



Maritime Digitalization

A harmonized approach, future challenges for shore infrastructure

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CONTENTS

- About IALA
 - The World-Wide Academy
 - The Future
 - from NGO to IGO
-



About IALA

International Association of Marine Aids to Navigation and Lighthouse Authorities



Aids to Navigation

IALA Constitution Art. 1

“A device, system or service, external to vessels, designed and operated to enhance safe and efficient navigation of individual vessels and/or vessel traffic”





The IALA 'motto' and principal aims

"Successful voyages, sustainable planet"

- To harmonise standards for Aids to Navigation systems worldwide
 - To facilitate the safe and efficient movement of shipping
 - To enhance the protection of the marine environment
-



IALA Strategic Vision and Goals for 2026

Goal 1

Marine Aids to Navigation are **developed** and **harmonized** through international cooperation and the provision of standards.

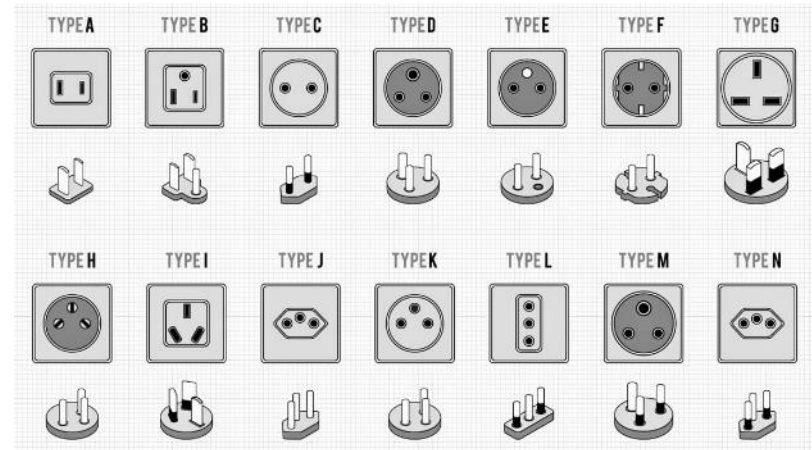
Goal 2

All coastal states have contributed to a sustainable and efficient global network of Marine Aids to Navigation through capacity building and the sharing of expertise.





Developed and Harmonized





IALA Technical Committees

The “Power House” of IALA

- AtoN Requirements and Management (ARM)
- Engineering and Sustainability (ENG)
- Vessel Traffic Services (VTS)
- e-Navigation Information Services and Communications (ENAV)





Publications

Main result of the Committees' work

- **Standards** which can be referred to directly in IMO and other international conventions and in national maritime laws.
 - **Recommendations** which advise what should be done.
 - **Guidelines** which advise how to implement the recommendations as 'best practice'.
 - **Manuals** which provide general reference materials (NAVGUIDE; MBS; VTS Guide; IALA Dictionary).
 - **Model courses** which provide guidance on the training of VTS personnel, Aids to Navigation Managers and Aids to Navigation Technicians.
-



IALA Standards – an integrated framework



S1010
ATON PLANNING
AND SERVICE
REQUIREMENT



S1020
ATON DESIGN
AND DELIVERY



S1030
RADIONAVIGATION
SERVICES



S1040
VESSEL TRAFFIC
SERVICES



S1050
TRAINING AND
CERTIFICATION



S1060
DIGITAL
COMMUNICATION
TECHNOLOGIES



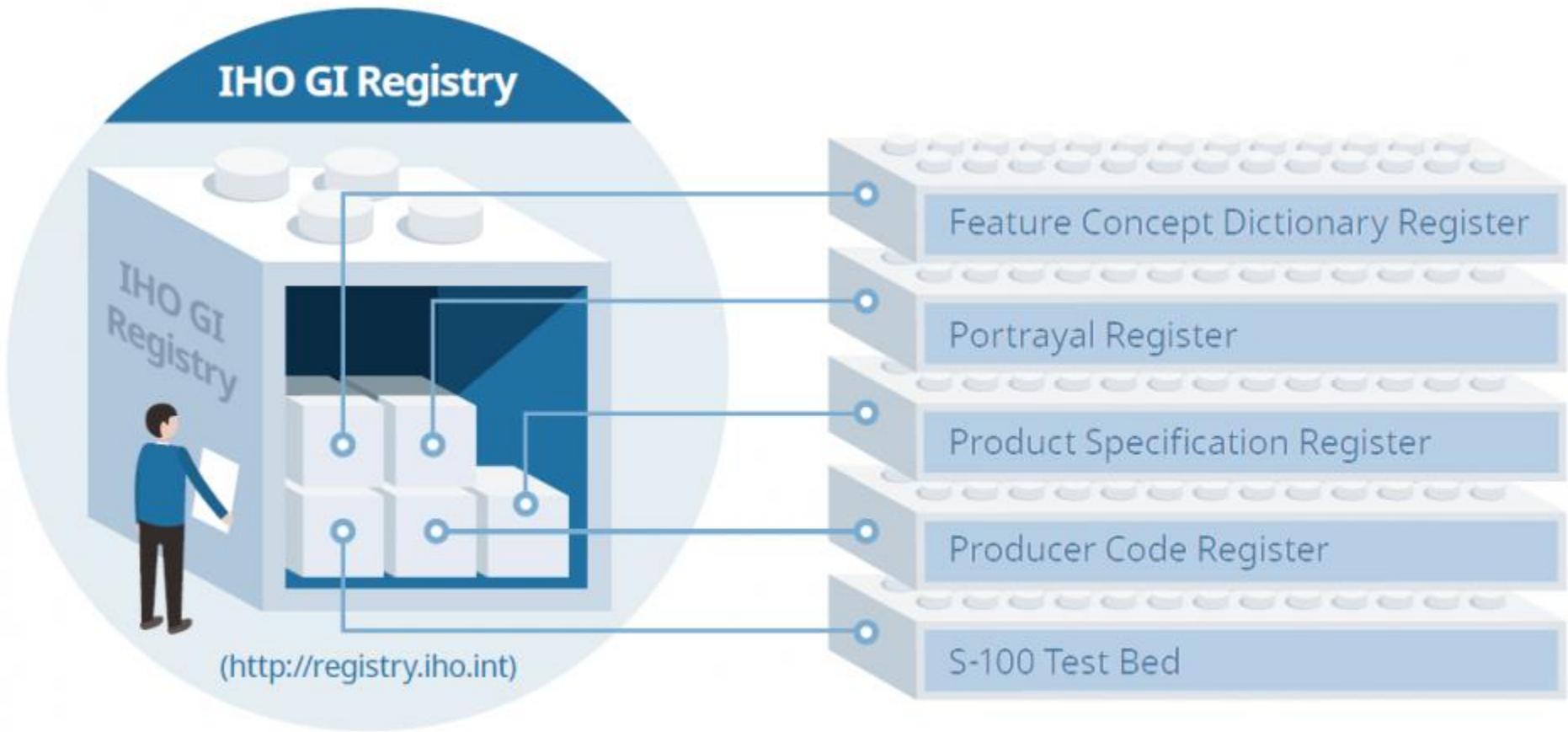
S1070
INFORMATION
SERVICES



Harmonized e-Navigation Solutions

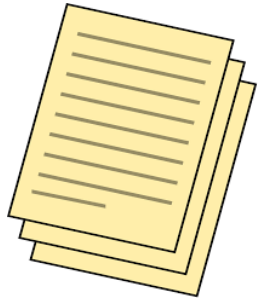
Based on the IHO S-100 Concept

IHO S-100 Geospatial Information Registry



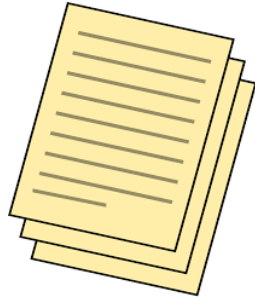
<http://s100.iho.int/S100/productspecs>

Five types of e-Nav “specifications/descriptions”



**Maritime
Service
Descriptions**

IMO



**S-100, S-200 ...
Data Product
Specifications**

**IHO (S-100)
IALA (S-200)**



**Technical
Service
Specification**

IALA



**Technical
Service Design
Description**

IALA



**Technical
Service Instance
Description**

IALA

Basic Principles
Technology Agnostic

What to do
(IALA Recommendations)



Technology
Selection
How to do...
(IALA Guidelines)
(Blueprint)



Actual
Implementation
(Sea Chart)



e-Navigation Underway

Conferences



Organized by





Keywords from 2011 to 2019

ENUW 2011



ENUW 2020 and Digital@Sea





Keywords from 2011 to 2019

ENUW 2011



ENUW 2020 and Digital@Sea

Projects

EfficienSea

EfficienSea2

MONALISA

SESAME

SMART

e-Navigation

SWIM

ACCSEAS

ArticWeb

eMIR

STM

MASS

Standards

Testbeds

ArticWeb

S-Mode

APPWeb

MASSPorts

UKC

e-Nav Architecture

ITPCO

Maritime Services

Route exchange format

Avanti

16 MSs

MRN

Cybersecurity

Strategic Implementation Plan (SIP)

Technical service

e-Maritime

IHO registry

S-201

S-201

Data modeling

CMDS

S-100

S-200

PortCDM

MMS

dPMR

5G

VDES

4G

LTE-M

Connectivity & Communication

PNT

Maritime Cloud

R-Mode

Maritime Connectivity Platform

AIS ASM

Smart navigation buoy

eLoran

PNT

Satellite based AIS

IALA NET

eRadar

eMSI

Drones

IoT

New technologies

Dynamic & proactive routing

eRACON

AI

Digital twins

Machine learning

AR

Blockchain





Digital@Sea Conference series

Digital@Sea Capacity Building Workshop

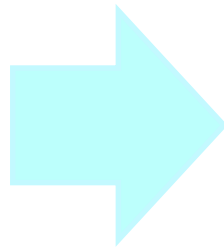
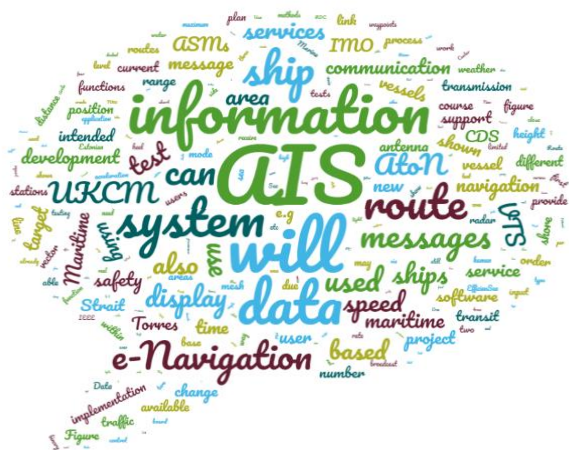
Digital@Sea Cluster

The "new series of Digital@Sea Conferences is composed of Digital@Sea International, Asia-Pacific and North America





Challenges



S1010
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Transforming IALA from NGO to an Intergovernmental Organization (IGO) - A diplomatic Process -

**Culminates with the signing Ceremony
of the IALA International Convention
in Paris in November 2020**



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