Vessel Traffic Services and Information Systems in the Baltic Sea Region

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The meaning of life?

• **Logistics is the main vein of the society**
  – people, goods, services, documents, money

• **Society builds up the infrastructure**
  – national (ports, fairways, communication, surveillance)
  – international (communication, regulation, surveillance)

• **Society has interests in the logistic chain**
  – safety of transports (traffic, ship), people and environment
  – security of transports
  – taxation of transports

• **Society needs information (in electric format)**
  – reporting formalities, surveillance
  – delivery of the information to public use
  – passenger, position information
  – flag, port and coastal state status
  – statistics and analysis (economic trends, criminal and terrorist acts)

• **How about the Navigator? Or enterprise? What is their share?**
  – better information sharing, better situational awareness? Easier procedures?
Use / Benefits of Information

• Together with the industry, the authorities play a key role in making the information available to the extent possible within the legal framework and security aspects.

• Meet the challenges of the logistic market with the exploitation of maritime information.
Information levels

- Global
- European
- Regional (e.g. Baltic Sea, Mediterranean)
- Neighboring areas
- Territorial sea / Fairways / Port and terminal areas
Satellite AIS
PortNet as National Single Window system (NSW) 
Working principle and data management

Ship’s agent

- Advance notice (CUSREP)
- DG cargo notice (IFTDGN)
- Cargo report (manifest or statistical (CUSCAR))

PortNet

EDI XML WWW

XML WWW

FTA
Customs
Ports
Other

www.liikennevirasto.fi
Traffic monitoring

• Maritime authorities are expected to monitor their territorial and coastal waters to ensure safety, environmental protection and security.

• More information is required – in electronic format:
  – Monitoring and information systems established to cover the routes of vessel traffic:
    • vessel traffic services (VTS)
    • ship reporting systems (SRS)
    • AIS land-based substations
  – SafeSeaNet (European Maritime Monitoring System)
    • National Single Window Systems (NSW)
    • European Environmental System (CleanSeaNet)
    • Long Range Identification and Tracking System (LRIT)
  – Frontex (European Boarder Guard System)
  – ICS (European Union’s Customs System)
Traffic management

- vessel traffic services (VTS)
- ship reporting systems (GOFREP)
- Automatic Identification Systems (AIS)
- routeing measures (TSS)
- safety radio communications (GMDSS)
- telematic and data transfer systems
- charting services (ENC)
- radio navigation services (DGPS)
- maritime navigational aids (ECDIS)
- port of call reporting system (NSW PortNet)
- EU vessel traffic and information system SafeSeaNet (SSN)
- IMO Long Range Identification and Tracking System (LRIT)
Actual traffic image after Aland Sea Routeing
Prevention of TSS violation by VTS
VTS centres Finland

80 VTS operators

System consists of:
• 5 VTS centres -> 3 VTS centres 2012
  - 15 work stations + simulator
• 60 radar stations
  + 10 Navy / CG radar stations
• 40 AIS base stations
• 41 VHF radio stations
• Cameras
• Data network
  – Public operators, MAFU, FTA
  – Data network for meteo- and hydrographic stations
• VTS centres are interconnected
• VTS and GOFREP are interconnected
• ETA information is passed to PortNet
Traffic organization
Short position report:

A Ship SAMBRE,
B Time
C Position
D Position
E Just leaving the port of Paldiski

Full report:

I Destination Hull and ETA 27.4. p.m.

L Route information Via traffic separation schemes to Great Belt

O Draught 5.4 m

P Cargo NO

Q Deficiencies nil

R Pollution nil

T Owner or agent Eesti Mereagentuur AS, tel.(372) 6 40 18 00, Fax(372) 6 31 35 60

U Type and length Dry cargo vessel, 107 m

W Persons 9 persons

X Miscellaneous nil

XML-based information exchange between national databases (Traffic Centres)
Tanker reporting requirements to SRSs en route Gibraltar - Porvoo

- Reporting systems requirements from era of onboard radio officers
- Content of reports may vary remarkably
- Reporting mainly by VHF in spite of systems as SSN, LRIT, AIS etc.
- Ships are offered only a little or not at all information
SafeSeaNet
Vessel Traffic Monitoring and Information System

All member states shall send reports to SSN-system on:

• Port notification -> from year 2011 Port Plus
• Hazmat notification -> is incl. to Port Plus
• AIS-data from member state’s land based monitoring system
• MRS-messages from the reporting system’s like GOFREP
• Alert notifications (SITREP, POLREP) of the incidents and violations at sea
• Security notification in 2015
Ice Information available in the Baltic Sea
Coordination and control of the traffic

IBNet
Non-commercial systems
Commercial systems
Authority systems:
HELCOM AIS
Proactive maritime safety - intelligent traffic management

- change of route and validation
- traffic management net in the Baltic Sea
- better ship-shore information exchange
- single window reporting
- enhanced awareness - enhanced safety and flexibility

validation by Tanker Safety project
legal framework
development of AIS system
pilots of information exchange by different methods
dynamic risk management and enhanced situational awareness
**eMaritime**  
*European initiative lead by DG MOVE*  
Promotes the use of advanced information technologies for working and doing business in the maritime transport sector.  
- EU MarNIS project  
⇒ Goal to create efficient logistical chains

**CISE**  
*European initiative lead by DG MARE*  
Aims to increase situational awareness of activities at sea amongst all relevant authorities.  
- Baltic Sea MARSUNO project  
⇒ Goal to facilitate sound decision making in different sectors

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**Single Window Internet Service**  
Reports and notifications according to directive 2010/65/EU  
Shippers, carriers  
Safety and Security, PCSs, PSWs, Customs, Border Control, Health, etc.

**eMaritime NSW system**  
will act as an information source for NCC

**NCC**

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SECURITY & LE

DEFENCE

SAFETY

- Own registers and information sources
- Point to point contacts

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- Maritime Resource Situational Picture
- Maritime Surface Picture
- Own registers and information sources
- Point to point contacts
e-Navigation
– international initiative lead by IMO

e-Navigation is the harmonized 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.

Includes also harmonisation of the communication systems and data formats between ship-ship, ship-shore and maybe even shore-shore.

“harmonized collection, integration, exchange, presentation and analysis of maritime information onboard”

“harmonized collection, integration, exchange, presentation and analysis of maritime information ashore”

Source: IALA e-NAV committee
Whatever we do,
let’s save the Baltic Sea

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