



**INTERNATIONAL  
MARITIME  
ORGANIZATION**

# **THE DEVELOPMENT OF THE E-NAVIGATION STRATEGY IMPLEMENTATION PLAN – THE WAY AHEAD**

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# The development of e-navigation

- MSC 81 (May 2006) instructed the NAV and COMSAR Sub-Committees to consider the development of an e-navigation strategy with the aim of developing a strategic vision of e-navigation before taking any necessary policy direction.

# The development of e-navigation

- MSC 85 (July 2008) approved the **Strategy for the development and implementation of e-navigation**; the **Framework for the implementation process for the e-navigation strategy**, and endorsed NAV Sub-Committee's decision that the respective Chairmen along with the Secretaries of the COMSAR, NAV and STW Sub-Committees should jointly develop a **coordinated approach to implement the proposed e-navigation strategy**.

# Strategy for the development and implementation of e-navigation

- Definition and Scope
- Need for e-navigation
- Case for e-navigation
- Vision
- Core Objectives
- Benefits
- Basic requirements for implementation and operation
- Potential users and their high level needs
- Key Strategy elements and implementation

# Strategy for the development and implementation of e-navigation

## The need for e-navigation

Shipboard users and those ashore responsible for the safety of shipping to be equipped with modern, proven tools that are optimized for good decision making in order to make maritime navigation and communications more reliable and user friendly.

## The overall goal

To improve safety of navigation and to reduce errors.

# Strategy for the development and implementation of e-navigation

## Core objectives of e-navigation

Facilitate:

- ⦿ **safe and secure navigation of vessels** (hydrographic, meteorological and navigational information and risks);
- ⦿ **vessel traffic observation and management** from shore/coastal facilities, where appropriate;
- ⦿ **communications** (data exchange, ship-to-ship, ship-to-shore, shore-to-ship, shore-to-shore and other users);
- ⦿ **global coverage, consistent standards and arrangements, and mutual compatibility and interoperability** of equipment, systems, symbology and operational procedures;

# Strategy for the development and implementation of e-navigation

## Core objectives of e-navigation

Integrate and present information onboard and ashore:

- ⦿ through a human-machine interface which **maximizes navigational safety benefits** and **minimizes any risks** of confusion or misinterpretation on the part of the user;
- ⦿ to **manage the workload of the users**, while also motivating and engaging the user and **supporting decision making**;

# Strategy for the development and implementation of e-navigation

## Core objectives of e-navigation

- ⦿ provide opportunities for **improving the efficiency** of transport and logistics;
- ⦿ demonstrate **defined levels** of accuracy, integrity and continuity appropriate to a safety-critical system; and
- ⦿ incorporate **training and familiarization requirements** for the users throughout the development and implementation process.



# Strategy for the development and implementation of e-navigation

## Benefits of e-navigation

- ⦿ improved safety and security;
- ⦿ better protection of the environment;
- ⦿ higher efficiency and reduced costs; and
- ⦿ improved human resource management.

# IMPLEMENTATION

- ◉ IMO - Clear ownership and control  
(detailed in MSC 85/26/Add.1, Annex 20, Annex 1)

## Frame work for the implementation process

- ◉ Strategy implementation plan
- ◉ User needs
- ◉ Architecture
- ◉ Gap analysis
- ◉ Cost-benefit and risk analyses
- ◉ Implementation plan

# Strategy for the development and implementation of e-navigation

## Key strategy elements

- .1 Architecture
- .2 Human element
- .3 Conventions and standards
- .4 Position fixing
- .5 Communications technology and information systems
- .6 ENCs
- .7 Equipment standardization
- .8 Scalability

# The development of e-navigation

- In June 2009, MSC 86 approved the joint plan of work for the COMSAR, NAV and STW Sub-Committees for the period 2009-2012.
  - .1 **NAV**: overall coordination; navigational aspects (equipment, ship reporting and vessel traffic management);
  - .2 **COMSAR**: communication and SAR aspects (equipment, procedures); and
  - .3 **STW**: training aspects.

# (Initial) coordinated approach to the implementation the proposed e-navigation strategy (2009-2012)

A COORDINATED APPROACH TO THE IMPLEMENTATION OF IMO'S E-NAVIGATION STRATEGY OVERALL PLANNING 2009-2012 BY STRATEGY ELEMENT																
	2009		2010				2011				2012					
Meetings	MSC 86	NAV 55	COMSAR 14	STW 41	MSC 87	NAV 56	MSC 88	COMSAR 15	STW 42	MSC 89	NAV 57	COMSAR 16	STW 43	MSC 90	NAV 58	MSC 91
User needs		final														
Architecture		Correspondence Group				final		Correspondence Group								
Gap analysis					initial		final									
C-B and risk analysis					initial		final									
Strategy Implementation Plan	joint plan of work										outline	2012: <u>Interseasonal</u> WG?			final	adoption

# The development of e-navigation

- In June 2010, NAV 56 reviewed the User needs prepared by the correspondence group and approved the user needs, which include:
  - **Shipboard** user needs and priorities;
  - **Shore-based** user needs;
  - **SAR authority** user needs; and
  - **Existing systems** and **new communication technologies** supporting user needs and complying with equipment performance standards

# The development of e-navigation

- In June 2011, NAV 57 agreed on:
  - .1 the current **overarching e-navigation architecture**;
  - .2 the proposed way forward for developing a **Common Maritime Data Structure (CMDS)**;  
and
  - .3 the use of the **IHO's S-100 standard** as the baseline for creating a framework for data access and services under the scope of SOLAS,  
with a view to approval by MSC 90.

# Revised coordinated approach to the implementation of the proposed e-navigation strategy (2012-2014)

A COORDINATED APPROACH TO THE IMPLEMENTATION OF IMO'S E-NAVIGATION STRATEGY OVERALL PLANNING 2012-2014 BY STRATEGY ELEMENT														
	2012					2013				2014				
Meetings	COMSAR 16	STW 43	MSC 90	NAV 58	MSC 91	COMSAR 17	STW 44	MSC 92	NAV 59	COMSAR 18	STW 45	MSC 93	NAV 60	MSC 94
USER NEEDS														
Overarching Architecture														
Gap analysis	Correspondence Group			final										
C-B and risk analysis						Correspondence Group			final					
Strategy Implementation Plan	2012: Intersessional WG (to be decided)			updated outline		2013 Intersessional WG (to be decided)			updated outline	Correspondence Group			final	adoption



# NAV 58 and on-going work

- Noted the progress with the regard to the development of the e-navigation architecture;
- Noted the completion of the **gap analysis including the finalization** of the list of gaps of e-navigation;
- Endorsed the preliminary list of potential e-navigation solutions and agreed the list should be used as the basis for further identification of risk Control Options, as preparation fro the FSA;
- Endorsed the Methodology of the Human Element Analysing Process in e-navigation;
- Endorsed the procedure for the FSA methodology including the identification of Risk Control Options;
- Endorsed the further development of MSPs;

# NAV 58 and on-going work

- further development of the draft **Strategy Implementation Plan** (with a view to finalization at NAV 60);
- Agreed with the further development of Guidelines for usability evaluation of navigational equipment and the further development of Guidelines for the harmonization of test beds; and
- Re-established the Correspondence Group on e-navigation

# Work of the Correspondence Group

- Correspondence Group focussing attention on the following criteria:

Seamless transfer of data between various equipment on board;

Seamless transfer of electronic exchange of information/data between ship and shore and vice-versa;

# Work of the Correspondence Group

No development of futuristic carriage requirements;

CG should not concentrate on determining cause of marine casualties; and

List of potential e-navigation solutions should be limited solely to achieve 1 and 2 above.

# Work of the Correspondence Group

- ⦿ Members of the CG on e-navigation were invited before **27 January 2013** :
- ⦿ to provide input for finalizing a maximum of five main practical solutions, covering shipboard and shore-based users, that would demonstrate a workable and efficient transfer of marine information/data between ship and shore and vice-versa, based on the list of solutions given in NAV/58/WP6 rev.1 Annex 2 (Preliminary List of Potential e-navigation Solutions).

## COMSAR 17 outcome

COMSAR 17 noted the comments and observations of the working group related to e-navigation and forwarded them to the Correspondence Group on e-navigation for action, as appropriate (paragraphs 4 to 11 of COMSAR 17/WP.5).

THANK YOU