INTERNATIONAL MARITIME ORGANIZATION

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CONSIDERATION OF THE REPORTS OF NCSR 4 AND MSC 98 AND ANY RELATED MATTERS EMANATING FROM IMO MEETINGS

Clarification on the scope and content of work of the IMO/IHO Harmonization Group on Data Modelling (HGDM)

Note by the IMO Secretariat

SUMMARY	
Executive summary:	This document provides a summary of the discussion and proposals made by the NCSR Sub-Committee at its fourth session (NCSR 4), and the decisions taken in this respect by the Maritime Safety Committee at its ninety-eighth session (MSC 98), for consideration by the IMO/IHO Harmonization Group on Data Modelling (HGDM). It also highlights the decisions and proposals made at earlier sessions of the NCSR Sub-Committee and the MSC, and contains a proposal for the HGDM to set the overarching objectives first before work on the Guidance commences.
Action to be taken:	Paragraph 16
Related documents:	MSC 96/25, MSC 96/23/7, MSC 90/28, MSC 95/19/14; NCSR 4/29, NCSR 4/27, NCSR 1/28; NAV 59/6 and NAV 57/6

INTRODUCTION

1   NCSR 4 recalled that MSC 90 (16 to 25 May 2012) had authorized the establishment of the IMO/IHO Harmonization Group on Data Modelling (HGDM) and approved its terms of reference (MSC 90/28, paragraph 10.12 and annex 22), but that the Group had not been activated.

2   NCSR 4 further recalled that MSC 96 had agreed to include in the post-biennial agenda of the Committee an output on "Develop guidance on definition and harmonization of the format and structure of Maritime Service Portfolios (MSPs)", with two sessions needed to complete the item, assigning the NCSR Sub-Committee as the coordinating organ (MSC 96/25, paragraphs 23.14 and 23.16).

3   After discussion, NCSR 4 agreed to invite the Committee to activate the HGDM to work on the aforementioned output, which was subsequently approved by MSC 98.

TERMS OF REFERENCE AND WORK PLAN OF THE HGDM

4   In order to achieve the objective and to facilitate the work of the HGDM, the Navigation Working Group established at NCSR 4 developed a draft work plan for the HGDM, based on document NCSR 4/27, annex 2 (IHO *et al.*). However, after consideration, the Sub-Committee could not agree and invited interested parties to submit proposals for a revision of the terms of reference or the draft work plan to the Committee (NCSR 4/29, paragraph 27.9).

5   Notwithstanding the above request, MSC 98 did not receive proposals for revision for the terms of reference or the work plan of the HGDM but agreed to activate the group and to task it to work only on the output on "Develop guidance on definition and harmonization of the format and structure of MSPs"; and endorsed the holding of the first meeting of the HGDM at IMO Headquarters in London, from 16 to 20 October 2017 (MSC 98/23, paragraph 11.37).

DISCUSSION

Maritime Service Portfolio

6   Before the work on the development on definition and harmonization of the format and structure of Maritime Service Portfolios (MSPs) can commence as instructed by MSC 98, the IMO Secretariat considers that a clear understanding of MSPs is indispensable. A definition of MSP can be found in NAV 57/6, paragraph 23:

> *A "Maritime Service Portfolio (MSP)" defines and describes the set of operational and technical services and their level of service provided by a stakeholder in a given sea area, waterway, or port, as appropriate.*

7   The Strategy Implementation Plan (SIP) (NCSR 1/28, annex 7) identified 16 MSPs, including the type of service provided by each MSP, as well as the associated responsible service provider. It is evident that the services (MSPs) vary significantly; ranging from, for example, VTS information to the ship, medical information and instructions provided by doctors to the ship's crew responsible for medical care to ice navigation, route information, search and rescue coordinates and many more. The set of data, instructions and information are very different in nature and could take numerical values, geographical coordinates, medical terminology, courses to steer, waypoint coordinates, communication channels and many more.

8   As outlined in document MSC 96/23/7 (Australia *et al.*) which proposes the e-navigation output on harmonized Maritime Service Portfolios, MSPs are considered to form the framework for the electronic provision of information related to maritime services in a harmonized way between shore and ships. It is therefore necessary to harmonize the format, structure and communication channels used to exchange that. It is also argued that 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.

9   It is further acknowledged in document MSC 96/23/7 that the content of MSPs will be developed by different international organizations and thus 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. While the work on content of MSPs is currently undertaken by IALA, the IMO Secretariat considers that the HGDM has been tasked to work on the harmonization as outlined above. This interpretation concurs with paragraphs 14 and 15 of document MSC 96/23/7 where it states that a "general guidance" should be developed but:

> "*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*."

Current work undertaken by other organizations

10   The data format and structure is not part of the current work undertaken by IALA in developing IALA guideline "Maritime Service Portfolios: Digitising Maritime Services" as it aims at providing the minimum set of information for a specific MSP and thus to help MSPs providers to migrate from conventional to digital services. This work in IALA does not include technical specifications necessary for the implementation of those MSPs. Hence a duplication of this work should not be undertaken and the work of the HGDM should be limited to developing guidance on definition and harmonization of the format and structure of MSPs, not their content per se.

Common Maritime Data Structure (CMDS)

11   As highlighted under paragraph 7, each MSP has a unique set of data/information. Hence it may be difficult to find an overarching harmonized format and structure as envisage under the e-navigation architecture which is based on a Common Maritime Data Structure (CMDS), and when relevant to use the IHO Geospatial Standard for Hydrographic Data, S-100 (NAV 59/6 - Report of the Correspondence Group on e-navigation to NAV 59).

12   This is also reflected under the current terms of reference for the HGDM (MSC 90/28/Add.1, annex 22) where it is acknowledged that it is important to harmonize efforts in data modelling with the aim of creating and maintaining a robust and extendable maritime data structure, based on IHO standard S-100 (Universal Hydrographic Data Model). In addition, the development of the CMDS is also addressed in task T14 of the e-navigation SIP:

> *"Develop a Common Maritime Data Structure and include parameters for priority, source, and ownership of information based on the IHO S-100 data model. Harmonization will be required for both use on shore and use on the ship and the two must be coordinated (Two Domains).*
>
> *Develop further the standardized interfaces for data exchange used on board (IEC 61162 series) to support transfer of information from communication equipment to navigational systems (INS) including appropriate firewalls (IEC 61162- 450 and 460)."*

13   It is also suggested that the further development of the relevant proposed Maritime Service Portfolios requires to be closely coordinated with the development of guidelines for the harmonized display of navigation information (MSC 95/19/14).

Overarching objectives of the guidance

14   Given the aforementioned information, the questions that may arise include:

.1   Is the Common Maritime Data Structure (CMDS) a solution for MSPs only or for all data under the e-navigation architecture?

.2   Should the CMDS work be commenced by the HGDM as part of the work on the output "Develop guidance on definition and harmonization of the format and structure of Maritime Service Portfolios (MSPs)"? In this case the terms of reference need to reflect it, or a new output may be needed.

.3   Is a CMDS possible to be developed for all MSPs, given that the type of information for different MSPs can vary significantly (e.g. free text, geographical coordinates, distances, courses, medical terminology, and weather information)?

.4   Depending on the course of action in response to question 3, should the guidance on the format and structure be augmented by specifics for each of the 16 identified MSP in the SIP? Or is the guidance of general nature and applicable to all MSPs (including the 16 MSPs in the SIP and any future MSP)?

.5   Is the S-100 data model to be applied exclusively, or may there be certain MSPs that contain information/data that may not follow the S-100 regime?

.6   Should the Guidance on the format and structure of MSPs include preferences on the method of communication (e.g. VHF-DSC, AIS Application Specific Message)?

15   It is proposed to clarify the above overarching questions first before commencing the task of developing Guidance of a common format and structure of Maritime Service Portfolios. As highlighted in paragraph 7, due to the nature of the information to be submitted the data format and structure may not be possible to apply for all MSPs. In such cases the HGDM may devise a way forward to ensure the goal of achieving harmonization to the highest degree practicable. In addition, the HGDM should consider but not duplicate the work already done by IALA, IEC and IHO on this matter.

ACTION REQUESTED OF THE HGDM

16   The HGDM is invited to consider the information above and to set the overarching objectives in answering the questions raised in paragraph 14 before commencing the work on developing a common format and structure of MSP.

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