

Bridge Standardisation & Ergonomics

A Joint Meeting

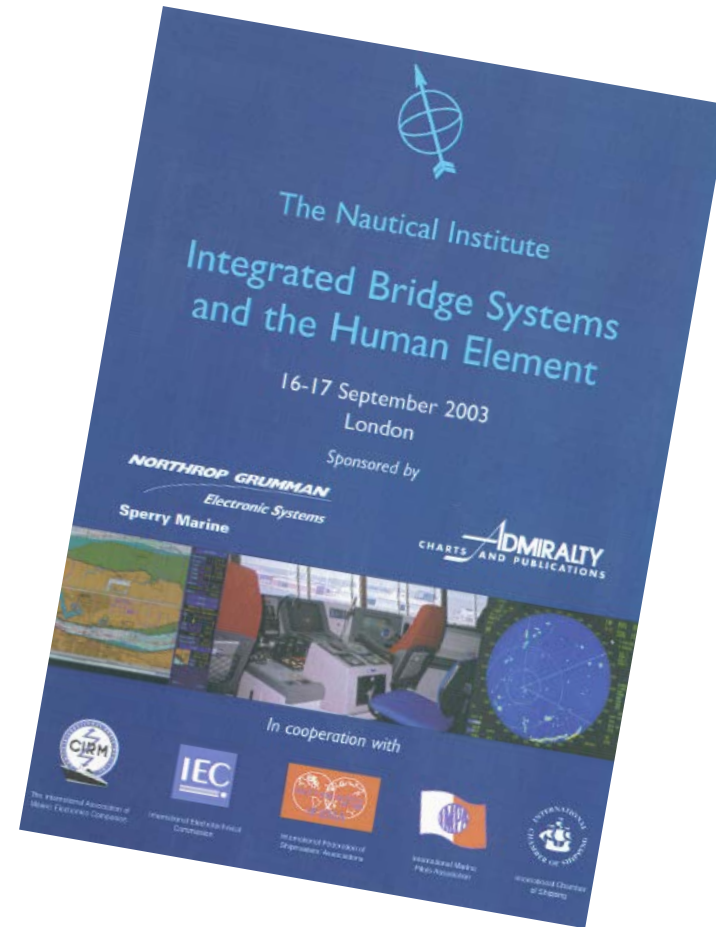
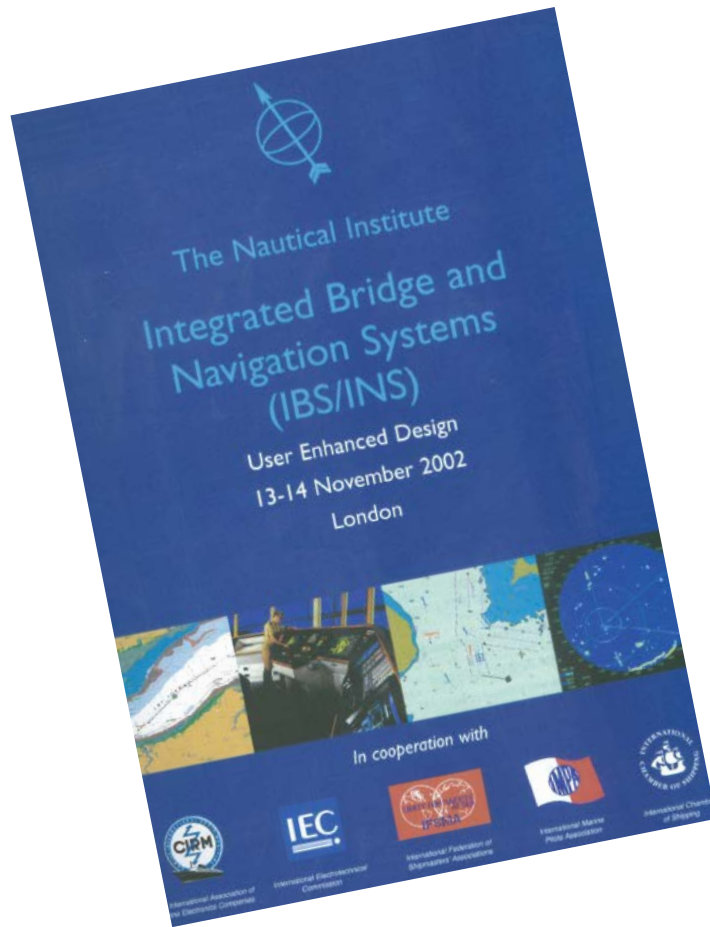
Evening Seminar

Nautical Institute London Branch

2 December 2013

David Patraiko, Director of Projects, The Nautical Institute

2002 – 2003



eNavigation

- ▶ Commenced with IMO in 2006
- ▶ “e–Navigation is the harmonised collection, integration, exchange, presentation and analysis of marine 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”

Compelling Need



There is a clear and compelling need to equip the master of a vessel and those ashore responsible for the safety of shipping with modern, proven tools to make maritime navigation and communications more reliable and user friendly and thereby reducing errors. However, if current technological advances continue without proper coordination there is a risk that the future development of marine navigation systems will be hampered through a lack of standardisation onboard and ashore, incompatibility between vessels and an increased and unnecessary level of complexity.

2008

INTERNATIONAL MARITIME ORGANIZATION



IMO

E

SUB-COMMITTEE ON SAFETY OF
NAVIGATION
54th session
Agenda item 13

NAV 54/13/1
24 April 2008
Original: ENGLISH

DEVELOPMENT OF AN E-NAVIGATION STRATEGY

The concept of S-Mode for onboard navigation displays

SUB-COMMITTEE ON SAFETY OF NAVIGATION
55th session
Agenda item 11

NAV 55/INF.8
19 May 2009
ENGLISH ONLY

**DEVELOPMENT OF AN
E-NAVIGATION STRATEGY IMPLEMENTATION PLAN**

Mariner needs for e-navigation

Supporting material

| User Need | Justification | Relation to IMO's Strategy for the development and implementation of e-navigation (section 8.2) | Issues to Consider |
|---|---|---|--|
| <p>Standard Interface</p> <p>Mariners expressed a desire for greater standardization of functionality for navigation displays.</p> | <p>Navigation system functions and presentation (including ECDIS, Radar, AIS, GPS, etc.) can vary widely between manufacturers and even between models by a single manufacturer. The differences include where certain information is displayed (i.e. Speed and Course), how it is displayed, menu functions and interface devices such as knobs or joysticks. This makes type specific training difficult, and leads to ineffective use of features particularly by those watchstanders who are new to a vessel.</p> | <ul style="list-style-type: none"> • Human Centred Presentation needs • Human Machine Interface • Analysis | <ul style="list-style-type: none"> • Design specification for current equipment • Note should be made of issues contained in the IBS guidelines • Note should be made of The Nautical Institute's concept of S-Mode • Need to establish balance between standardization and innovation • MSC/Circ.1091 on Issues to be considered when introducing new technology on board ship |

Nav 55 / INF.8

- ▶ Improved reliability
- ▶ Alarms
- ▶ Standard Interface
- ▶ Marine Safety Info (MSI)
- ▶ Guard Zones Automated reporting
- ▶ Automated updating of documents
- ▶ Improved target detection
- ▶ Improved Ergonomics
- ▶ Indication of reliability

2013 – Nav 59 Priorities

S1: improved, harmonized and user-friendly bridge design;

S2: means for standardized and automated reporting;

S3: improved reliability, resilience and integrity of bridge equipment and navigation information;

S4: integration and presentation of available information in graphical displays received via communication equipment; and

S9: improved Communication of VTS Service Portfolio¹.

Risk Control Options

- ▶ RCO 1: Integration of navigation information and equipment including improved software quality assurance.
- ▶ RCO 2: Bridge alert management
- ▶ RCO 3: Standardized mode(s) for navigation equipment
- ▶ RCO 7: Bridge and workstation layout standardization

Human Centred Design

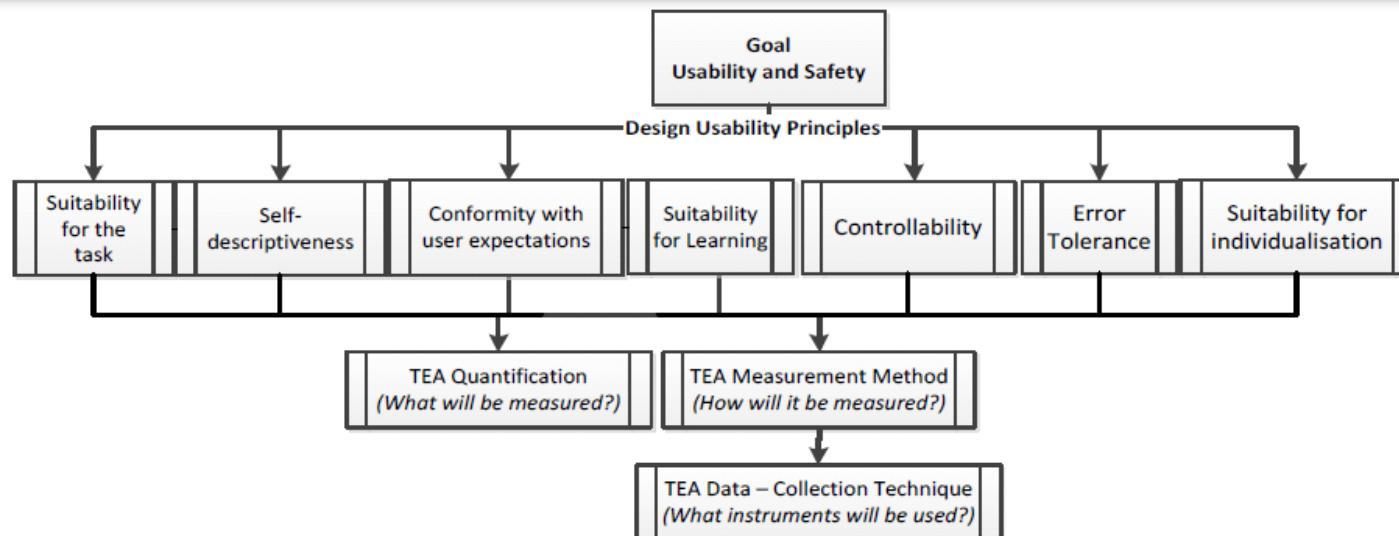
SUB-COMMITTEE ON SAFETY OF
NAVIGATION
59th session
Agenda item 6

NAV 59/6/1
28 June 2013
Original: ENGLISH

DEVELOPMENT OF AN E-NAVIGATION STRATEGY IMPLEMENTATION PLAN

Design usability principles for e-navigation solutions
and risk control options

Submitted by Australia



What now?

- ▶ Standardise 'Familiarisation'?

Checklist

November 2012

Industry Recommendations for ECDIS Familiarisation

ECDIS

November 2012

Industry Recommendations for ECDIS Familiarisation

RECOMMENDATION
 It is recommended that the implementation of this with Chart Display and Information System (CDIS) has given rise to a wide range of programs in ECDIS Generic Training and Familiarisation with related systems, an industry group engaged and endorsed by the Nautical Institute and regarding the international shipping industry systems has been meeting since 2011 to produce a range of guidance to help the industry to familiarise themselves with ECDIS.

RECOMMENDATION
 To build on the work done to date, the industry will be developing a series of guidance documents to be published by the industry group. The documents will be published by the Nautical Institute in partnership with the International Maritime Organization (IMO) and the International Chamber of Commerce (ICC) in 2012.

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Annex 1: ECDIS Familiarisation Checklist

1 Initial Preparation

| Item | Comments | Y/N |
|------|--|-----|
| 1.1 | Establish if the vessel is approved to use ECDIS | |
| 1.2 | Establish whether there are Company Management Procedures concerning the use of the equipment and its specifications such as IOPs | |
| 1.3 | Establish whether any procedures are needed for the management of the system and if available that details how the Master (if appropriate) can and cannot use the system | |

2 Basic Operation

| | | |
|------|---|--|
| 2.1 | Establish how to switch the ECDIS on and off | |
| 2.2 | Establish the function, position and use of the physical controls and indicators, manual control, and the names and indicators of the controls | |
| 2.3 | Understand how to access the main menu or menu system | |
| 2.4 | Establish the methods for setting display scale, brightness, contrast and colour (if available) | |
| 2.5 | Establish how to switch between multiple display modes | |
| 2.6 | Establish how to put equipment in stand-by mode and reactivating mode | |
| 2.7 | Establish the methods for setting alerts and alarms including describing the current state of the alarm and setting the display to a particular alarm | |
| 2.8 | Establish how to enter the Display Area Standard Display | |
| 2.9 | Establish how the display displays information including the display of AIS Data Information | |
| 2.10 | Establish how to check that the information on the display is current and dimensions are correct | |
| 2.11 | Establish how to enter the safety status safety display | |
| 2.12 | Establish how to enter the status or historical data display | |
| 2.13 | Establish how to enter the display and status display system | |

3 Navigation Tools and Functions

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|------|--|--|
| 3.1 | Establish how to display the legend of general information to assist the display through the use of the legend | |
| 3.2 | Establish how to enter information about an object (Track object) | |
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Notes:
 Competence is responsible for the most identified issues comply with the IOPs and the relevant IMO and ICAO standards.
 The checklist is revised to reflect the current industry recommendations.
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CIRM?



What now?

- ▶ Standardise ‘Familiarisation’?
- ▶ Develop S-Mode?
- ▶ Encourage ‘voluntary’ standardisation?
 - Common rules?
 - Compete on services?
- ▶ Explore ‘human centred design’?
- ▶ Explore ‘mandatory’ standardisation
 - Regulation vs. Market demand?
- ▶ Commercial monopoly?
- ▶ Where will we take eNavigation?

That's just Navigation...

- ▶ GMDSS / Communication
- ▶ Command & Control
- ▶ Shipboard alarms/alerts
- ▶ Cargo monitoring / control
- ▶ Stability
- ▶ Engineering monitoring / control
- ▶ Reports
- ▶ Training
- ▶ Planned maintenance / inventory control ...

**Support of The Nautical Institute
through membership and
participation is very much
appreciated!**

Join Now!

Thank You

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