

MARITIME SAFETY COMMITTEE  
96th session  
Agenda item 23

MSC 96/23/7  
9 February 2016  
Original: ENGLISH

## WORK PROGRAMME

### E-navigation – New output on harmonized Maritime Service Portfolios

Submitted by Australia, Canada, Finland, the Netherlands, Norway, ICS,  
IALA, CIRM, IMPA, InterManager, IHMA and IHO

#### SUMMARY

*Executive summary:* This document proposes a new output on e-navigation related to Maritime Service Portfolios (MSPs). It aims to define and harmonize the format and structure of MSPs and to provide guidance on the appropriate communication channels used for the electronic exchange of information between shore and ship, including any necessary coordination mechanisms and transitional arrangements that may be required

*Strategic direction:* 5.2

*High-level action:* 5.2.6

*Output:* No related provisions

*Action to be taken:* Paragraph 24

*Related documents:* MSC 90/28; MSC 95/22, MSC 95/19/8, MSC 95/19/14, MSC 95/19/15; NCSR 1/9, NCSR 1/28 and NCSR 3/14

### MSC 95

1 At MSC 95, the Committee considered document MSC 95/19/8. Annex 6 of this document proposed to consider reports on the development and implementation of Maritime Service Portfolios (MSPs) (and other e-navigation reports) from Member States and other international organizations, including proposals to deal with the remaining non-prioritized potential e-navigation solutions. The Committee also considered documents MSC 95/19/14 and MSC 95/19/15, commenting on the above proposal.

2 The majority of the Committee was of the view that the proposal contained in annex 6 of document MSC 95/19/8 did not comply with the Committees' *Guidelines on the organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their Subsidiary Bodies* (MSC-MEPC.1/Circ.4/Rev.4) but, recognizing the importance of e-navigation and that the Organization should take a leading role,

[https://edocs.imo.org/Final Documents/English/MSC 96-23-7 \(E\).docx](https://edocs.imo.org/Final Documents/English/MSC 96-23-7 (E).docx)

Member Governments and other interested parties were invited to prepare a full justification for this output in accordance with the information required in annex 3 to resolution A.1062(28), and submit it to MSC 96 for consideration.

3 The delegation of Norway offered to coordinate this work with interested parties and submit a revised proposal for consideration at MSC 96. This proposal is the result of the outcome of MSC 95.

### **Background**

4 As a result of identified user needs, gap analysis and the IMO process leading to the development of the e-navigation Strategy Implementation Plan (SIP), one of the five prioritized solutions uses the concept of Maritime Service Portfolios (MSPs).

5 MSPs have been identified in the SIP (NCSR 1/28, annex 7) as the framework for the electronic provision of information related to maritime services in a harmonized way between shore and ships. This output aims to harmonize the format, structure and communication channels used to exchange that information. The intended output is an MSC resolution that provides guidance to Member States, international organizations, data and service providers to implement MSPs in a coordinated and harmonized manner.

6 The correspondence group on the review of the GMDSS in their report to NCSR 3 (NCSR 3/14, annex 1, paragraph 17.5) stated that the GMDSS modernization project should continue to support the needs of the e-navigation strategy and suggested revisions to SOLAS chapter IV, as set out in the annex to annex 1. If the revisions to SOLAS chapter IV are approved and for complete harmonization of MSPs, some of the associated performance standards for relevant equipment, including those in SOLAS chapter V for the reception and display of MSP information, might need revision.

### **Maritime Service Portfolios (MSPs)**

7 More information on MSPs is in the SIP, where table 6 contains a list of 16 proposed MSPs. The further development of the MSPs is task T17 of the SIP.

### **Interested international organizations**

8 The Organization should invite relevant international organizations (e.g. IGOs and NGOs in consultative status at the IMO) to indicate their intention to progress the further development of MSPs relating to their areas of competence.

9 Some international organizations (e.g. IHO and IALA) have already agreed to coordinate the development of MSPs within their respective remits.

### **IMO's Objectives**

10 This output is within the scope of IMO's objectives and is related to the scope of the Strategic Plan as part of the agreed e-navigation strategy. It contributes to the implementation of High-level Action 5.2.6 on Development and implementation of e-navigation.

### **Need**

11 A lack of coordination in the provision of information related to maritime services and among organizations responsible for the provision of MSPs may lead to the duplication of efforts, development of regional solutions, use of different communication systems and the

provision of superfluous or non-interoperable information. MSC 95 has already approved work on developing Guidelines for the harmonized display of navigation information received by communications equipment. However, the consistent provision of this information in the delivery phase preceding display still lacks harmonization. The intended output will bring the necessary coordination by defining and harmonizing the format, structure and communication channels for the electronic exchange of information between shore and ship.

### **Analysis of the issue**

12 MSPs group the information and data provided by shore authorities to ships and, as such, play a key role in the overall e-navigation strategy. Given that the content of MSPs will be developed by different international organizations, coordination among these organizations is a priority to ensure harmonization of scope, format, structure, display on board, and communication systems used to transmit the information electronically.

13 MSPs containing georeferenced information can be displayed on equipment such as ECDIS and radar, where appropriate. In order to be decoded successfully, this type of information should use an agreed format, structure and reference system. The interoperability of the MSPs must also be ensured to provide mariners with integrated real-time situational awareness.

14 The resolution should provide general guidance to ensure that the structure and format of MSPs are aligned and harmonized.

15 The resolution should not define the detailed content of a particular MSP or aim at harmonizing the service itself. This is the responsibility of the relevant data and service provider.

16 The resolution should provide guidance on the appropriate communication channels available for MSPs, taking into account the future revision of the GMDSS and new systems such as VHF Data Exchange System (VDES).

### **Analysis of implications**

17 This proposal does not introduce any significant additional burden (legislative or administrative), nor cost to the maritime industry, but proposes that inputs are requested and received from Member States and international organizations which may coordinate the further development of specific MSPs.

### **Benefits**

18 Coordinated provision of information on maritime services will avoid duplication of efforts, and enhance the understanding of the master and navigating officer on available services, and as such will enhance decision-taking and voyage-planning processes.

### **Industry Standards**

19 No overarching industry standards currently exist for harmonizing communication channels and message formats for the exchange of information required for MSPs. Some international organizations are already developing such standards in support of some MSPs. This work is progressing in close cooperation with other organizations. Note also that the IHO S-100 framework has been chosen as a baseline for the Common Maritime Data Structure (CMDS) for e-navigation. The Committee has already authorized the establishment of an IMO-IHO Harmonization Group on Data Modelling (HGDM) (MSC 90/28/Add.1, annex 22) to consider matters related to the framework for data access and information services under the scope of SOLAS.

**Output**

20 The output in SMART terms is as follows:

- .1 **Specific** – An MSC Resolution on the harmonization of format, structure and communication channels for MSPs agreed by Member States and other international organizations, including any necessary coordination mechanisms and transitional arrangements;
- .2 **Measureable** – Data and service providers will have a common understanding of MSPs and will use an harmonized approach to develop and communicate information to mariners; and
- .3 **Achievable, Realistic and Timebound** – In view of the work already undertaken, and the cooperative attitude of some international organizations, the output is considered achievable and realistic. As per table 7 of the SIP, a target completion year of 2019 is anticipated.

21 The proposal is consistent with the objectives of the Organization and is consistent with the human element guidance and principles set out in resolution A.947(23). The completed human factors checklist from MSC-MEPC.7/Circ.1 is set out in annex 1.

22 The proposal has also been made with reference to Administrative Requirements and Burdens as defined in resolution A.1043(27) and the checklist and is set out in annex 2.

**Priority urgency**

23 The urgency of the matter has been established in the approved SIP, in particular table 7. A target completion year of 2019 is anticipated. It is suggested that NCSR would be the appropriate organ to finalize the work.

**Action requested of the Committee**

24 The Committee is requested to:

- .1 include, in the post-biennial agenda of the Committee, an output on "Definition and harmonization of the format and structure of Maritime Service Portfolios (MSPs)", with two sessions needed to complete the output, assigning the NCSR Sub-Committee as the coordinating organ; and
- .2 invite relevant international organizations to indicate their intention to take part in the development of relevant MSPs and consider activating the IMO-IHO Harmonization Group on Data Modelling (HGDM).

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**ANNEX 1**

**CHECKLIST FOR CONSIDERING HUMAN ELEMENT ISSUES BY IMO BODIES**

<p><b>Instructions:</b> If the answer to any of the questions below is:</p> <p>(A) <b>YES</b>, the preparing body should provide supporting details and/or recommendation for further work.          (B) <b>NO</b>, the preparing body should make proper justification as to why human element issues were not considered.          (C) <b>NA</b> (Not Applicable), the preparing body should make proper justification as to why human element issues were not considered applicable.</p>	
<p><b>Subject Being Assessed:</b> (e.g. Resolution, Instrument, Circular being considered)</p>	
<p><b>Responsible Body:</b> (e.g. Committee, Sub-Committee, Working Group, Correspondence Group, Member State)</p>	
1. Was the human element considered during development or amendment process related to this subject?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
2. Has input from seafarers or their proxies been solicited?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
3. Are the solutions proposed for the subject in agreement with existing instruments? (Identify instruments considered in comments section)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
4. Have human element solutions been made as an alternative and/or in conjunction with technical solutions?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
5. Has human element guidance on the application and/or implementation of the proposed solution been provided for the following:	
• Administrations?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
• Shipowners/Managers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
• Seafarers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
• Surveyors?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
6. At some point, before final adoption, has the solution been reviewed or considered by a relevant IMO body with relevant human element expertise?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
7. Does the solution address safeguards to avoid single person errors?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
8. Does the solution address safeguards to avoid organizational errors?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
9. If the proposal is to be directed at seafarers, is the information in a form that can be presented to and is easily understood by the seafarer?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
10. Have human element experts been consulted in development of the solution?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<p><b>11. HUMAN ELEMENT: Has the proposal been assessed against each of the factors below?</b></p>	
<input checked="" type="checkbox"/> CREWING. The number of qualified personnel required and available, to safely operate, maintain, support, and provide training for system.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<input checked="" type="checkbox"/> PERSONNEL. The necessary knowledge, skills, abilities, and experience levels that are needed to properly perform job tasks.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<input checked="" type="checkbox"/> TRAINING. The process and tools by which personnel acquire or improve the necessary knowledge, skills, and abilities to achieve desired job/task performance.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<input checked="" type="checkbox"/> OCCUPATIONAL HEALTH AND SAFETY. The management systems, programmes, procedures, policies, training, documentation, equipment, etc. to properly manage risks.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA

<input checked="" type="checkbox"/> WORKING ENVIRONMENT. Conditions that are necessary to sustain the safety, health, and comfort of those on working on board, such as noise, vibration, lighting, climate, and other factors that affect crew endurance, fatigue, alertness and morale.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<input checked="" type="checkbox"/> HUMAN SURVIVABILITY. System features that reduce the risk of illness, injury, or death in a catastrophic event such as fire, explosion, spill, collision, flooding, or intentional attack. The assessment should consider desired human performance in emergency situations for detection, response, evacuation, survival and rescue and the interface with emergency procedures, systems, facilities and equipment.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<input checked="" type="checkbox"/> HUMAN FACTORS ENGINEERING. Human-system interface to be consistent with the physical, cognitive, and sensory abilities of the user population.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
<p><b>Comments:</b> The Human Element (Human Factors) has been addressed during previous e-navigation development stages using a modified application of the IMO's Human Element Analysis Process (HEAP) (NAV 56/8, COMSAR 16/11 and NAV 58/INF.10 refer).</p> <p>In addition, <i>Guidelines on software quality assurance and human control design for e-navigation</i> have already been approved (MSC.1/Circ.1512).</p>	

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**ANNEX 2**

**CHECKLIST FOR IDENTIFYING ADMINISTRATIVE REQUIREMENTS AND BURDENS**

<p>The Checklist for Identifying Administrative Requirements and Burdens should be used when preparing the analysis of implications required in submissions of proposals for inclusion of unplanned outputs. For the purpose of this analysis, the terms "administrative requirements" and "burdens" are as defined in resolution A.1043(27), i.e. administrative requirements are an obligation arising from future IMO mandatory instruments to provide or retain information or data, and administrative burdens are those administrative requirements that are or have become unnecessary, disproportionate or even obsolete.</p> <p><b>Instructions:</b></p> <p>(A) If the answer to any of the questions below is <b>YES</b>, the Member State proposing an unplanned output should provide supporting details on whether the burdens are likely to involve start-up and/or ongoing costs. The Member State should also make a brief description of the requirement and, if possible, provide recommendations for further work (e.g. would it be possible to combine the activity with an existing requirement).</p> <p>(B) If the proposal for the unplanned output does not contain such an activity, answer <b>NR</b> (Not required).</p>		
<p>1 Notification and reporting? Reporting certain events before or after the event has taken place, e.g. notification of voyage, statistical reporting for IMO Members, etc.</p>	NR	<p>Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing</p>
Description: (if the answer is yes)		
<p>2 Record keeping? Keeping statutory documents up to date, e.g. records of accidents, records of cargo, records of inspections, records of education, etc.</p>	NR	<p>Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing</p>
Description: (if the answer is yes)		
<p>3 Publication and documentation? Producing documents for third parties, e.g. warning signs, registration displays, publication of results of testing, etc.</p>	NR	<p>Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing</p>
Description: (if the answer is yes)		
<p>4 Permits or applications? Applying for and maintaining permission to operate, e.g. certificates, classification society costs, etc.</p>	NR	<p>Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing</p>
Description: (if the answer is yes)		
<p>5 Other identified burdens?</p>	NR	<p>Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing</p>
Description: (if the answer is yes)		