



**KYSTVERKET**  
NORWEGIAN COASTAL ADMINISTRATION

# **e-navigation — enhanced safety of navigation and efficiency of shipping**

The status of the IMO e-navigation work and the Strategy Implementation Plan

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# The e-navigation concept

- Intends to promote safety, security and efficiency in global shipping, and, consequently, the protection of marine and coastal environments.



# e-navigation needs...

- Harmonized and user friendly tools optimized for good decision making
- Reliable and robust communication
- Proper coordination of technological development



# Roadmap

2009

- Survey and prioritizing of User Needs

2010

- Survey and prioritizing of User Needs, services and tasks
- Description of functions and services

2011

- Selection overarching system architecture
- Initial GAP analysis

2012

- Final GAP analysis

2013

- Risk and Cost/benefit analyses

2014

- Proposal for a final Strategy Implementation Plan
- Final decision of Strategy implementation plan



# I know what I need





# User surveys

- User surveys carried out by several Member States and international organizations
- Identified areas for improvements
- Mariners and land-based personnel participated
- 24 main categories of user needs were identified



# Ship-shore interaction

- The use of IHO S-100 standard
- An overarching e-navigation architecture in 2012
- A Common Maritime Data Structure
- An IMO/IHO Harmonization Group on Data Modelling



# The GAP

Status

We know where  
we are



Future

User Needs tell  
us where we  
want to go





# How to bridge the gap

(the Nordic way)



# GAP analysis

and references to be taken into consideration, provided  
by MSC or NAV

1. User Needs
2. Aspects (MSC 86/23/4)
2. Key elements (NAV 54/25/Annex 12)
3. Core objectives (NAV 54/25/Annex 12)
4. Relevant functions (NAV56/WP.5/Rev.1/Annex 1)
5. Operation area (as identified for Maritime Service Portfolios – MSP)



# Gap analysis delivered

- 87 gaps identified based on user needs
- Four areas for improvement:
  - Operational, technical, regulatory and training
- Main categories identified:
  - Information and data coordination
  - Effective and robust communication and data transfer
  - Navigation systems and onboard equipment
  - Ship reporting
  - Training and usability
  - Traffic monitoring
- Could be used as reference in development of new products



# Workshops

- **Monaco:** Focused on harmonization and standardization of e-navigation information based on a common global standard.
- **Singapore:** Trials conducted for exchanging information electronically between Vessel Traffic Service centre and ship based on the IHO S-100 standard.
- **Haugesund (Norway):** Discussed the need for communication in Polar Regions based on electronic exchange of ship-shore information. Trials conducted to survey communication coverage in polar regions.

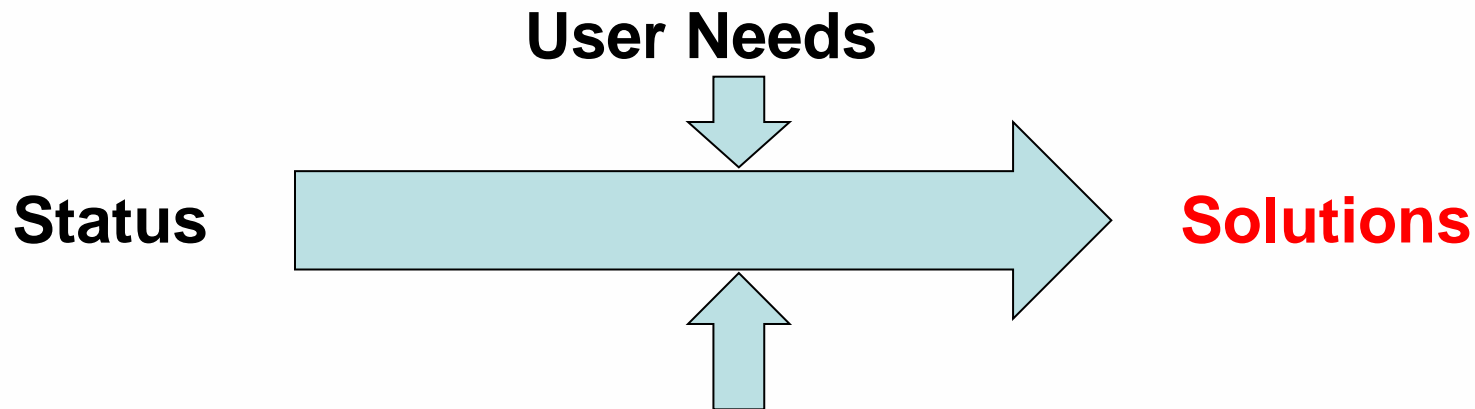


# Human Element Analyzing Proces

## HEAP



# How to bridge the e-navigation gaps and identify solutions?



**With reference to:**

Aspects

Key elements

Core objectives

Relevant functions

Operational areas





# Examples of main solutions

**Solution 1:** Improved, harmonized and user-friendly bridge design

**Solution 2:** Means for standardized and automated reporting

**Solution 3:** Improved reliability, resilience and integrity of bridge equipment and navigation information

**Solution 4:** Integration and presentation of available information in graphical displays received via communication equipment.

**Solution 9:** Improved Communication of VTS Service Portfolio.



# The way forward

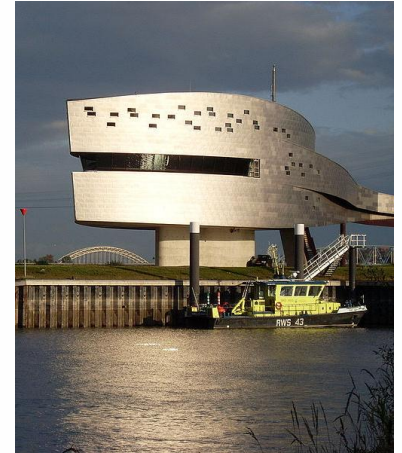


If you know the direction,  
and you take it step by  
step, - then \_ \_ \_ \_



# The next delivery...

- Risk and Cost/Benefit analyses to be delivered to NAV 59
- The prioritization of main solutions to achieve workable and efficient results is the basis for the analyses



# Work towards 2014

- Risk analysis
- Cost/benefit analysis
- Development of:
  - Maritime Service Portfolio
  - Guidelines for testing usability
  - Guidelines for test-beds
  - Guidelines for quality assurance of data
- Strategy Implementation Plan



# The Strategy Implementation Plan

1. Identification of responsibilities
2. Transition arrangements,
3. A phased implementation schedule
4. Priorities for deliverables
5. Proposals for a systematic assessment of the development of new technology
6. A plan for the requirements of e-navigation in the longer term,
7. Proposals on public relations
8. Identification of potential sources of funding



# 2014: Mission completed!

