Proposal for the Work Programme 2023-2027 for IALA ENAV WG1 – Digital Information Systems

# Introduction

Digitalisation will change the ways of navigation and maritime transportation as we know it today. Digitalisation of the waterways and logistics and transportation chains will have an impact on our daily work in shipping. Shipping will and must play an active role in intelligent transportation systems (ITS). The advent of highly automated assistance and remotely operated ships will also have its impact on shipping in a foreseeable future.

IALA shall have a vision of the future of shipping as a guideline for its future work in a changing digital world. IALA will contribute to shape the digitalisation of maritime transportation and usage of the oceans in cooperation with its members and other organisations like IMO, IHO, WMO and others for safer, greener and efficient contribution to society. This this be in alignment to support the UN-sustainability goals.

In the upcoming working period this vision shall be defined and the cornerstones for digitalisation of waterways and shipping will be laid. This will be done of the basis of the work in the last years on the definition of Maritime Services in the context of e-Navigation, the work on concepts like the MRN, digital platforms and technical services.

Digitalisation itself must be robust, safe and sustainable and cyber secure by design.

It is proposed that IALA by support of the members of the committee will take an active role in

* encouragement of the stakeholder by providing recommendations,
* defining digitalisation by publication of guidelines and standards and
* incubating this development and support it by offering dedicated services,

with respect to its resources.

The members of the ENAV Committee are delighted that the technical advice on digital information systems is adopted by the domain experts at ARM and VTS committee to define the necessary services to implement the IMO e-Navigation strategy. It’s intended to strengthen cooperation in the next work period.

It’s proposed to extend the scope of the committee on Digitalisation within the scope of the IALA.

# Overview

The following general activities/tasks are proposed for the new working period

**Digitalisation**

A vision and roadmap for digitalised maritime transportation, shipping and waterways will be developed by

* 1. Definition of a vision for digitalisation of shipping and waterways
  2. Definition of a roadmap

**Digital Platforms**

Guidance and specifications will be given to provide digital platforms and services to implement the IALA Digitalisation vision and to provide Maritime Services in the Context of e-Navigation by:

* 1. Development and definition of a system architecture for digital waterways and shipping and update the CSSA (G1114)
  2. Development of a recommendation for digital platforms including technical aspects of cyber security
  3. Specification of a Guideline for implementation of digital platforms and necessary technical services
  4. Development of Standards for implementation and use of supporting infrastructure (technical Services)

**Incubation of Digitalisation**

IALA will actively contribute to the transformation in to digitalised maritime transportation through supporting guidance and dedicated services.

* 1. Management of technical parts of Maritime Resource Names (MRN)
  2. Assist in work with a Public Key Infrastructure (PKI) for supporting trust hierarchy
  3. Supporting and supervision of the digital incubation initiative

**CMDS**

ENAV committee was active in the support of IHO in the definition of the S-100 standard. While the domain experts will develop specific product specifications this committee will support the general development of the CMDS based on S-100:

* 1. Contribute to standardisation efforts of IHO with respect to the requirements of domain experts and digitalised maritime transportation and waterways
  2. Support domain experts in development of Product Specifications

**Maintenance of existing Recommendation and Guidelines**

The existing Recommendation and Guidelines will be reviewed and revised as needed. This covers G1143, G1128, G1157, G1117, R1019, G1161 and others.

**Recommended working arrangements**

The tasks mentioned above need to be performed in cooperation with other relevant Committees during committee meetings, intersessional meetings, and task groups. Such meetings should be conducted in a way that online participation is possible.

The scheduling of online or hybrid meetings should be timely and should be published in such a way that the right experts are invited and available for applicable meetings or topics.

**Cooperation with other Committees and the Open Digital Incubator Initiative**

The ENAV Committee will continue to support the domain experts and support the transition into digitalisation of waterways and maritime transportation by supporting members to run an open digital incubator initiative.

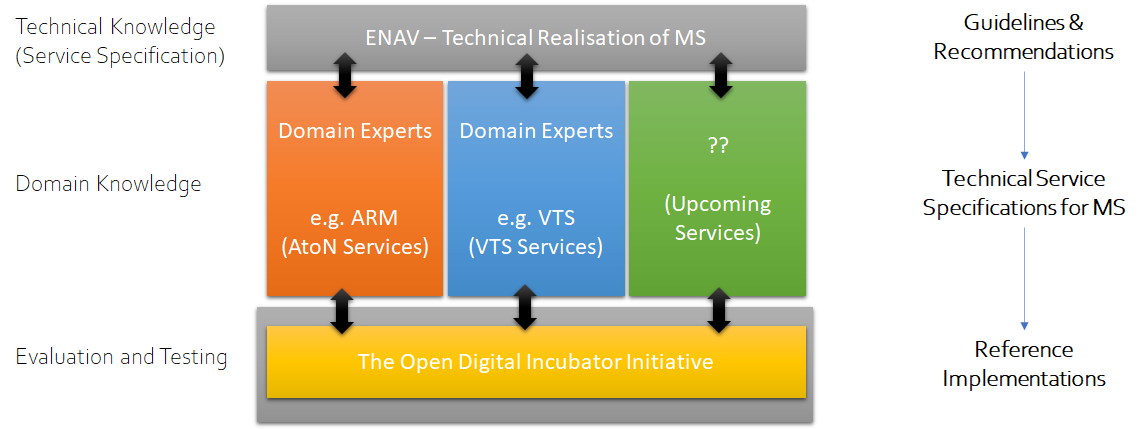


Figure 1: Role of ENAV Committee to support the domain experts by technical expertise and to support the Open Digital Incubator Initiative.

# New Tasks / Tasks that have not been Started

Work on the following new tasks shall be established:

**Digitalisation**

| Task number / Task name | 1.1. Definition of a vision for digitalisation of shipping and waterways | | | |
| --- | --- | --- | --- | --- |
| Objectives of the task | Development of a vision for digitalisation of shipping and maritime transportation | | | |
| Expected outcome | *IALA Rxxxx Digitalisation of Shipping and Waterways* | | | |
| Scope (Describe key items that are in scope/out of scope) | Document sketching the IALA vision on digitalisation of waterways and shipping | | | |
| Expected Sessions for Completion: | Session number:  1 2 3 4 5 6 7  x | | | |
| Brief and concise description of the work to be undertaken and programme milestones (where appropriate). | Key milestones for completing the task include:   * *Definition if scenarios for shipping and maritime transportation in a digitalised world* * *Development of a vision and recommendation on digitalisation.* | | | |
| Task Revision and note | Ver. | Date | Part / Section Revised | Note |
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| Task number / Task name | 1.2. Definition of a Roadmap for DigitaliSaTion | | | |
| --- | --- | --- | --- | --- |
| Objectives of the task | roadmap to guide IALA and its members on their way for a digital transformation of shipping and waterways | | | |
| Expected outcome | *IALA Rxxxx Recommendation on a Roadmap for Digitalisation* | | | |
| Scope (Describe key items that are in scope/out of scope) | Digitalisation Technologies  Proposed Timetable for Implementation | | | |
| Expected Sessions for Completion: | Session number:  1 2 3 4 5 6 7  X | | | |
| Brief and concise description of the work to be undertaken and programme milestones (where appropriate). | Key milestones for completing the task include:   * *Identified Technologies* * *Roadmap* | | | |
| Task Revision and note | Ver. | Date | Part / Section Revised | Note |
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| Task number / Task name | 1.3. Definition of a Guideline for Ris Assessment and Cyber Security | | | |
| --- | --- | --- | --- | --- |
| Objectives of the task | Risk assessment of the digitalisation roadmap and guideline on cyber security. | | | |
| Expected outcome | *IALA Gxxxx on Risk Assessment on Digitalisation and Cyber Security* | | | |
| Scope (Describe key items that are in scope/out of scope) | *Digital Risks*  *Assessment methods*  *Recommendation on cyber security* | | | |
| Expected Sessions for Completion: | Session number:  1 2 3 4 5 6 7  X | | | |
| Brief and concise description of the work to be undertaken and programme milestones (where appropriate). | Key milestones for completing the task include:   * *Risk assessment methods Identification of risks* * *Identification of counter measures* * *Identification of core elements to ensure cyber security* | | | |
| Task Revision and note | Ver. | Date | Part / Section Revised | Note |
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**Digital Platforms**

| Task number / Task name | 2.1 Development and definition of a system architecture for digital waterways and shipping to update the CSSA (G1114) | | | |
| --- | --- | --- | --- | --- |
| Objectives of the task | Development of a System Architecture Concept for Digitalised Waterways and Maritime Transformation | | | |
| Expected outcome | *IALA G1114 New Vision on Systems Architecture for Digitalised Waterways (was CSSA)* | | | |
| Scope (Describe key items that are in scope/out of scope) | System Architecture Concept for Digitalised Waterways and Maritime Transformation | | | |
| Expected Sessions for Completion: | Session number:  1 2 3 4 5 6 7  X | | | |
| Brief and concise description of the work to be undertaken and programme milestones (where appropriate). | Key milestones for completing the task include:   * *Architecture Pattern* * *Architecture Overview* * *Architecture Details / Platforms / Services* | | | |
| Task Revision and note | Ver. | Date | Part / Section Revised | Note |
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| Task number / Task name | 2.2. Development of a recommendation for digital platforms | | | |
| --- | --- | --- | --- | --- |
| Objectives of the task | Guideline on Digitals Platforms | | | |
| Expected outcome | *IALA Gxxxx Digital Platforms* | | | |
| Scope (Describe key items that are in scope/out of scope) | Definition of a Platform as the MCP for the Implementation of the proposed Architecture (G1114 Update) | | | |
| Expected Sessions for Completion: | Session number:  1 2 3 4 5 6 7  X | | | |
| Brief and concise description of the work to be undertaken and programme milestones (where appropriate). | Key milestones for completing the task include:   * *Definition of the architecture based on Updated G1114* * *Description of platform elements* | | | |
| Task Revision and note | Ver. | Date | Part / Section Revised | Note |
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| Task number / Task name | 2.3. SPECIFICATION OF A GUIDELINE FOR THE IMPLEMENTATION OF DIGITAL PLATFORMS AND NECESSARY TECHNICAL SERVICES | | | |
| --- | --- | --- | --- | --- |
| Objectives of the task | Guideline for the Definition of Services of a digital platform. | | | |
| Expected outcome | *IALA G1128 Update Specification of Technical Services* | | | |
| Scope (Describe key items that are in scope/out of scope) | Basic Concepts and guidline for developers on technical services adjusted to the digital platform concepts. | | | |
| Expected Sessions for Completion: | Session number:  1 2 3 4 5 6 7  x  x  x | | | |
| Brief and concise description of the work to be undertaken and programme milestones (where appropriate). | * Update of the existing Guideline | | | |
| Task Revision and note | Ver. | Date | Part / Section Revised | Note |
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| Task number / Task name | 2.4. DEVELOPMENT OF STANDARDS FOR THE IMPLEMENTATION AND USING OF THE SUPPORTING INFRASTRUCTURE (TECHNICAL SERVICES) | | | |
| --- | --- | --- | --- | --- |
| Objectives of the task | Definition of the necessary Services of a digital platform. | | | |
| Expected outcome | *IALA Sxxxx-xxxx Standardised Technical Services* | | | |
| Scope (Describe key items that are in scope/out of scope) | Number of Technical Services to support the proposed platform. | | | |
| Expected Sessions for Completion: | Session number:  1 2 3 4 5 6 7  x  x  x | | | |
| Brief and concise description of the work to be undertaken and programme milestones (where appropriate). | Key milestones for completing the task include:  *Covering the proposed Services one by one as there are:*   * *Identification / Identity Management and Services* * *Digital authentication and encryption* * *Resource and Services registries* * *Communication/messaging support (Maritime Massaging Service)* * *…* | | | |
| Task Revision and note | Ver. | Task Revision and note | Ver. | Task Revision and note |
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**Incubation of Digitalisation**

| Task number / Task name | 3.1. Management of MRN | | | |
| --- | --- | --- | --- | --- |
| Objectives of the task | Provision of the MRN Management | | | |
| Expected outcome | *Service of the M* | | | |
| Scope (Describe key items that are in scope/out of scope) | already done by IALA | | | |
| Expected Sessions for Completion: | Session number:  1 2 3 4 5 6 7 | | | |
| Brief and concise description of the work to be undertaken and programme milestones (where appropriate). | Key milestones for completing the task include: | | | |
| Task Revision and note | Ver. | Date | Part / Section Revised | Note |
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| Task number / Task name | 3.2. MANAGEMENT OF DIGITAL CERTIFICATES FOR SEEDING A TRUST HIERARCHY FOR ITS MEMBERS | | | |
| --- | --- | --- | --- | --- |
| Objectives of the task | Service for providing root certificates and endorsement of members. | | | |
| Expected outcome | *Provision of a Services and supporting infrastructure* | | | |
| Scope (Describe key items that are in scope/out of scope) |  | | | |
| Expected Sessions for Completion: | Session number:  1 2 3 4 5 6 7  X | | | |
| Brief and concise description of the work to be undertaken and programme milestones (where appropriate). | Key milestones for completing the task include: | | | |
| Task Revision and note | Ver. | Date | Part / Section Revised | Note |
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| Task number / Task name | 3.3. Supporting and supervision of a digital incubation initiative | | | |
| --- | --- | --- | --- | --- |
| Objectives of the task | Guidance and Support for an Open Digital Incubation Initiative | | | |
| Expected outcome | *Ongoing Advice, Steering* | | | |
| Scope (Describe key items that are in scope/out of scope) |  | | | |
| Expected Sessions for Completion: | Session number:  1 2 3 4 5 6 7 | | | |
| Brief and concise description of the work to be undertaken and programme milestones (where appropriate). | Key milestones for completing the task include: | | | |
| Task Revision and note | Ver. | Date | Part / Section Revised | Note |
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**Common Maritime Data Structures (CMDS)**

| Task number / Task name | 4.1 Contribute to the standardiSation efforts of IHO with respect of the requirements of the domain experts and digitaliSes maritime transportation and waterways. | | | |
| --- | --- | --- | --- | --- |
| Objectives of the task | Support and contribute to international standardisation efforts | | | |
| Expected outcome |  | | | |
| Scope (Describe key items that are in scope/out of scope) | Ongoing support | | | |
| Expected Sessions for Completion: | Session number:  1 2 3 4 5 6 7  X | | | |
| Brief and concise description of the work to be undertaken and programme milestones (where appropriate). | Support   * *IMO, IHO, WMO, ….* * *Member Initiatives* | | | |
| Task Revision and note | Ver. | Date | Part / Section Revised | Note |
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| Task number / Task name | 4.2 Support of the domain experts | | | |
| --- | --- | --- | --- | --- |
| Objectives of the task | Ongoing advice | | | |
| Expected outcome | *Recommendation, Guidelines and Standards of other committee of domain experts* | | | |
| Scope (Describe key items that are in scope/out of scope) | Advice on digital technologies | | | |
| Expected Sessions for Completion: | Intersessional TGs | | | |
| Brief and concise description of the work to be undertaken and programme milestones (where appropriate). | Key milestones for completing the task include: | | | |
| Task Revision and note | Ver. | Date | Part / Section Revised | Note |
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**Update Recommendation and Standards**

| Task number / Task name | 5.1. Update Recommendation and Standards | | | |
| --- | --- | --- | --- | --- |
| Objectives of the task | Ongoing Review and Update of existing Recommendation and Standards | | | |
| Expected outcome | *G1143, G1128, G1157, G1117, R1019, G1161 and others.* | | | |
| Scope (Describe key items that are in scope/out of scope) | Covering existing recommendation, guidelines and standards | | | |
| Expected Sessions for Completion: | Session number:  1 2 3 4 5 6 7  x  xx  x  x  X  x | | | |
| Brief and concise description of the work to be undertaken and programme milestones (where appropriate). | Key milestones for completing the task include: | | | |
| Task Revision and note | Ver. | Date | Part / Section Revised | Note |
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