



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

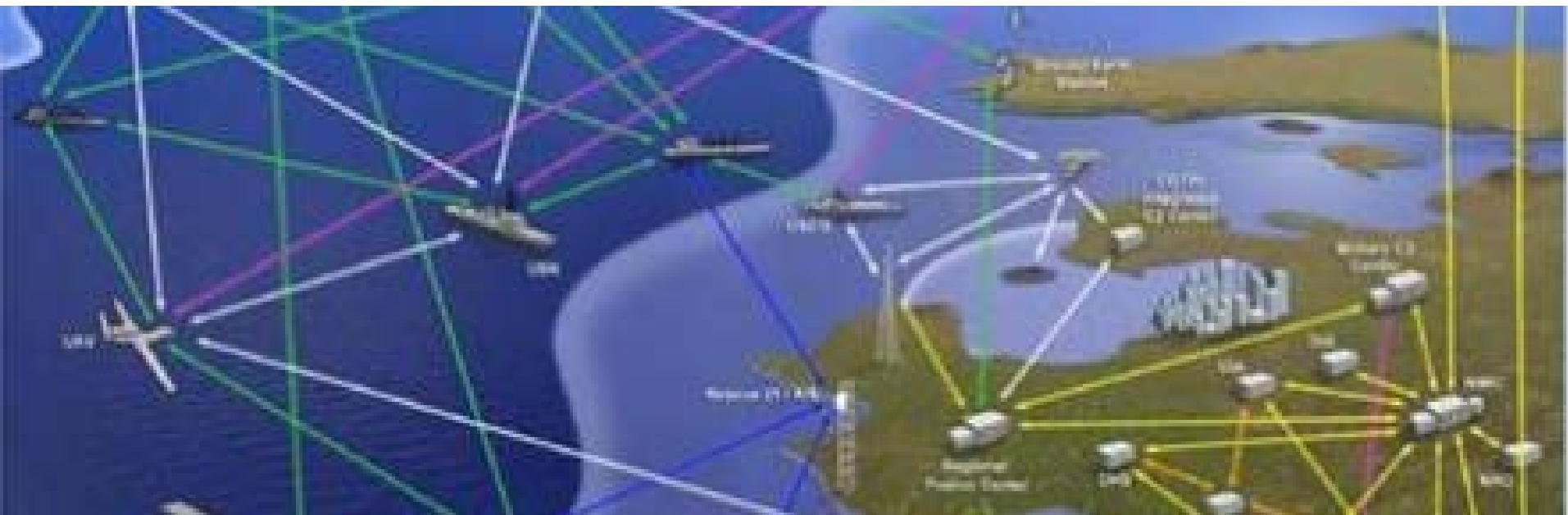
- **Shore services**
- Resilient Position, Navigation and Timing (PNT)
- Data Modelling
- Connectivity







# Maritime Service Portefolios (MSP)





# IALA and the future ships

- Shore services
- **Resilient Position, Navigation and Timing (PNT)**
- Data Modelling
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# Increased dependence on automated systems

...combined with a decline in traditional skills gives rise to concern.

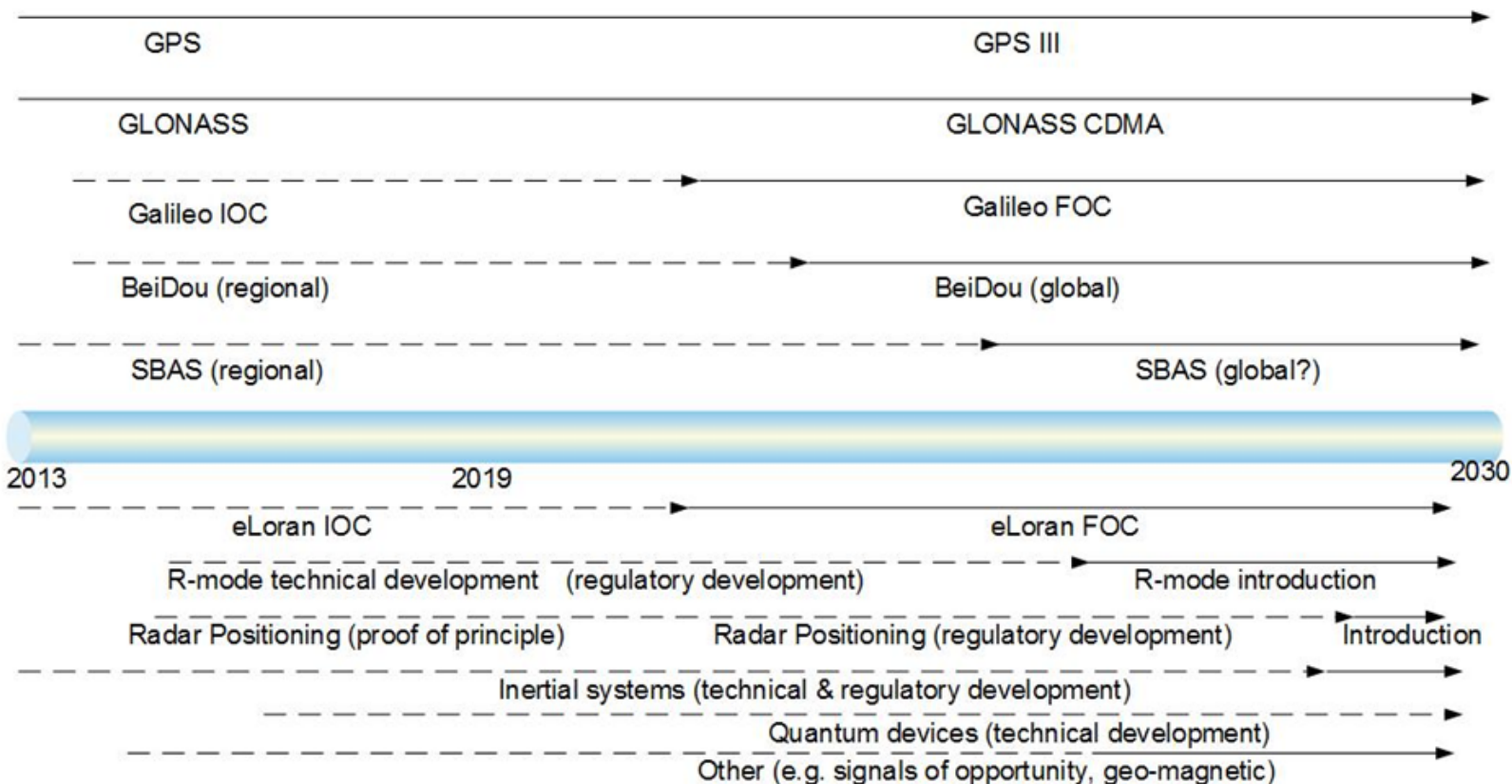




# Timeline for Resilient PNT

## GNSS

————— e-Navigation Introduction —————>



## Complementary systems



# IALA and the future ships

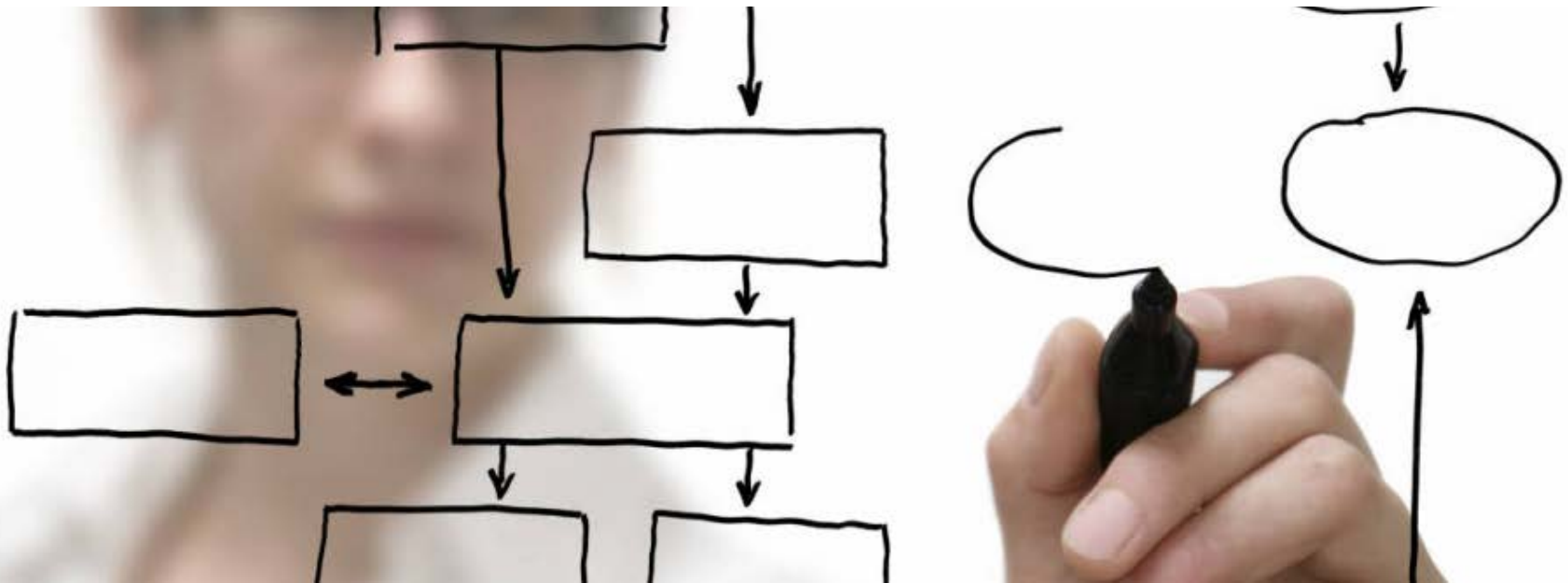
- Shore services
- Resilient Position, Navigation and Timing (PNT)
- **Data Modelling**
- Connectivity







- IMO/IHO Harmonization Group on Data Modeling
- S-200 Series Product Specifications
- Maritime Service Portefolios (MSP)
- Maritime Resource Numbers





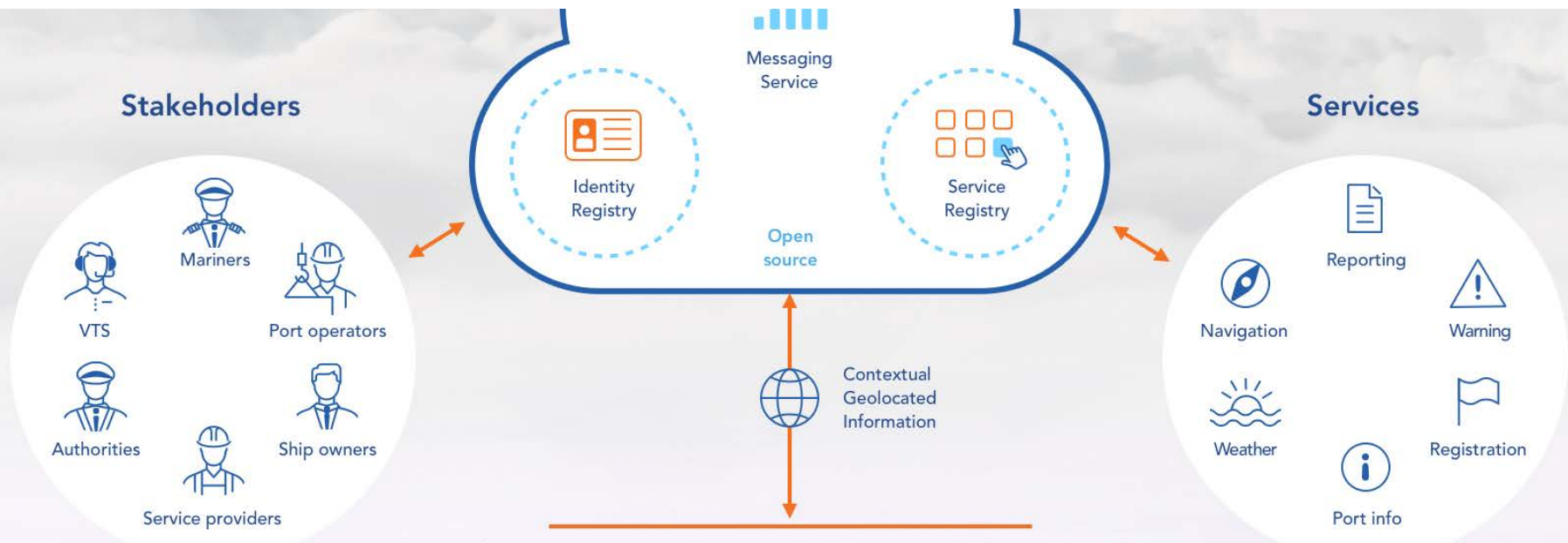
# IALA and the future ships

- 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

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