IMO e-Navigation Maritime Service in the context of SMART-Navigation

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Ministry of Oceans & Fisheries (MOF), Republic of Korea
Contents

The Cleaner

Safer and

More Efficient Sea

I Current Status of IMO e-Nav

II Guidance on e-Nav MS & SMART-NAVIGATION

III Future Prospect

IV ENUW AP 2020
e-Navigation Progress History

- 2009: User needs
- 2012: Gap analysis
- 2013: Solutions
- 2014: Risk Control Options
- Strategy Implementation Plan

Diagram:
- Review lessons learned
- Identification of users
- Definition of permanent navigation needs
- Identification of funding sources
- Transition planning
- Definition of system architecture
- Definition of concept of operations
- Technology gap analysis
- Identification of existing systems
- Operational gap analysis
- Technical gap analysis
- Regulatory gap analysis
- Institutional analysis
- Training needs analysis
- Cost-benefit and risk analysis
- Definition of system architecture
- Architecture Definition

Ministry of Oceans and Fisheries
### Current Status of e-Nav

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<tbody>
<tr>
<td><strong>SIP</strong>&lt;br&gt;with 18 tasks&lt;br&gt;(NCSR1)&lt;br&gt;(MSC94)</td>
<td><strong>2014</strong>&lt;br&gt;Revising Performance standards for <strong>INS</strong>&lt;br&gt;<strong>Done</strong> (NCSR5)&lt;br&gt;(MSC95~101)&lt;br&gt;Re-prioritized (Low priority)&lt;br&gt;(NCSR5&amp;6)</td>
<td><strong>2015</strong>&lt;br&gt;Revising Guidelines and criteria for <strong>Ship Reporting System</strong>&lt;br&gt;<strong>Done</strong> (NCSR4)&lt;br&gt;(NCSR5)&lt;br&gt;(NCSR5)&lt;br&gt;(NCSR5&amp;6)&lt;br&gt;(MSC95~101)</td>
<td><strong>2016</strong>&lt;br&gt;Revising General requirements for <strong>Radio Equipment</strong> forming part of the <strong>GMDSS</strong> and for <strong>Electronic Navigational Aids</strong>&lt;br&gt;<strong>Done</strong> (NCSR5)&lt;br&gt;(MSC95~101)</td>
<td><strong>2017</strong>&lt;br&gt;Developing Guidelines for <strong>Harmonized Display</strong> of navigation information received via communications equipment</td>
<td><strong>2018</strong>&lt;br&gt;Developing Guidelines on <strong>S-mode</strong>&lt;br&gt;<strong>Done</strong> (NCSR5&amp;6)&lt;br&gt;(NCSR5)&lt;br&gt;(NCSR5&amp;6)</td>
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### Concept

Implementing SIP is to prepare starting **E-NAVIGATION SERVICES**

### Implementation

- **MSP Template**
- **Draft Guidance**
- **Final Guidance**
- **NCSR AGENDA CONSIDERATION OF MSS**
✓ Flow Chart for creating a new MS

1. Member States
2. Draft template maritime services
   + References to standards, recommendations and guidelines
3. NCSR Sub-Committee
4. IMO instrument

HGDM (if required)
MS Development

HGDM 1
Oct 2017
- Chair: Director Sunbae Hong
- Decision to create MS template

NCSR 5
Mar 2018
- S-Mode draft
- MS Guidance → resolution
- MS description → circular

HGDM 2
Nov 2018
- 16MS → NCSR, MSC

NCSR 6
Feb 2019
- 16MS → NCSR, MSC

FAL 44
Apr 2020
- MS4, 8

NCSR 7
Jan 2020
- MSC 101
  July 2019

MSC 102
May 2020
- MSC 103
  Nov 2020

MSC 103
Nov 2020

To be further developed
## Descriptions of 16 MS & SMART-Navigation Services

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<tr>
<th>No</th>
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<th>SMART-Navigation</th>
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<tr>
<td>MS 1</td>
<td>VTS Information Service (INS)</td>
<td>SV10</td>
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<td>MS 2</td>
<td>Navigational Assistance Service (NAS)</td>
<td>SV10, SV20</td>
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<tr>
<td>MS 3</td>
<td>Traffic Organization Service (TOS)</td>
<td>SV30</td>
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<tr>
<td>MS 4</td>
<td>Port Support Service (PSS)</td>
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<tr>
<td>MS 5</td>
<td>Maritime Safety Information Service (MSI)</td>
<td>SV52</td>
</tr>
<tr>
<td>MS 6</td>
<td>Pilotage service</td>
<td>SV51</td>
</tr>
<tr>
<td>MS 7</td>
<td>Tug service</td>
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<tr>
<td>MS 8</td>
<td>Vessel Shore Reporting</td>
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<td>MS 9</td>
<td>Telemedical Assistance Service (TMAS)</td>
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<td>MS11</td>
<td>Nautical Chart Service</td>
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<td>MS12</td>
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<td>MS13</td>
<td>Ice Navigation Service</td>
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<td>MS14</td>
<td>Meteorological Information Service</td>
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<tr>
<td>MS15</td>
<td>Real-time hydrographic and environmental information Service</td>
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<td>MS16</td>
<td>Search and Rescue Service</td>
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IMO MSC Circular, Description of each MS

1. Title of maritime service
2. Submitting Organization/Coordinating bodies
3. Description of the maritime service
4. Purpose of maritime service
5. Operational approach
6. User needs
7. Information to be provided
8. Associated technical services
9. Relationship to other Maritime Services
SMART-Navigation Services

- NAMAS: Navigation Monitoring & Assistance Service
- REDSS: Real-time Electronic Navigational Chart Distribution & Streaming Service
- SBSMS: Shipborne System Monitoring Service
- PIITAS: Pilot & Tug Assistance Service
- SORPS: Safe & Optimal Route Planning Service
- MESIS: Maritime Environment and Safety Information Service

SV10
SV20
SV30
SV40
SV51
SV52
Work process of MS in the SMART-Navigation

The Fairway to Maritime Services
MARITIME CONNECTIVITY PLATFORM

Stakeholders
- VTS
- Customs
- Ports Operators
- Service providers

Services
- Maritime Identity Registry (MIR)
- Maritime Service Registry (MSP)
- Open Source

Contextual Geolocated Information

Navigation
- Reporting
- Warning

Weather
- Registration

Port info
Work process of MS in the SMART-Navigation

Client/Service

User perspective

Technical perspective

MMS

Roaming

Network

IP-based
...  
IP-based LTE  
IP-based WIFI  
IP-based ...

No IP-based

...
Planning research for Korean e-Navigation strategy

2013 AUG

Korea e-Navigation forum foundation

2014 JUL

Korean e-Navigation strategic implementation plan confirmation

2015 FEB

Preliminary feasibility study (ended)

2016 MAR

Selection of SMART-Navigation Project Office

2017 DEC

Start of the SMART-Navigation Project

2018 DEC

Enactment of the SMART-Navigation's Implementation

2019 DEC

Trial operation of the whole SMART-Navigation system for 1 Years

2020

Completion of the SMART-Navigation Project

2021 DEC

Provide e-Nav Service to the Public
The Cleaner

Safer and

More Efficient Sea

 ven

ENUW AP 2020
Conference Highlights

Non-solas ship

Harmonization & Interoperability

LTE-M

Global maritime innovations cluster

Framework for trusted identities
Capacity Building Workshop

11 participants from 7 countries in 2018

40 participants from 17 countries in 2019
<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
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<tr>
<td></td>
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<td></td>
<td><strong>Digital Maritime Exhibition</strong></td>
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<td><strong>World Maritime Accident Investigation Seminar</strong></td>
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<td><strong>MASS Seminar</strong></td>
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Where

Seoul or Busan or Other city in Korea

Who

Co-organizer: IALA, DMA, MOF
**Theme**

Digital Maritime; e-Navigation, MASS, Digital Port & Logistics, Global Digital Maritime Cluster

**Exhibition**

SMART-Navigation, ECDIS, MCP, APPweb, ECS streaming, LTE-M, D-HF, VDES etc.

**Supported by**

[Logos of supporting organizations]