International Association of Marine Aids to Navigation and Lighthouse Authorities

Workshop ‘Autonomous shipping and inland Navigation’
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 Maritime Buoyage Agreement

IALA A and IALA B

During the IALA conference in November 1980 two navigation marking systems, ie the System A (red colour for the left hand of the ship) and the System B (red colour for the right hand of the ship), were combined into one - the IALA System.
The Committees

The “Power House” of IALA

- AtoN Requirements and Management (ARM)
- Engineering and Sustainability (ENG)
- Vessel Traffic Services (VTS)
- e-Navigation (ENAV)
2017 was the safest year in aviation history
(On-board navigation systems),

Shore side vessel traffic information management and

Ship-to-ship-, ship-to-shore and shore-to-shore-communication infrastructure.
IALA and the future ships

What about traditional Aids to Navigation?
IALA and the future ships

- Shore services
- Resilient Position, Navigation and Timing (PNT)
- Data Modelling
- Connectivity
Maritime Service Portfolios (MSP)
IALA and the future ships

• Shore services
• Resilient Position, Navigation and Timing (PNT)
• Data Modelling
• Connectivity
Increased dependence on automated systems

...combined with a decline in traditional skills gives rise to concern.
Timeline for Resilient PNT

**GNSS**

- GPS
- GLONASS
- Galileo IOC
- BeiDou (regional)
- SBAS (regional)
- GPS III
- GLONASS CDMA
- Galileo FCC
- BeiDou (global)
- SBAS (global?)

- 2013
- 2019
- 2030

**Complementary systems**

- eLoran IOC
- eLoran FOC
- R-mode technical development
- Regulatory development
- Radar Positioning (proof of principle)
- Radar Positioning (regulatory development)
- Introduction
- Inertial systems (technical & regulatory development)
- Quantum devices (technical development)
- Other (e.g. signals of opportunity, geo-magnetic)
IALA and the future ships

• Shore services
• Resilient Position, Navigation and Timing (PNT)
• Data Modelling
• Connectivity
- IMO/IHO Harmonization Group on Data Modeling
- S-200 Series Product Specifications
- Maritime Service Portfolios (MSP)
- Maritime Resource Numbers
IALA and the future ships

- Shore services
- Resilient Position, Navigation and Timing (PNT)
- Data Modelling
- Connectivity
- Maritime Connectivity Platform (MCP)
- VHF Data Exchange System (VDES)
- Smart Navigation (LTE)
- Other services....
THANK YOU

Contact: contact@iala-aism.org