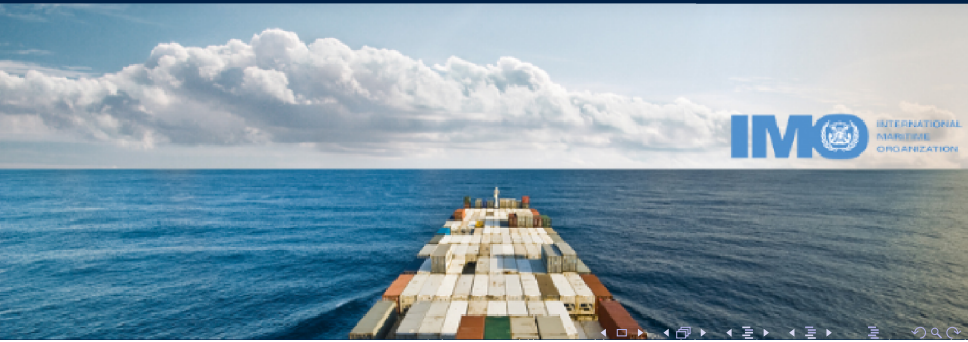


# Making headway: IMO's plan to lead shipping into a new digital era

S. PRISTROM

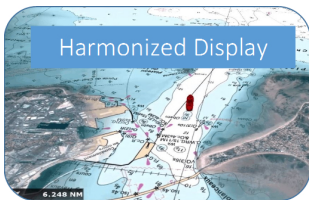
*International Maritime Organization (IMO)*



**IMO** INTERNATIONAL  
MARITIME  
ORGANIZATION

# Making headway: IMO's plan to lead shipping into a new digital era

Presentation outline



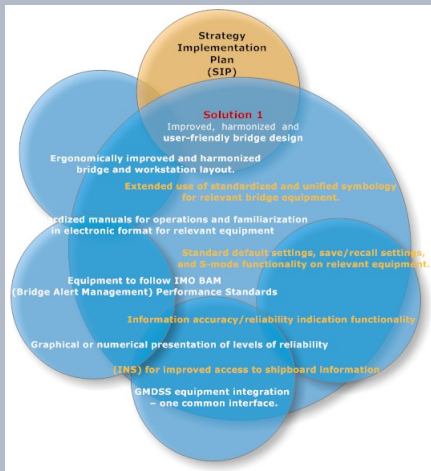
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2



# IMO's e-navigation Strategy Implementation Plan (SIP)

## Sub-Solutions to Solution 1





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

**Extended use of standardized and unified symbology for relevant bridge equipment.**

**TASK ACTION (T2)**

Develop symbology for relevant equipment using as a reference resolution MSC.192 (79)

**Ergonomically improved and harmonized bridge and workstation layout**

**TASK ACTION (T1 and T2)**

Draft Guidelines on Human Centred Design (HCD) for e-navigation systems.

Draft Guidelines on Usability testing Evaluation and Assessment (UTEA)

Resolutions A.694(17), A.997(25) and MSC.252(83) and MSC/Circ.982, SN.1/Circ.265, SN.1/Circ.274 and SN.1/Circ.288 are of relevance.

**Standardized manuals for operations and familiarization in electronic format for relevant equipment**

**TASK ACTION (T3)**

Develop the concept of electronic manuals and harmonize the layout to provide mariner with an easy way of familiarization for relevant equipment.

**Equipment to follow IMO BAM (Bridge Alert Management) Performance Standards**

**TASK ACTION (T5)**

Ensure that all equipment is checked during type approval and that it meets the requirements of resolution MSC.302(87) on Bridge Alert Management, as may be updated.

**Standard default settings, save/recall settings, and S-mode functionality on relevant equipment.**

**TASK ACTION (T4)**

Performance or technical standards mandating the features on relevant equipment. Develop a testbed demonstrating the whole concept of standardized modes of operation including store and recall for various situations as well as S-mode functionality on relevant equipment.

**Graphical or numerical presentation of levels of reliability**

**TASK ACTION (T6)**

From the above develop a harmonized display system indicating reliability levels.

**Information accuracy/reliability indication functionality**

**TASK ACTION (T6)**

Develop a testbed demonstrating technically how accuracy and reliability of navigation equipment may be displayed.

**(INS) for improved access to shipboard information**

**TASK ACTION (T7)**

INS systems which integrate navigation equipment data already exist but are not mandatory carriage to resolution MSC.252(83). E-navigation relies on integration and without mandatory carriage of INS it would be difficult to achieve the solutions. The carriage of an INS or maybe something simpler investigated.

**GMDSS equipment integration – one common interface.**

**TASK ACTION (T6)**

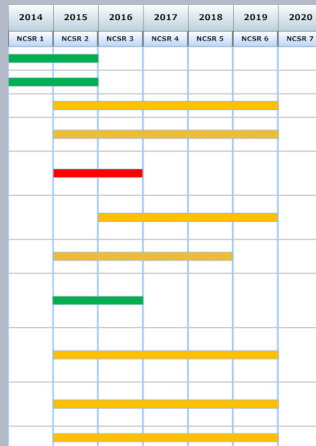
Take into account resolution A.811(19) when integrating GMDSS into one common interface.





## NCSR 4 agreed

- ▶ Update of the SIP
- ▶ Prioritize the outputs and reorganize them
- ▶ Invited interested parties to submit proposals for the update





# What does the seafarer and other users need?



## Ship user needs



### ▶ Improved Ergonomics (bridge layout)

CPA: Closest Point of Approach  
TCPA: Time to CPA  
BCR: Bow Crossing Range



Name: **MY OCEANIC**  
Type: **General Cargo**  
Destination: **HAMBURG**  
Manoeuvring State: **underway**  
Speed: **0.5kn**  
CPA: **0.8nm**  
BCR: **0.9nm**  
TCPA: **75min**





# What does the seafarer and other users need?



## Ship user needs

- ▶ Improved Ergonomics (bridge layout)
- ▶ Standardization of functionality for navigation (human-machine interface)



Name: **MY OCEANIC**  
Type: **General Cargo**  
Destination: **HAMBURG - EUROGATE**  
Manoeuvre State: **underway**  
Speed: **0.5kn**  
CPA: **0.8nm**  
BCR: **0.9nm**  
TCPA: **75min**

# What does the seafarer and other users need?



## Ship user needs

- ▶ Improved Ergonomics (bridge layout)
- ▶ Standardization of functionality for navigation (human-machine interface)
- ▶ Easy-to understand and to use familiarization material for onboard equipment



Name: MAY OCEANIC  
Type: Container  
Destination: HAM - EUROGATE  
Manoeuvre State: underway  
Speed: 0.5kn  
CPA: 0.8nm  
BCR: 0.9nm  
ICPA: 7.5nm

# What does the seafarer and other users need?



## Ship user needs

- ▶ Improved Ergonomics (bridge layout)
- ▶ Standardization of functionality for navigation displays (human-machine interface)
- ▶ Easy-to understand and to use familiarization material for onboard equipment
- ▶ User selectable information received via communication equipment



Name: MAY OCEANIC  
Type: Container  
Destination: HAMM - EUROGATE  
Manoeuvre State: underway  
Speed: 0.8kn  
CPA: 0.5nm  
BCR: 0.5nm  
TCPA: 75min

# What does the seafarer and other users need?



## Ship user needs

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- ▶ User selectable information received via communication equipment
- ▶ More user-friendly display of MSI (NAVTEX, SafetyNET etc.)





# What does the seafarer and other users need?



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- ▶ Alert Management



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- ▶ More user-friendly display of MSI (NAVTEX, SafetyNET etc.)
- ▶ Alert Management
- ▶ Standardized and automated reporting



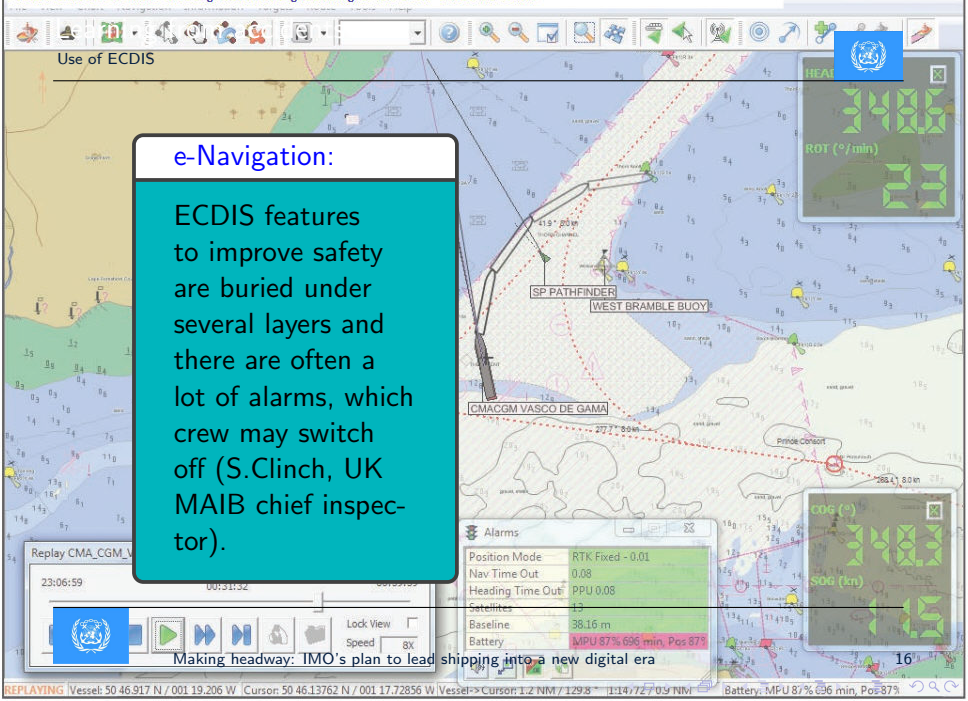
# What does the seafarer and other users need?



## Ship user needs

- ▶ Improved Ergonomics (bridge layout)
- ▶ Standardization of functionality for navigation displays (human-machine interface)
- ▶ Easy-to understand and to use familiarization material for onboard equipment
- ▶ User selectable information received via communication equipment
- ▶ More user-friendly display of MSI (NAVTEX, SafetyNET etc.)
- ▶ Alert Management
- ▶ Standardized and automated reporting
- ▶ Automated Updating of Data and Documents





**e-Navigation:**  
ECDIS features to improve safety are buried under several layers and there are often a lot of alarms, which crew may switch off (S.Clinch, UK MAIB chief inspector).

Alarms

Position Mode	RTK Fixed - 0.01
Nav Time Out	0.08
Heading Time Out	PPU 0.08
Satellites	13
Baseline	38.16 m
Battery	MPU 87% 696 min, Pos 87%

COG (°) 340.3  
SOG (kn) 15

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### Guidance on the definition and harmonization of the format and structure of Maritime Service Portfolios (MSPs)





### Outcome of the first meeting of the IMO/IHO Harmonization Group on Data Modelling (HGDM)

- ▶ change of the definition of "MSP"
- ▶ 3 levels of control and ownership
- ▶ High-level Template for Maritime Services





## Consequential work related to the Polar Code

- ▶ Supplement performance standards for navigation and communication equipment used in polar waters
- ▶ Develop a work plan listing all performance and test standards and requirements in need of revision

### e-Navigation:

- ▶ Magnetic variations in high latitudes
- ▶ Gyrocompass errors in high latitudes
- ▶ Hydrographic survey in polar waters
- ▶ Radar echoes in ice
- ▶ Visibility of Satellites





## GMDSS modernization

- ▶ MSC 98 approved the modernization plan of the GMDSS
- ▶ MSC 98 approved amendments to SOLAS chapter IV\* replacing 'Inmarsat' by 'recognized mobile satellite service'
- ▶ *\*for adoption at MSC 99 and entry into force in 2020*

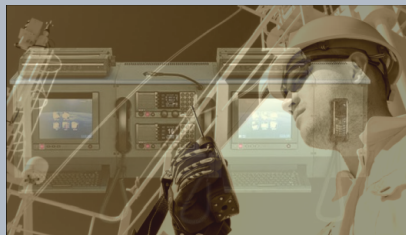




## The GMDSS and e-Navigation link

The GMDSS modernization project needs to continue to support the needs of the e-navigation strategy

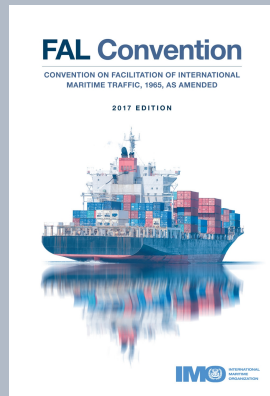
(GMDSS Modernization Plan, par.10)





## Convention on Facilitation of International Traffic, 1965, as amended (FAL)

- ▶ Amendments entered into force 1 Jan 2018 (res. FAL.12(40))
  - ▶ New definitions added including **Single Window**
  - ▶ RP 1.3quin: submissions required on the arrival, stay and departure of ships, persons and cargo to be sent to a "Single Window" (N.B. No Standard)





## Data exchange format

- ▶ Information for the clearance to be in conformity with the relevant UN Standards, including UN Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT) Standards, or other internationally agreed Standards, such as the XML Standard.

**FAL Convention**  
CONVENTION ON FACILITATION OF INTERNATIONAL  
MARITIME TRAFFIC, 1965, AS AMENDED



# Information exchange between ships and shore

Application of the FAL Convention



## Documents to be submitted by the ship to shore for their clearance

1. General Declaration (FAL Form 1)
2. Cargo Declaration (FAL Form 2)
3. Ship's Stores Declaration (FAL Form 3)
4. Crew's Effects Declaration (FAL Form 4)
5. Crew List (FAL Form 5)
6. Passenger List (FAL Form 6)
7. Dangerous Goods Manifest (FAL Form 7)
8. Document under the Universal Postal Convention for mail
9. Maritime Declaration of Health
10. Security-related information
11. Adv.electronic cargo information for customs risk assessment
12. Adv.Notification for Waste Delivery to Port Reception Facilities

# FAL Convention

CONVENTION ON FACILITATION OF INTERNATIONAL  
MARITIME TRAFFIC, 1965, AS AMENDED





THANK YOU



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