International Hydrographic Organization

e-Navigation
Progress and trends: the IHO perspective

Gilles Bessero
Director, IHO
International Hydrographic Organization

- Intergovernmental consultative and technical Organization whose origins date back to 1921
  - 85 Member States
  - 43 Observer organizations

- Ensure that all the world’s seas, oceans and navigable waters are surveyed and charted through…
  - providing the relevant international standards and guidelines
  - coordinating the delivery of hydrographic services worldwide
  - capacity building
Core objectives of e-Navigation related to hydrographic services (1/2)

- facilitate safe and secure navigation of vessels having regard to hydrographic, meteorological and navigational information and risks;

- facilitate communications, including data exchange, among ship to ship, ship to shore, shore to ship, shore to shore and other users;

- integrate and present information on board and ashore through a human-machine interface which maximizes navigational safety benefits and minimizes any risks of confusion or misinterpretation on the part of the user;
Core objectives of e-Navigation related to hydrographic services (2/2)

- integrate and present information onboard and ashore to manage the workload of the users, while also motivating and engaging the user and supporting decision-making;
- facilitate global coverage, consistent standards and arrangements, and mutual compatibility and interoperability of equipment, systems, symbology and operational procedures, so as to avoid potential conflicts between users;
- support scalability, to facilitate use by all potential maritime users.
In short …

- e-Navigation = the “maritime intranet”
- (digital) *hydrographic services*, *(radio)*communications and their interaction form key elements of e-navigation
  - development and implementation of the concept of Maritime Service Portfolios (MSPs)
  - need to *coordinate* the implementation of e-navigation and the modernization of the GMDSS
What the IHO has done …

- Commitment to IMO to provide adequate coverage of ENCs (key strategy element)
- Development and promotion of S-100 (baseline for developing the Common Maritime Data Structure)
  - S-100: the underpinning of e-Navigation (Julia Powell)
- Re-structuring of the IHO technical committee (Hydrographic Services and Standards Committee – HSSC)
  - S-100 WG
  - Nautical Information Provision WG
What the IHO is doing …

- Develop a vision of its future Maritime Service Portfolio(s)
  - Yesterday: paper products (push mode)
    - Nautical Charts
    - Nautical Publications
    - Notices to Mariners
    - Navigational Warnings
  - Today: combination of paper and digital products (push/pull mode)
    - ENC (EN and ER profiles)
    - E-books
    - Notices to Mariners
    - Navigational Warnings
  - To-morrow: integrated maritime information systems (pull mode)?
    - Maritime cloud?
      - Enter once / use many times
      - Continuous update

Assumption that an appropriate communication infrastructure providing sufficient bandwidth for ship shore interaction will be permanently available.
SOLAS Regulation V/27: Nautical charts and nautical publications, such as sailing directions, lists of lights, notices to mariners, tide tables and all other nautical publications necessary for the intended voyage, shall be adequate and up to date.
A practical example

ENGLAND, SOUTH COAST. Isle of Wight.
Fairway light-buoy, **fog signal permanently changed.**
A practical example

ENGLAND, SOUTH COAST. Isle of Wight. Fairway light-buoy, **fog signal permanently changed.**
A practical example

ENGLAND, SOUTH COAST. Isle of Wight. Fairway light-buoy, fog signal permanently changed.

Will anybody care about fog signals?

~ Immediate (continuous update)

To-morrow

AtoN Authority  MSP Provider  Maritime Cloud  Mariner

???
# Maritime Service Portfolios (MSPs)

**Proposed list**

<table>
<thead>
<tr>
<th>No</th>
<th>Identified Services</th>
<th>Identified Service Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSP1</td>
<td>VTS Information Service (IS)</td>
<td>VTS Authority</td>
</tr>
<tr>
<td>MSP2</td>
<td>Navigational Assistance Service (NAS)</td>
<td>National Competent VTS Authority/Coastal or Port Authority</td>
</tr>
<tr>
<td>MSP3</td>
<td>Traffic Organisation Service (TOS)</td>
<td>National Competent VTS Authority/Coastal or Port Authority</td>
</tr>
<tr>
<td>MSP4</td>
<td>Local Port Service (LPS)</td>
<td>Local Port/ Harbour Operator</td>
</tr>
<tr>
<td>MSP5</td>
<td>Maritime Safety Information Service (MSI)</td>
<td>National Competent Authority</td>
</tr>
<tr>
<td>MSP6</td>
<td>Pilotage Service</td>
<td>Pilot Authority/Organization</td>
</tr>
<tr>
<td>MSP7</td>
<td>Tugs Service</td>
<td>Port/Commercial Tug Organization</td>
</tr>
<tr>
<td>MSP8</td>
<td>Vessel Shore Reporting</td>
<td>National Competent Authority, Shipowner/Operator/Master</td>
</tr>
<tr>
<td>MSP9</td>
<td>Tele Medical Assistance Service (TMAS)</td>
<td>National/Dedicated Health Organization</td>
</tr>
<tr>
<td>MSP10</td>
<td>Maritime Assistance Service (MAS)</td>
<td>Coastal or Port Authority/Organization</td>
</tr>
<tr>
<td>MSP11</td>
<td>Nautical Chart Service</td>
<td>National Hydrographic Authority/Organization</td>
</tr>
<tr>
<td>MSP12</td>
<td>Nautical Publications Service</td>
<td>National Hydrographic Authority/Organization</td>
</tr>
<tr>
<td>MSP13</td>
<td>Ice Navigation Service</td>
<td>National Competent Authority/Organization</td>
</tr>
<tr>
<td>MSP14</td>
<td>Meteorological Information Service</td>
<td>National Meteorological Authority /WMO/Public Institutions</td>
</tr>
<tr>
<td>MSP15</td>
<td>Real Time Hydrographic and environmental information service</td>
<td>National Hydrographic and Meteorological Authorities</td>
</tr>
<tr>
<td>MSP16</td>
<td>Search and Rescue Service (SAR)</td>
<td>National Competent Authority/Organization</td>
</tr>
<tr>
<td>MSP...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>
IHO Views on Maritime Service Portfolios

- MSPs 5/11/12/13/15 reflect the traditional methods of promulgating nautical information based on paper products (nautical charts and publications)

- These arrangements do not take advantage of the flexibility offered by digital products and electronic display and information systems in the context of e-Navigation

♫ The current list of 16 MSPs requires further refinement and should not be seen as the definitive/finalized list of MSPs
IHO Views on Maritime Service Portfolios

- The IHO recommends that the MSPs be reorganized in order to ensure that the mariner is supported by integrated real-time situational awareness:

  • merge proposed MSP11 and 12 and the hydrographic component of MSP15 into a single MSP called “Hydrographic Services” in accordance with the definition of SOLAS regulation V/9

  … the collection and compilation of hydrographic data and the publication, dissemination and keeping up to date of all nautical information necessary for safe navigation

  • delete MSP5 (MSI Service) and assign the functionalities of MSP5 as the "update" component of the basic services concerned

    - Example: include the provision of navigational warnings and chart correction data in MSP “Hydrographic Services”
IHO Views on Maritime Service Portfolios

- Way forward: develop guidance on definition and harmonization of the format and structure of Maritime Service Portfolios (MSPs) as agreed by IMO/MSC 96
  - Refine the principles of MSPs and what they intend to deliver taking into account:
    - Existing services as defined by SOLAS
    - Stakeholders requirements
    - Technology developments
    - Transitional arrangements if/as required
    - Regulatory impact (including liability issues)
    - Progress of related outputs / activities / test beds
IHO Views on Maritime Service Portfolios

- Way forward: develop guidance on definition and harmonization of the format and structure of Maritime Service Portfolios (MSPs) as agreed by IMO/MSC 96
  - Refine the principles of MSPs and what they intend to deliver taking into account:
    - …
    - Progress of related outputs / activities / test beds
      - Development of the Common Maritime Data Structure
      - Draft Modernization Plan of the Global Maritime Distress and Safety System (GMDSS)
      - Additional modules to the Revised Performance Standards for Integrated Navigation Systems (INS) (resolution MSC.252(83)) relating to the harmonization of bridge design and display of information
      - Guidelines for the harmonized display of navigation information received via communications equipment
      - Revised Guidelines and criteria for ship reporting systems (resolution MSC.43(64))
IHO Views on Maritime Service Portfolios

- Way forward: develop guidance on definition and harmonization of the format and structure of Maritime Service Portfolios (MSPs) as agreed by IMO/MSC 96

  - Refine the principles of MSPs and what they intend to deliver taking into account:
    - Existing services as defined by SOLAS
    - Stakeholders requirements
    - Technology developments
    - Transitional arrangements if/as required
    - Regulatory impact (including liability issues)
    - Progress of related outputs / activities / test beds

- Develop guidelines to assist MSP providers in establishing MSPs in a coordinated and harmonized manner
IHO Views on Maritime Service Portfolios

- Way forward: develop guidance on definition and harmonization of the format and structure of Maritime Service Portfolios (MSPs) as agreed by IMO/MSC 96

Activate the IMO-IHO Harmonization Group on Data Modelling (HGDM) to work on this output:

- The terms of reference of the HGDM adopted by MSC 90 task the group to “consider matters related to the framework for data access and information services under the scope of SOLAS”

- The membership is all-inclusive (“representatives of IMO and IHO Member States and Secretariats, and organizations with an official IMO/IHO observer status”)

- For further information: see paper NCSR 4/27

- Support at NCSR 4 and volunteers to chair/participate in the HGDM welcome!
Questions / Comments?

For more information: http://www.iho.int
Contact: info@ih0.int