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# e-navigation in the making

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## MT Erika



## MT Prestige



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# NCA regional centres



**KV Troms og Finnmark**

**KV Nordland**



**KV Midt-Norge**

**KV Sørøst**



**KV Vest**



# Regional organisation

” The five coastal regions have individual operative tasks managed on behalf of the NCA Head Office:

NCA Head Office					
Information systems Property Mngt Transportation planning	Pilotage VTS Radio navigation Reporting services	Fairways Lighthouses and beacons Central storage	Planning and development	Information technology Administration Personnel Accounting	Development and maintenance of aids to navigation
<b>NCA Region Southeastern Norway</b>	<b>NCA Region Western Norway</b>	<b>NCA Region Central Norway</b>	<b>NCA Region Nordland</b>	<b>NCA Region Troms og Finnmark</b>	<b>NCA Shipping Company</b>



# VTS in Norway



**Brevik VTS**



## VTS Centres



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# Important key words in the development process

- ” Harmonization
- ” Integration
- ” Modernization
- ” Simplification

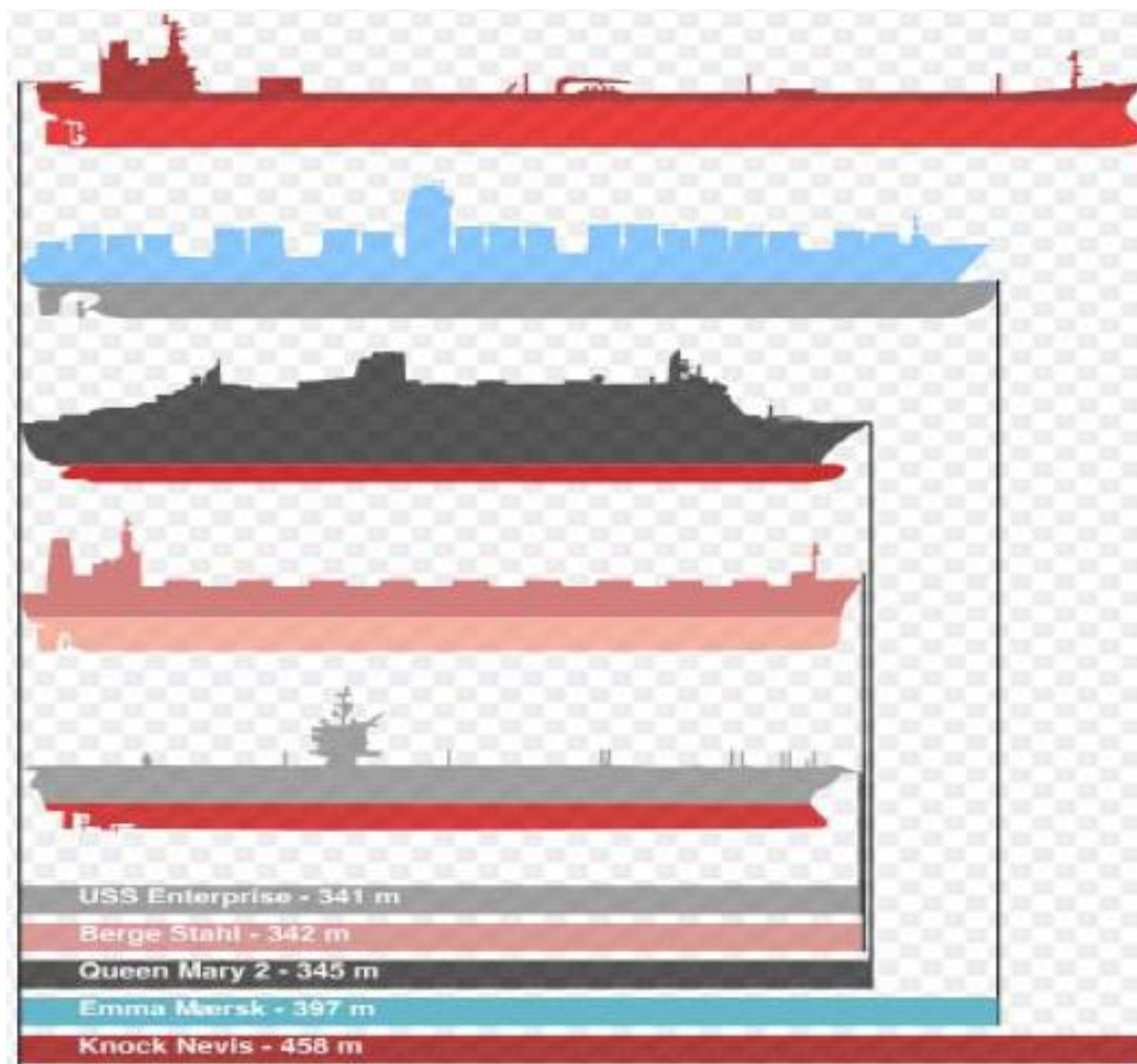






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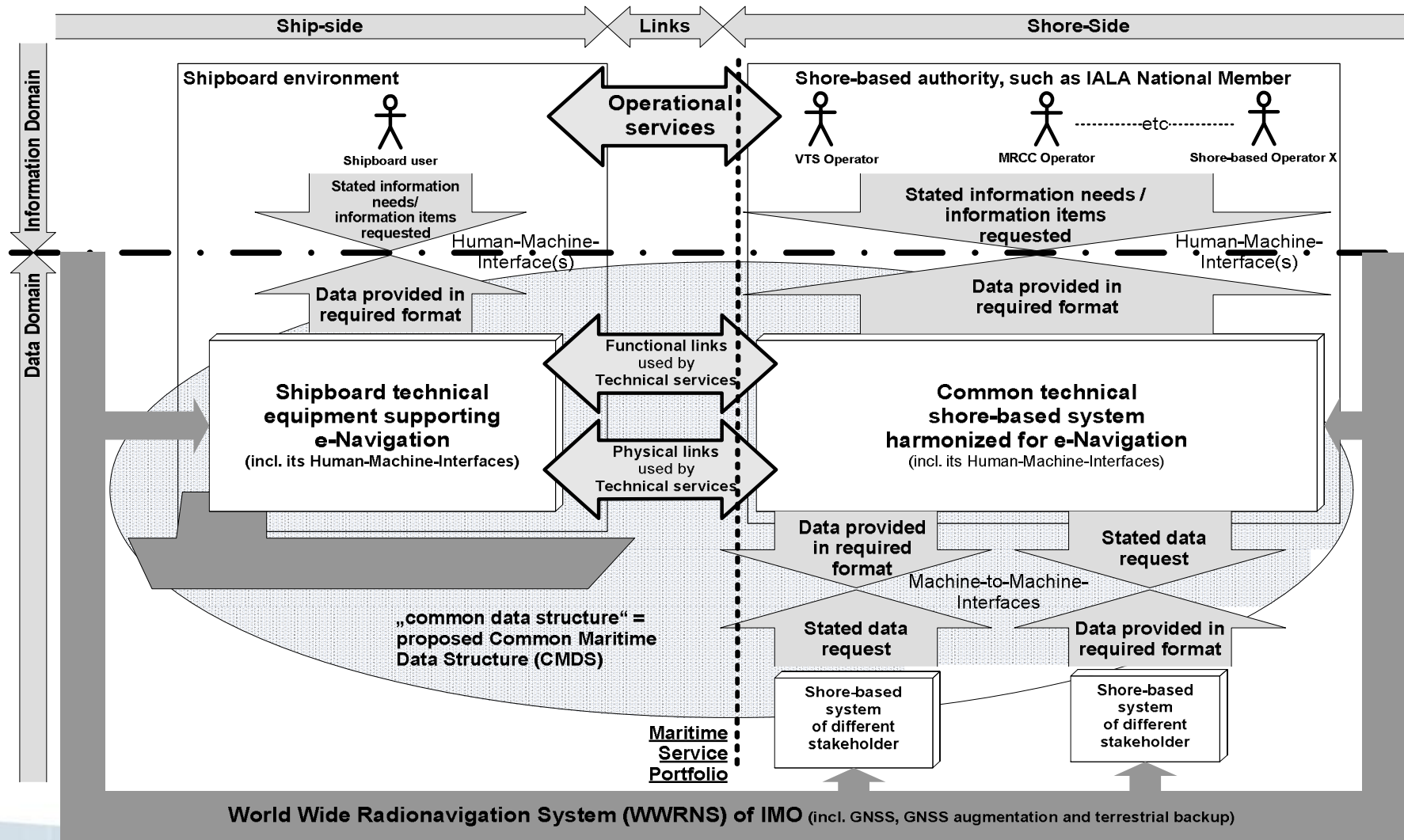
# User needs examples

- “ Standardized and automated reporting
- “ Reduction of administrative burden and increase use of electronic documentation
- “ User-selectable presentation of information received via communication equipment
- “ Effective and robust communications





# The complete overarching e-navigation architecture



# The EU E-Maritime initiative



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# A holistic system in a structured manner



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# User surveys



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# Gap categories

- “ **Information/Data Management**
  - . Common Data Structure/Harmonized Data Format
  - . Improved Reliability and Indication of Reliability
  - . Nautical Charts and Publications according to SOLAS Chapter V
- “ **Effective and Robust Voice Communication and Data Transfer**
- “ **Navigational Bridge Systems and Equipment**
  - . Improved Ergonomics, Standardization and Alert Management
  - . Presentation of Information Received via Communication Equipment /e.g. MSI) on the Navigational Displays
- “ **Ship Reporting**
- “ **Training and Familiarization**
- “ **Traffic Monitoring**

The four key elements of the GAP analysis: Technical, Operational, Regulatory and Training, have then been applied to each of the categories.



# Principles for e-navigation

1. Formats for the collection, exchange and distribution of data should be harmonized and standardized where practicable and appropriate;
2. Processes and procedures for the collection, exchange and distribution of data should be arranged in a uniform way, where practicable, and in accordance with the internationally agreed standards;
3. The services providing the data and information, as well as the systems used for these purposes, should be interoperable in such a way that the use and re-use of data can be enhanced; and
4. Consequently the development of open standard interfaces should be encouraged.





# Continuous improvement and innovation

- “ Promotion of the wider use of the Single Window concept for pre-arrival information,
- “ Allowing all the information required by a visiting ship to a port through one point of entry, - but which is secure and reliable;
- “ Considering the most appropriate way to facilitate the process of clearing the ship, its cargo, passengers and crew, by using information technology solutions; and
- “ The identification of possible technical assistance measures to expand information and e-business in the area of maritime traffic, particularly in developing countries.



# Software applications potentially relevant to IMO e- navigation

“Radar

“INS

“Integrated communication system

“Integrated alert management system

“ECDIS

“Maritime Safety Information system. MSI.



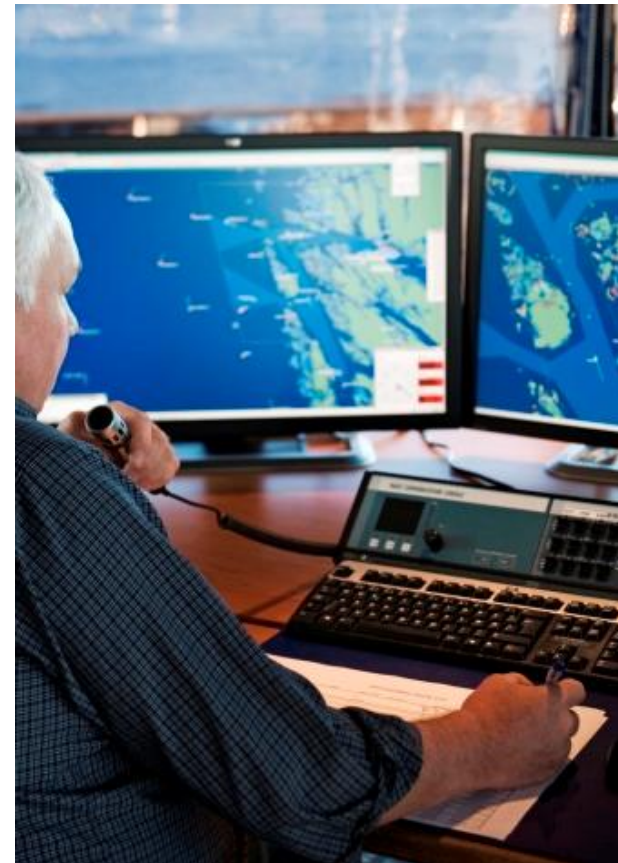
## Alternative additional software applications

- “Route planning information systems
- “Enhanced navigation displays
- “Cost-optimizing integrated communications
- “Low emission, fuel optimizing or time sensitive navigation planning





# e-navigation is a broad, long-term concept



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