



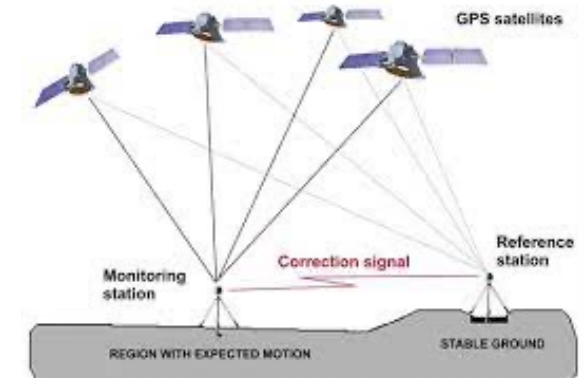
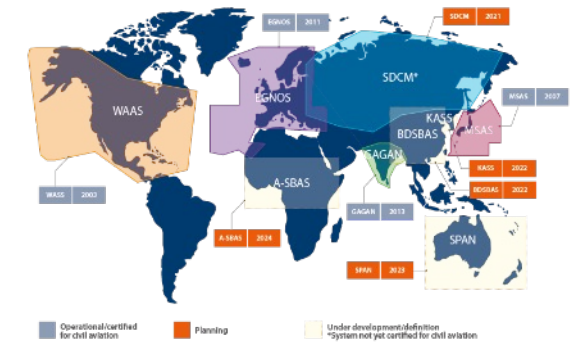
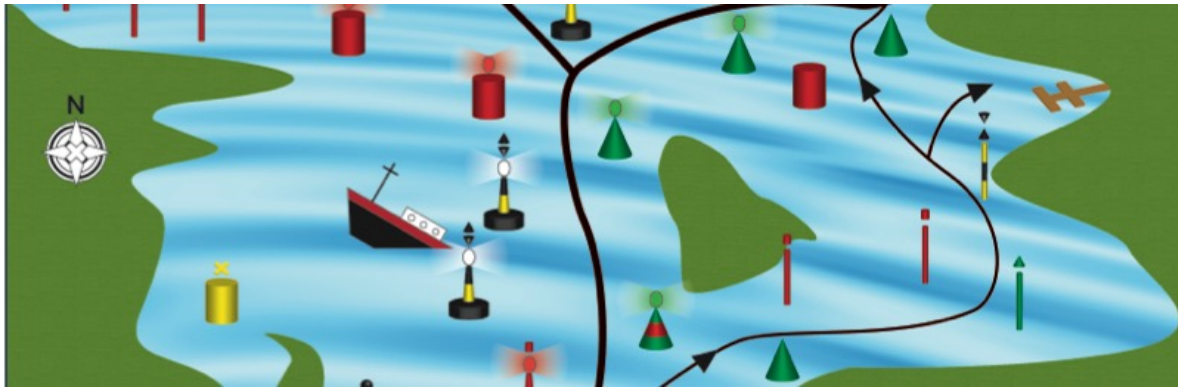
# ADVANCES IN AIDS TO NAVIGATION AND VTS TO SUPPORT EFFICIENT SHIPPING OPERATIONS

Minsu JEON, Technical Operations Manager



# What is a Marine Aid to Navigation?

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



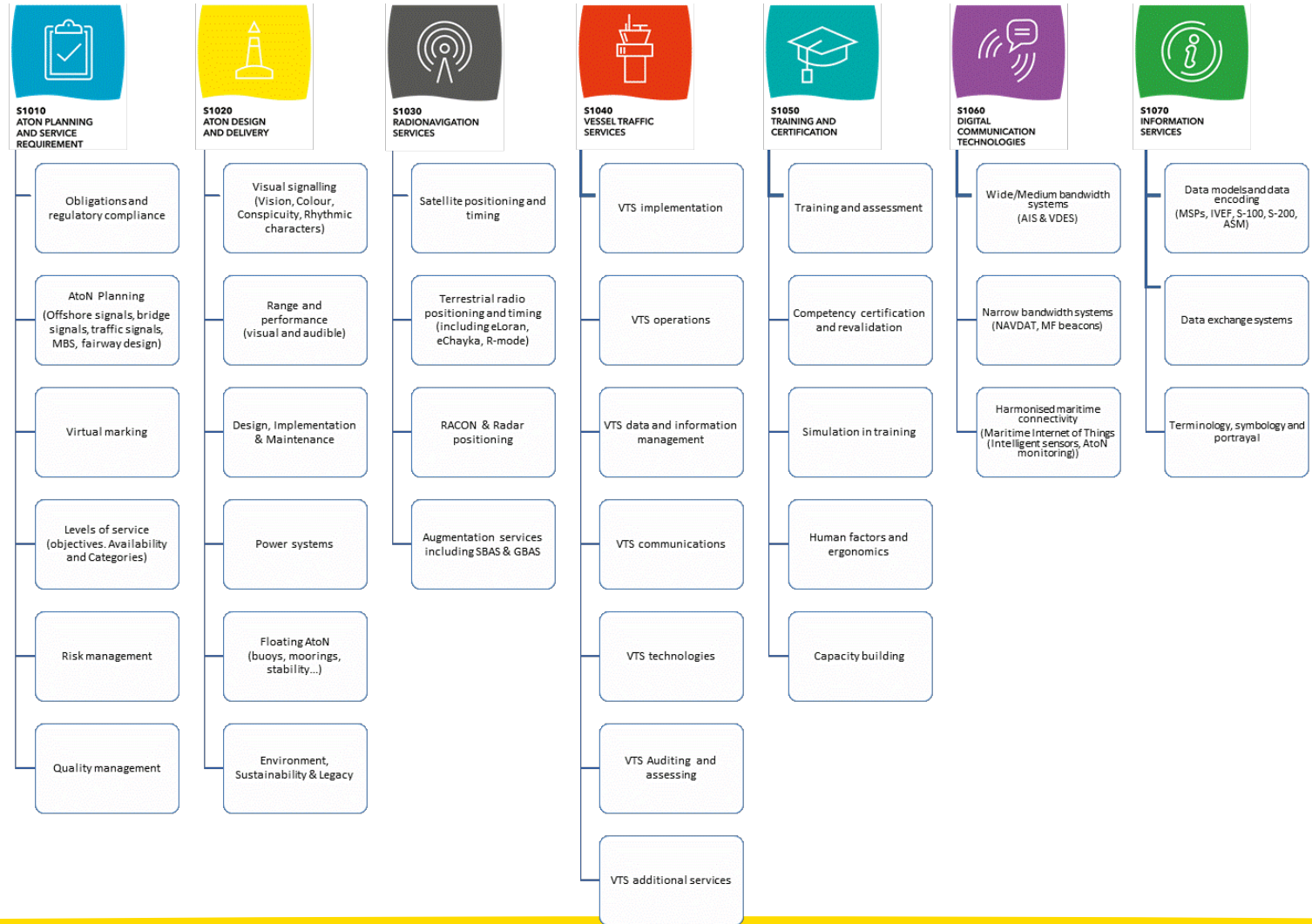
## IALA IGO project

- foster the safe, economic and efficient movement of vessels, through improvement and harmonization of aids to navigation worldwide.
- two strategic goals aimed at development and harmonisation of global Marine Aids to Navigation system
- 4 technical committees produce standards, recommendations, guidelines, manuals, model Courses
- non profit, international technical association established in 1957
- transition from NGO to IGO





# IALA standards

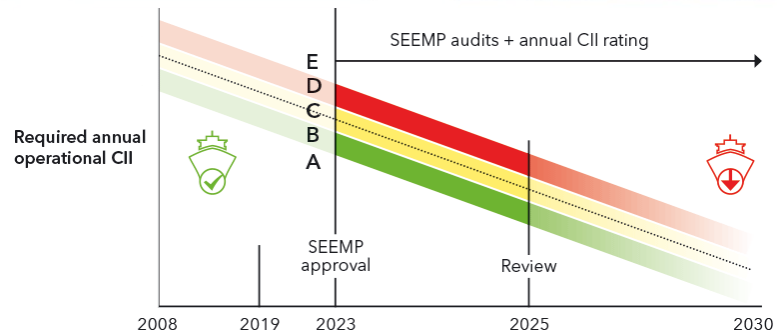
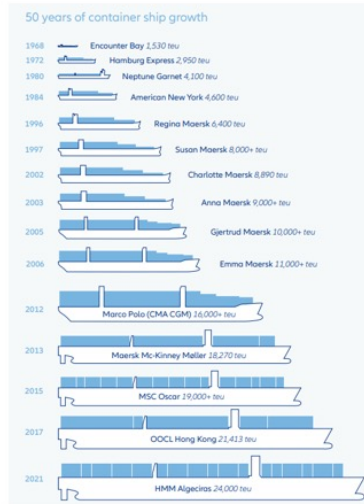






# Digitalization and Automation in the Maritime industry

## Mega trends



## 20<sup>th</sup> Conference and 15th GA in Rio de Janeiro, Brazil



- **Sustainability** and its link to the **UN SDGs** is of increasing importance and IALA is duty bound to raise the profile of this area in the committees. Members should continue to **innovate sustainable approaches** by recognizing, developing and reviewing the whole lifecycle of AtoN services.
- To achieve **digital transformation** in the S-100 domain, the importance of **collaboration and continued dialogue between IHO, IALA** and other domain controllers is necessary. IALA should stand ready to assist coastal authorities with their transition to S-100 related products.
- **Autonomy** is a driver to leverage the development of digital products. AtoN has a role in support of autonomous vessels and technology needs to be standardized to meet the future requirements of all vessels.
- VTS technology needs to take into account **human factors with increased digitalization**, including **AI in VTS**.
- IALA acknowledges that **virtual tools** and the **use of e-learning** contributes to flexible, efficient and sustainable training. In addition, IALA recognizes its role in promoting the use of language testing tools to improve the communication capabilities of VTS operators.
- **Physical AtoN remains important to the mariner**. IALA members should continue to pursue **emerging technologies and approaches** such as big data analytics, Internet of Things (IoT), machine vision technology and drones to make their services more effective and meet the future needs of the mariner.

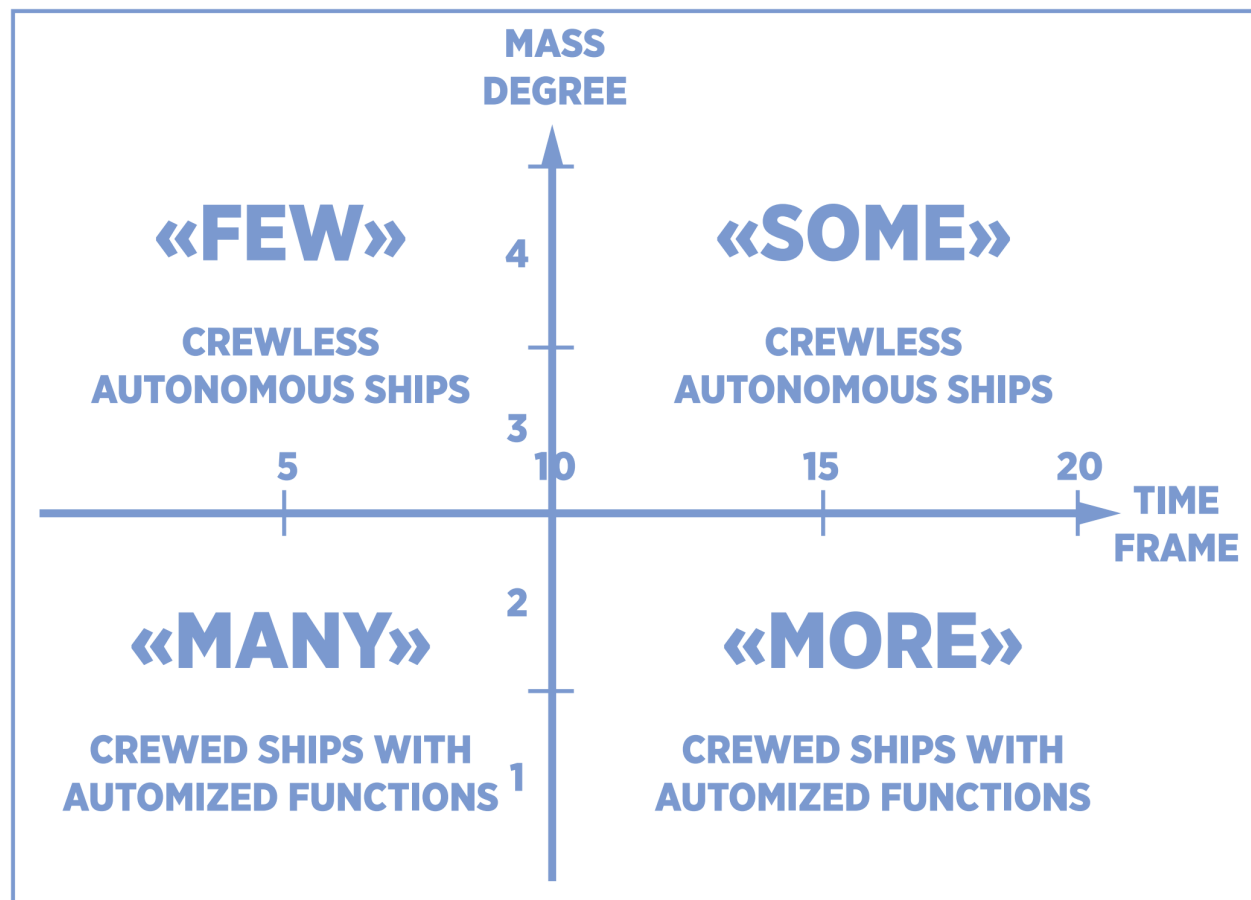
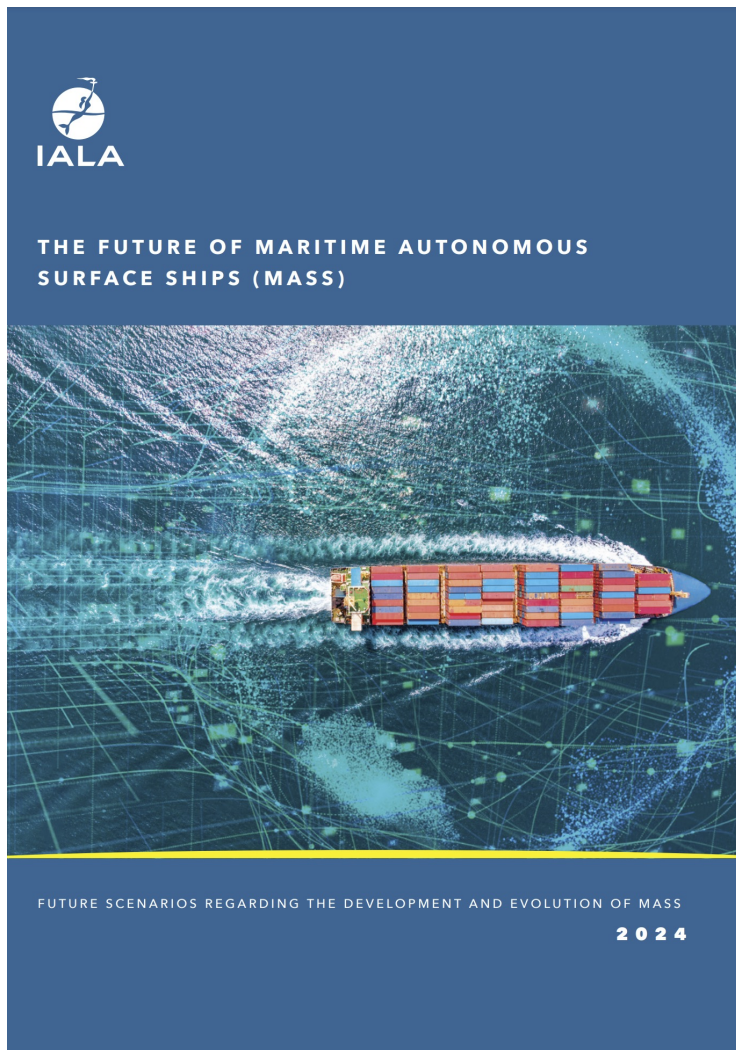


## Summary of the recent works

- Updates to IALA standards, NAVGUIDE and Maritime Buoyage System (MBS).
- Comprehensive evaluation of Risk Assessment recommendations and guidelines (RA tool box: Simulation, IWRAP, PAWSA, SIRA)
- Release of a new framework document for VTS (IMO Resolution A.1158(32))
- MS Descriptions of VTS and AtoN services in the context of e-Navigation
- Continued enhancement of S-200 series product specifications with IHO
- Creation of guidelines on Maritime Resource Name (MRN)
- Guidelines providing an overview of VHF Data Exchange System (VDES), AIS2.0
- STCW revision
- Cyber security guideline
- MASS guideline (implication to AtoN including VTS)
- Sustainability guideline from IALA perspective



# IALA MASS workshop in 2023







## A.1158(32) Guidelines for VTS

Concise, high level document that:

- Describes:
  - ✓ IMO's role in regulating the planning, implementation and operation of VTS.
  - ✓ The purpose of VTS.
  - ✓ Regulatory and Legal Framework.
  - ✓ Responsibilities of Contracting Governments, Competent Authorities, VTS Providers and Participating Ships.
- Recognises:
  - ✓ IALA as an important contributor to IMO's role and responsibilities relating to VTS – That is, the IALA Standards.
  - ✓ International guidance prepared and published by appropriate international organisations.



## Future views and challenges of maritime communications (non exhaustive)



- Move from analogue to digital
- Move from voice to data with time sharing techniques
- Adding data services to voice channels
- Safe navigation and efficient commerce required a suite of single application radio communications equipment (seamless handover)
- The VHF Data Link (VDL) used by AIS is being overloaded
- Existing spectrum allocated to maritime use needs to be fully exploited (utilised)
- Propagation effects can affect both analogue and digital transmissions
- LEO satellite
- Define the communication requirement for maritime services in the context of e-Navigation
- Mariners need to be provided with a secure and efficient communication channel
- Close cooperation between international bodies





## QUESTIONS ?

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