

Paper for Consideration by WWNWS

S-100 exchange format for MSI

Submitted by France

SUMMARY

Executive Summary: The IMO's work on the e-navigation progressed well and things are becoming clearer. It is now obvious that a digital exchange format for MSI/RNW, compliant with the IHO S-100 standard, should be developed.

Action to be taken: see §3.

Related documents: NAV 55/WP5, NAV 57/WP6, NAV 58/6, NAV 58/WP6, NAV 59/6, MSC 90/28

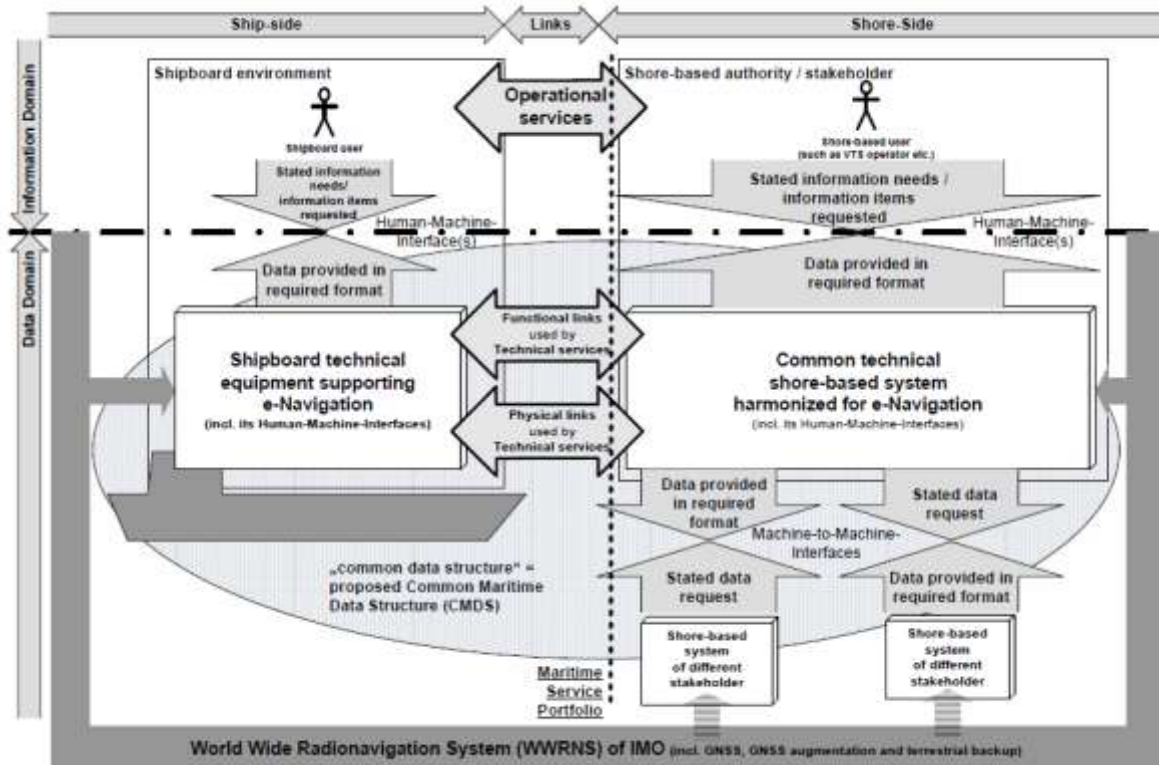
1. Introduction / Background

The IMO has set up a strategy for the development and the implementation of e-navigation (MSC 85 – 2008) to face to the increase of maritime accidents which are mostly caused by human failure. The e-navigation is defined by IMO as follow: “E-navigation is the harmonized collection, integration, exchange, presentation and analysis of marine information on board 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. E-navigation is intended to meet present and future user needs through harmonization of marine navigation systems and supporting shore services.”

The components of the IMO strategy are:

- the user needs (done 2009 – NAV 55/WP5 – annex 1)
- the architecture (done 2011 – NAV57/WP6)
- the gap analysis (done 2012 – NAV58/6 – annex 2 and NAV58/WP6 – annex 1)
- the solutions that meet the gaps (done 2013 – NAV59/6 - 5 prioritized solutions identified by the IMO Correspondence Group on e-navigation)
- The cost-benefit and risk analysis for the 5 prioritized solutions (in progress)
- The technical infrastructure that will provide the backbone of the e-navigation prioritized solutions which could enable reliable and efficient sharing of maritime data ship-ship, ship-shore, shore-ship and shore-shore (**starting**).

The overarching e-navigation architecture is described by the following figure:



Note: There are operational and technical interactions between different shipboard environments. These are not shown for simplicity's sake in this figure.

The draft list of maritime service portfolios (submitted to NAV59) is:

- Maritime Safety Information (MSI) service
- Meteorological information service
- Ice navigation service
- Search and Rescue (SAR) Service
- VTS Information Service (INS)
- Vessel shore reporting
- Traffic Organization Service (TOS)
- Navigation Assistance Service (NAS)
- Maritime Assistance Service (MAS)
- Telemedical Assistance Service (TMAS)
- Nautical Chart Service
- Nautical publications service
- Hydrographic information service
- Local Port Service (LPS)
- Pilotage service
- Tugs service
- Digital information exchange with Pilot's portable unit - PPU.

The Common Maritime Data Structure will 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 (MSC 90/28).

The user needs and the gap analysis show that there is a particularly high expectation to improve the dissemination of MSI and its integration within bridge systems and shore systems via a digital format.

This subject is in the scope of solutions S3, S4 and S9 of the 5 prioritized solutions:

- 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
- S9 - Improved Communication of VTS Portfolio

2. Analysis

From previous elements, it appears that a digital exchange format for MSI (i.e a S-100 product specification) is a part of the technical infrastructure that should be now developed.

In addition, S-100 product specification for MSI could help to modernize the GMDSS currently using the outdated telex technology.

Formatting MSI into standard digital messages is essential to secure the interoperability of data, the integration, the automation, the exchange and the interconnection of the systems. An international MSI exchange format is necessary to:

- modernize MSI transmission from shore to ships ;
- integrate and display MSI on bridge systems ;
- integrate and display MSI on ashore systems (e.g knowledge of the nautical situation) ;
- transmit and share information between ashore services involve in the information processing.

Formatting MSI is also necessary for wider dissemination of MSI in various systems approved by the IMO or not. It should facilitate and encourage the development of solutions in the industry.

The WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) identified a number of high priority tasks for enhancing maritime safety services for the inter-sessional period (2012-1017). Among them is to “Develop, in accordance with existing standards (e.g. from IHO), graphical/numerical product specification for marine parameters, foremost wind, sea state, currents and sea ice, in Electronic Navigation Chart Systems”. The JCOMM Expert Team on Maritime Safety Services (ETMSS) will lead this effort.

The IALA began work to develop S-100 product specifications (PS) of its domains i.e. AIS, AtoN, VTS, Risk assessment and WWRN (worldwide radionavigation). A workshop on the subject was held at IALA in June 2013 with the support of IHO/HSSC/TSMAD. A product specification for MSI and NM¹ was an item of the program and its development is in progress.

This raises questions about the distribution of work between IALA and IHO. According to its TOR, it appears that the WVNWS sub-committee should be strongly involved in the development of a S-100 product specification for RNW.

Approximately, such a development should comprise:

¹ NM : Notice to Mariners

- the review of the needs (e-navigation gap analysis and other feedbacks, from RNW producers for example)
- the review of the requirements for:
 - o the management of the RNW by the producer authority
 - o the transmission to the ships (protocol, telecom)
 - o the management of the RNW on board
 - o the use of RNW on board
 - o the use of RNW in ashore services
- the review of the requirements for the transition period (e.g dual production of well formatted RNW in telex form and in S-100 format)
- obviously, the modelling of RNW in compliance with S-100 standard
- the study of the compatibility or consistency with other formats or other similar needs
- test beds to demonstrate the solution of S-100 modelling
- the writing of the draft S-100 RNW product specification
- possibly, the writing of the draft of IMO documents as performance standards.

The product specification could be extended to the nautical information processing, upstream to the RNW.

The development should be in accordance with the IHO resolution 2/2007 “Principles and Procedures for making changes to IHO Technical Standards and Specification”.

It should be led by WWNWS with connexions with IALA, IHO/HSSC competent Working Groups and other competent bodies like projects involved in e-navigation, representatives of Original Equipment Manufacturers, etc.

3. Recommendations

The WWNWS is invited to:

1. note the proposal
2. liaise with IALA and HSSC competent Working Groups to coordinate
3. integrate the development of a S-100 product specification for RNW in its work program
4. establish a dedicated correspondence sub working group
5. inform HSSC before its next meeting (HSSC 5 : 5-8 November 2013).