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| **ENAV Committee**  **working groups**  **Terms of reference** |
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# Document Revision

Revisions to the IALA Document are to be noted in the table prior to the issue of a revised document.

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| --- | --- | --- |
| Date | Page / Section Revised | Requirement for Revision |
| 17 Oct 2014 | New Document | Prepared at ENAV15 |
| 24 April 2015 | Section 2 ToR for WG 2 | Revised at ENAV 16 |
| 30 October 2015 | Section 3 ToR for WG 3 | Revised at ENAV 17 |
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# Purpose of this Document

The purpose of this document is to maintain a register of ENAV Working Groups Terms of Reference for 2014-18.

**Table of Contents**

[1. Document Revision 1](#_Toc443990873)

[2. Purpose of this Document 1](#_Toc443990874)

[3. Terms of Reference for the Harmonization Working Group (WG1) 3](#_Toc443990875)

[4. Terms of Reference for the Implementation Working Group (WG2) 4](#_Toc443990876)

[5. Terms of Reference for the Telecommunication Working Group (WG3) 5](#_Toc443990877)

[6. Terms of Reference for the e-NAV Services Working Group (WG4) 7](#_Toc443990878)

[7. Terms of Reference for the Position, Navigation and Timing (PNT) Working Group (WG5) 8](#_Toc443990879)

# Terms of Reference for the Harmonization Working Group (WG1)

## Introduction

Harmonisation lies at the very core of the global development of e-Navigation. Without harmonized principles, concepts, data models, services and systems there will be no global implementation of e-Navigation. There will only be local solutions addressing local needs, and without any significant international interoperability.

## Scope

The development of:

* Internationally accepted and harmonized principles, concepts, and data models;
* Recommendations and guidelines for e-Navigation services and systems.

## Topics and activities

* Develop the technical content of e-Navigation services and MSPs;
* Support the IALA membership in the development of Product Specifications;
  + e.g. AtoN data information structure, exchange, presentation;
  + Data modelling;
  + Portrayal principles in relation to e-Navigation;
* Co-ordinate technical input to IMO, IHO, ISO, IEC and CIRM on e-Navigation;
* Management of IALA S200 domain ownership (IHO S-200, S-100 & S-99);
* Liaison with IHO on matters regarding S-100;
* Contribute to IMO/IHO Harmonisation Group on Data modelling (HGDM);
* Review and update IALA documents related to these topics.

## Deliverables

* Appropriate draft Standards, Recommendations, Guidelines and Product Specifications, etc., to fulfil the tasks assigned to the Working Group in the Committee Work Programme;
* Information and support to relevant subtasks requested from other Working Groups within the Committee for them to fulfil their tasks;
* Draft liaison notes etc. as appropriate.

# Terms of Reference for the Implementation Working Group (WG2)

## Introduction

With an IMO strategy agreed in 2008 and the approval of the Strategy Implementation Plan in 2014, services to give effect to e-Navigation solutions are now being implemented. Additionally, there are a number of testbeds in place around the world, trialling potential e-Navigation solutions. It is vital that IALA monitor these implementation developments closely, provide guidance to its membership on the planning of testbeds, the reporting of testbed results, and further develop e-navigation aspects under IALA’s remit.

## Scope

Serve as the center of excellence for sharing information and providing guidance on e-Navigation testbeds and implementation matters.

## Topics and activities

### Implementation

* Monitor and analyse the execution of the relevant tasks, in particular those in the IMO e-Navigation Strategy Implementation Plan;
* Provide implementation guidance on developments in the e-Navigation domain, in cooperation with other international governmental and non governmental organizations (IGOs/NGOs);
* Provide support to the decision-making process related to the implementation of e-Navigation;
* Support IMO in the future development and implementation of e-Navigation and contribute to related tasks;
* Monitor shipboard developments in order to provide appropriate e-Navigation services;
* Inform IALA’s Legal Advisory Panel (LAP) of any apparent legal implications of emerging implementation issues;
* Coordinate the development of the IALA e-Navigation Roadmap taking into account the activities of other e-Navigation efforts.

### Testbeds

* Gather and present information on testbeds (including results) globally;
* Maintain a global repository for testbed results;
* Encourage testbed project managers to provide information and results to IALA for posting at www.e-navigation.net;
* Evaluate/analyse testbed outcomes (‘lessons learned’) and provide guidance;
* Provide guidance to IALA members to formulate the scope and topics of their testbeds;
* Maintain fora to discuss issues in relation to testbeds.

## Deliverables

* Appropriate draft Standards, Recommendations and Guidelines to fulfil the tasks assigned to the Working Group in the Committee Work Programme (as above);
* The Committee’s input on e-Navigation for the IALA NAVGUIDE and the IALA VTS Manual;
* Information and relevant subtasks requested from other Working Groups within the Committee;
* Draft liaison notes and other outputs as appropriate.

# Terms of Reference for the Telecommunication Working Group (WG3)

## Introduction

Telecommunications are a vital component of e-Navigation, as well as the provision of aids to navigation in general. It is of great importance that IALA provides guidance to its membership on all relevant telecommunication aspects, including both terrestrial and space-based radio communications.

## Scope

All telecommunication aspects, including both terrestrial and space based radio communications, AIS, VDES, except radionavigation (PNT services, which will be dealt with by a separate WG).

## Topics and activities

* IALA Maritime Radio Communications Plan (MRCP);
* Radio spectrum matters, requirements etc.;
* Communication systems in general;
* Input to IMO, ITU, RTCM and IEC on telecommunication matters;
* Preparation for World Radiocommunication Conference;
* Development of VDES (VHF Data Exchange System) which includes the AIS channels, ASM channels and VDE channels
* Virtual AtoN technology and its place within VDES;
* GMDSS modernization;
* Consider implications of Maritime Digital Voice Communication on VDES;
* Consider implications of aviation radio communications on VDES.

## Future Work

Once VDES is accepted, it is envisioned that multiple communications paths could be included to provide an holistic communications system on ship/ shore and satellite that may include:-

* Potential new communication channels (e.g. IALA MF DGPS beacons);
* NAVDAT;
* Mesh Digital Radio Communication Networks;

## Deliverables

* Appropriate draft Standards, Recommendations, Guidelines and Product Specifications, etc., to fulfil the tasks assigned to the Working Group in the Committee Work Programme;
* Information and relevant subtasks requested from other Working Groups within the Committee for them to fulfil their tasks;
* Draft Liaison notes etc. as appropriate.

# Terms of Reference for the e-NAV Services Working Group (WG4)

## Introduction

e-Navigation services provide information for stakeholders utilizing an infrastructure capable of ensuring safe, secure and seamless information exchange across available communication channels. Maritime Service Portfolios (MSPs) have been introduced to provide global e-Navigation services in a harmonised manner.

## Scope

The content of e-Navigation services, operational (i.e. non-technical) aspects of e-Navigation taking into account the topics and activities as mentioned below.

## Topics and activities

e-Navigation services arising from the Maritime Service Portfolios identified by the IMO Strategy Implementation Plan (SIP) and the IMO user needs survey;

* Recognised shore-based user needs, including input from IALA;
* Guidance on MSP information content and implementation;
* Liaison with other committees on e-Navigation service content;
* Work closely with WG1 on harmonization including portrayal matters and other WGs as necessary;
* Usability of information recognizing human factors;
* Implication for the need for global scalability;
* Taking into account findings from testbeds;
* Taking into account training needs.

## Deliverables

* Appropriate draft Standards, Recommendations and Guidelines to fulfil the tasks assigned to the Working Group in the Committee Work Programme;
* Information and relevant subtasks requested from other Working Groups within the Committee for them to fulfil their tasks;
* Draft liaison notes etc. as appropriate.

# Terms of Reference for the Position, Navigation and Timing (PNT) Working Group (WG5)

## Introduction

Reliable position-fixing (with redundancy) has been identified as a fundamental requirement for e-Navigation. This requirement has since expanded to cover all aspects of Positioning, Navigation and Timing (PNT) inputs required by both ship and shore to enable e-Navigation.

## Scope

All aspects of Positioning, Navigation and Timing systems including resilience, reliability and integrity.

## Topics and activities

* World-Wide Radionavigation Plan (WWRNP);
* PNT Requirements for e-Navigation;
* Radar technology, and associated aids to navigation;
* Terrestrial positioning systems;
* GNSS and its augmentation;
* The requirement for terrestrial backup systems for GNSS;
* Systems using Signals of Opportunity;
* Visual & optical positioning/navigation techniques;
* Inertial navigation techniques;
* Effective fusion and integration of available PNT data;
* PNT Performance Monitoring;
* Development of the IALA Marine Beacon DGNSS concept;
* Liaison with IMO, IEC, ITU, CIRM, RTCM and other bodies on PNT matters.

## Deliverables

* Appropriate draft Standards, Recommendations, Guidelines and Product Specifications, etc., to fulfil the tasks assigned to the Working Group in the Committee Work Programme;
* Information and relevant subtasks requested from other Working Groups within the Committee for them to fulfil their tasks;
* Draft liaison notes etc. as appropriate.