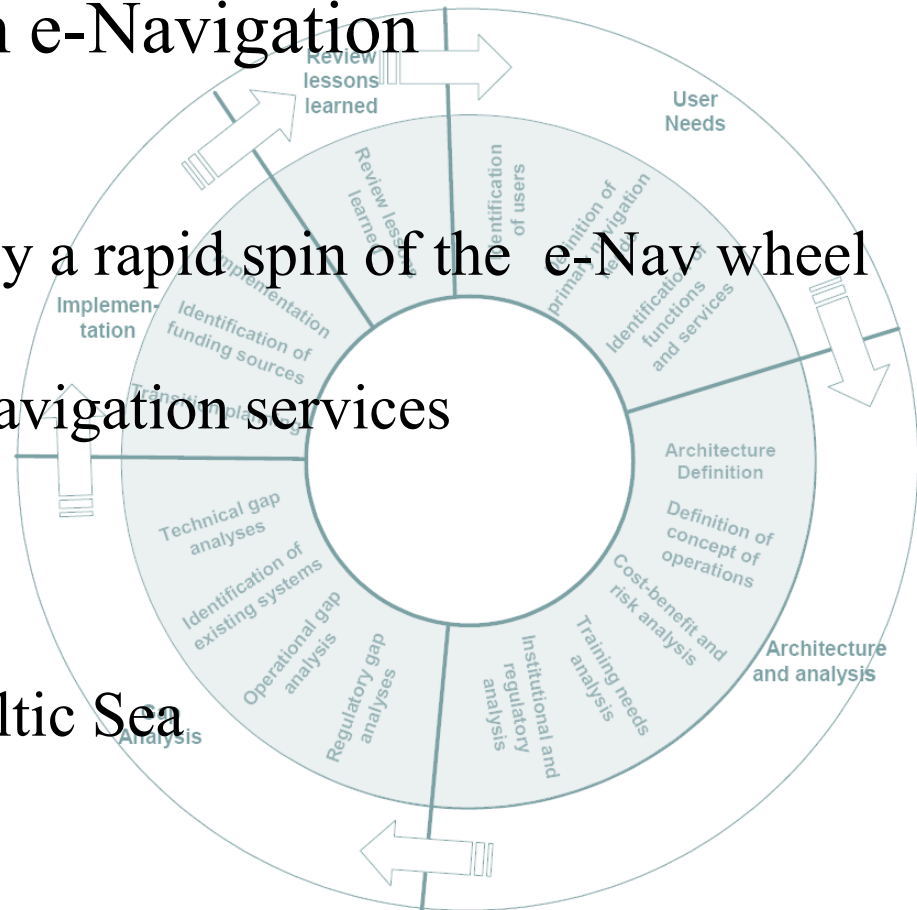
Major work package on e-Navigation

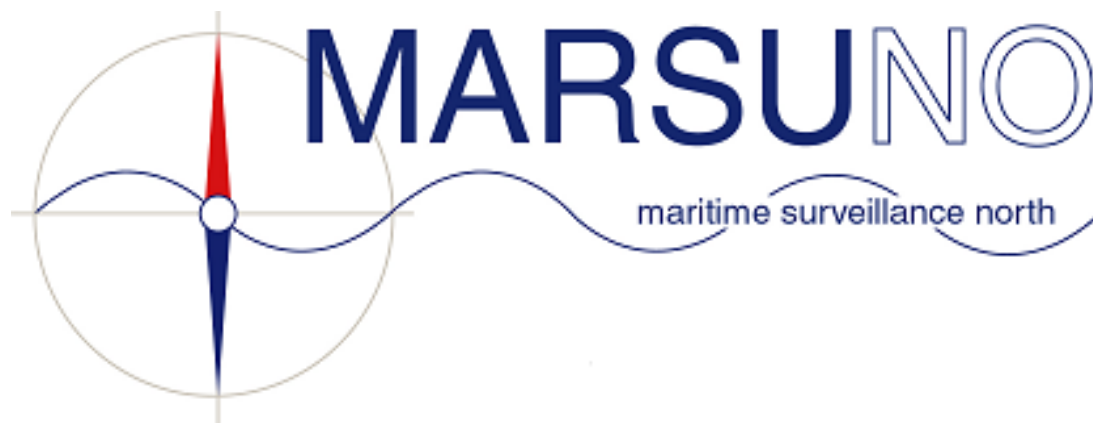
Take a practical approach by a rapid spin of the e-Nav wheel

Identify candidates for e-Navigation services

Implement prototypes

Establish test bed in the Baltic Sea





- Marsuno supports the policy of the European Commission to create a Common Information Sharing Environment (**CISE**)
 - 24 partners from 10 countries + observers from Russia and UK
 - Project runs 2009 to dec 2011
 - Budget is on 3 M Euro
 - The results will be used in the EU Commission **Road Map for CISE**
 - www.marsuno.eu

Layers of Marsuno

Layer 1

Border Management & Law enforcement

Layer 4
SAR

Layer 6
**Maritime Situational
Awareness**

Layer 2
VTMIS

Layer 3
**Maritime Pollution &
Response**

Layer 5
**Fishery
Control**

Objectives

- 1 Capacity tests of **exchanging surveillance and monitoring information**
- 2 To test **operational procedures** between **law enforcement** authorities
- 3 To **determine** the **ability** to set up an **exchanging mechanism** at a cross sectoral and cross border level
- 4 **Identify** Legal/Administrative/Technical **obstacles**
- 5 **Identify best practices** and/or legal adjustments needed
- 6 **Determine** the extent of **added value**

Thanks for your attention!

- Captain Ulf Svedberg, B.Sc.Naut.Sc
- Deputy Director of Infrastructure Department
- Swedish Maritime Administration

