

DOCKS THE FUTURE Towards the Port of Tomorrow Automated and autonomous maritime transport systems

October 4 , 2023

Capt. Marko Rahikainen
Director of Regulatory Affairs, One Sea Association

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MASS Maritime Autonomous Surface Ships and underwater ROV's



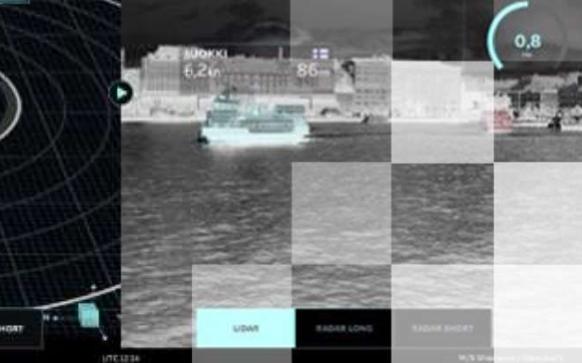
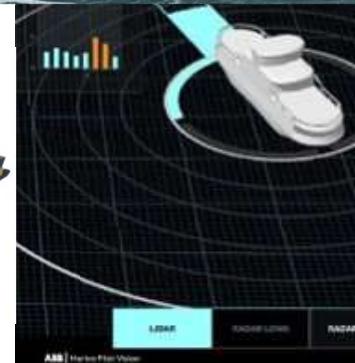
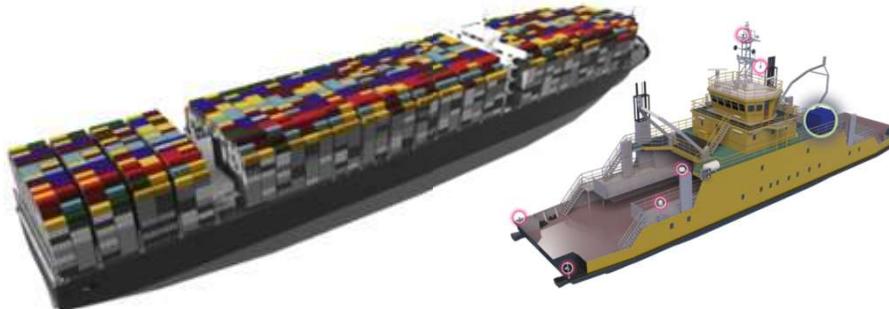
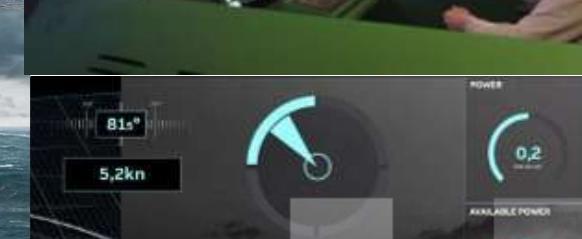
Automated maritime commuter services



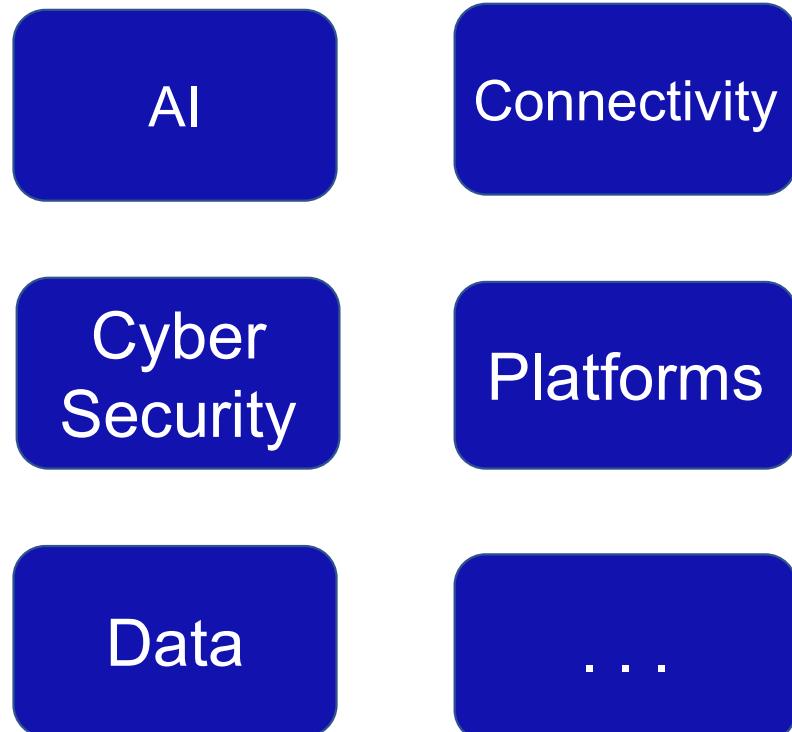
Short Sea Shipping



Ocean going ships



Maritime logistics chain



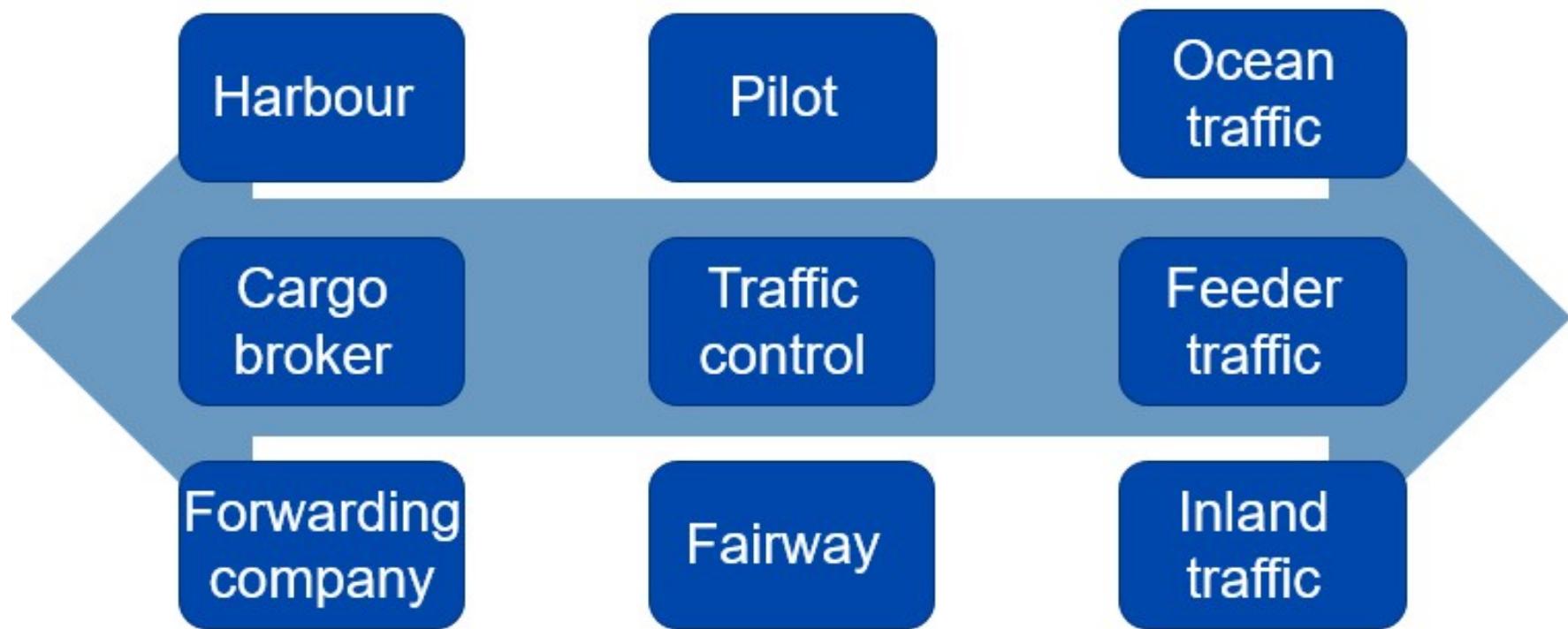
Goal of technology

Support human strengths with the capabilities of technology.

Combining the strengths of humans and technology



Application of technology

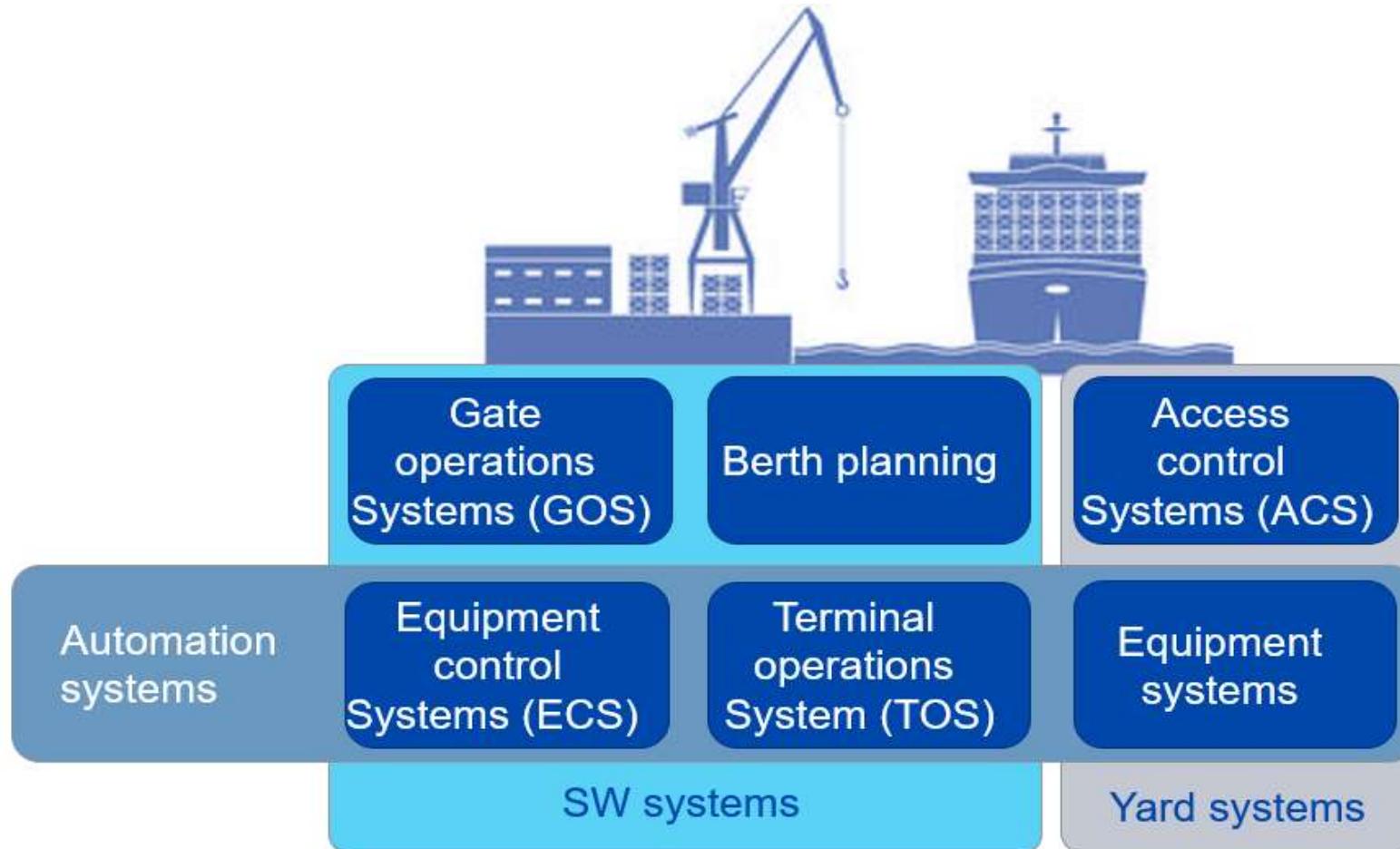


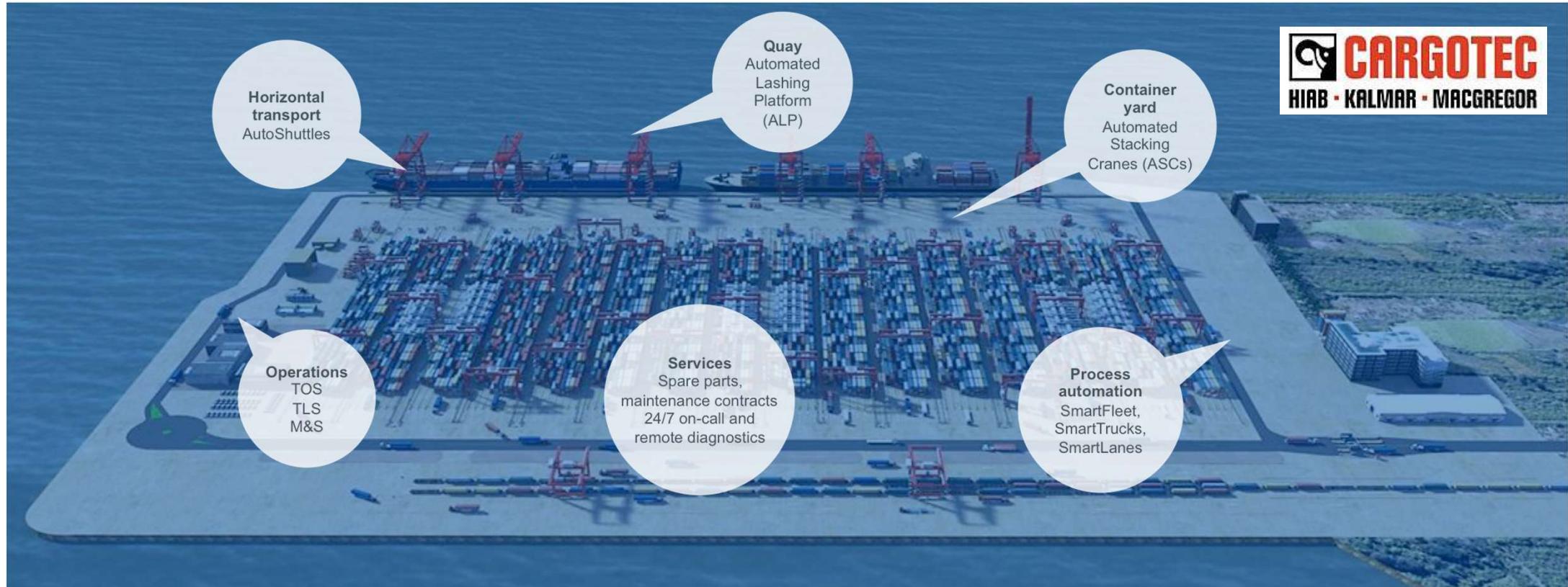
4.5 Million reasons for synchronised progress

- Improved efficiency and productivity
- Enhanced safety
- Reduced environmental impact
- More innovations



Port systems

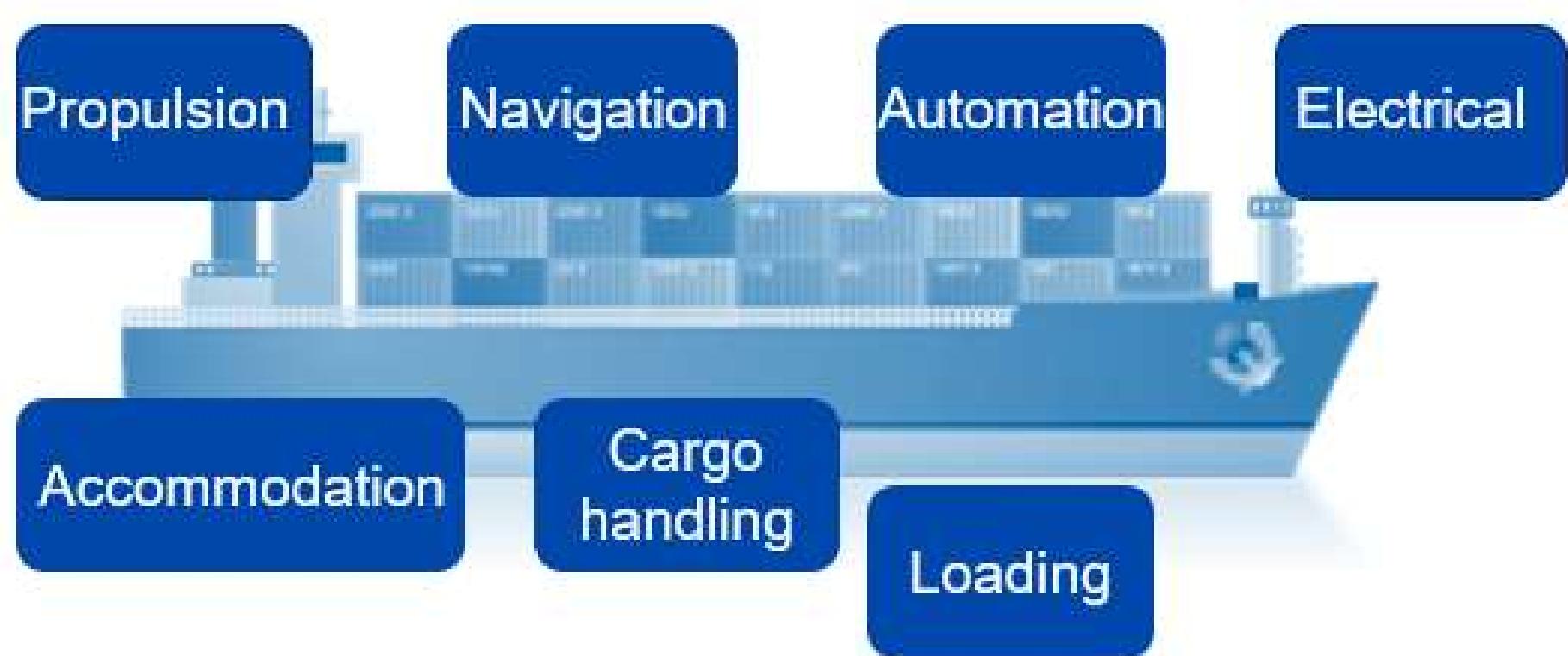




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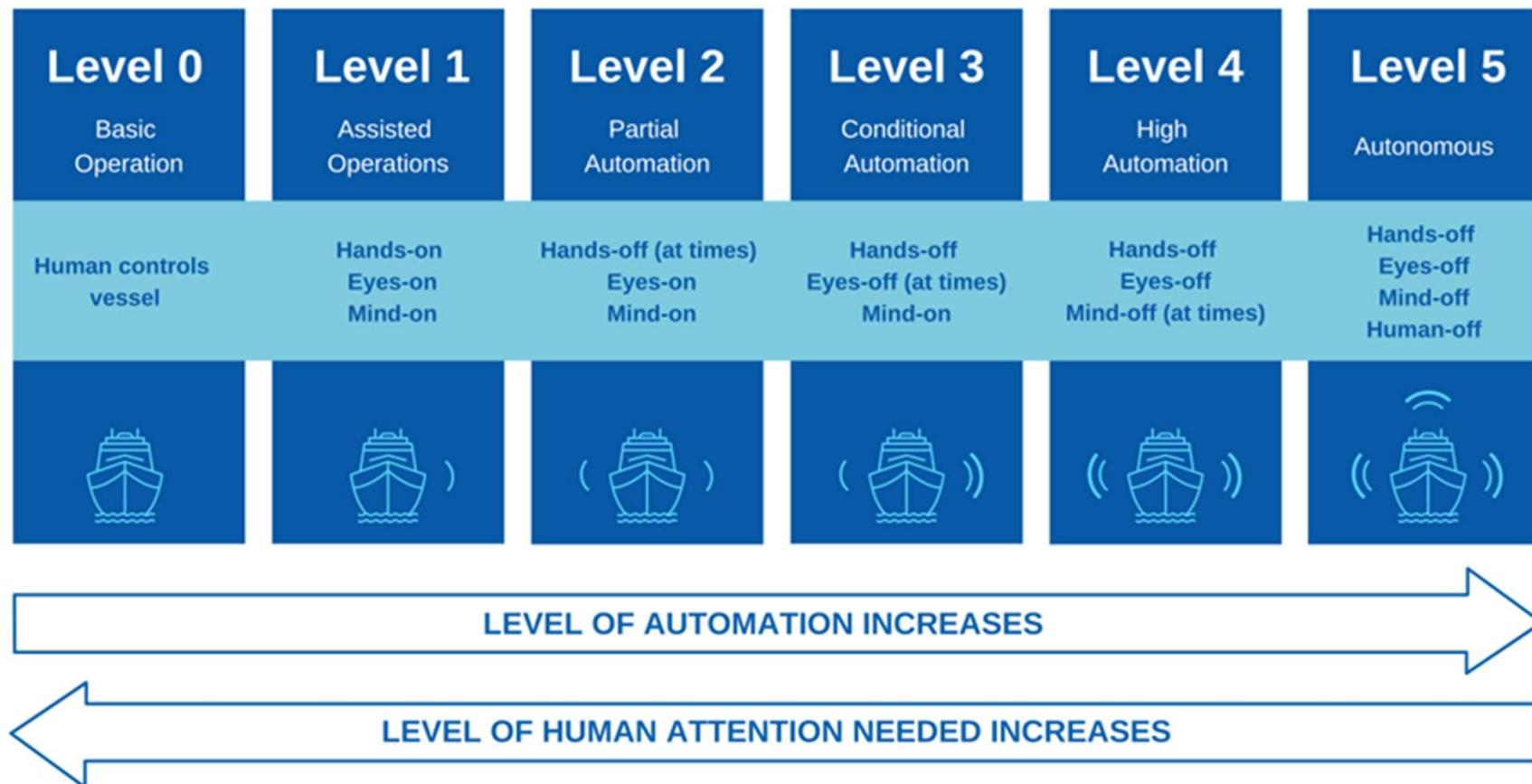
Ship systems



Embracing the system-of-systems approach

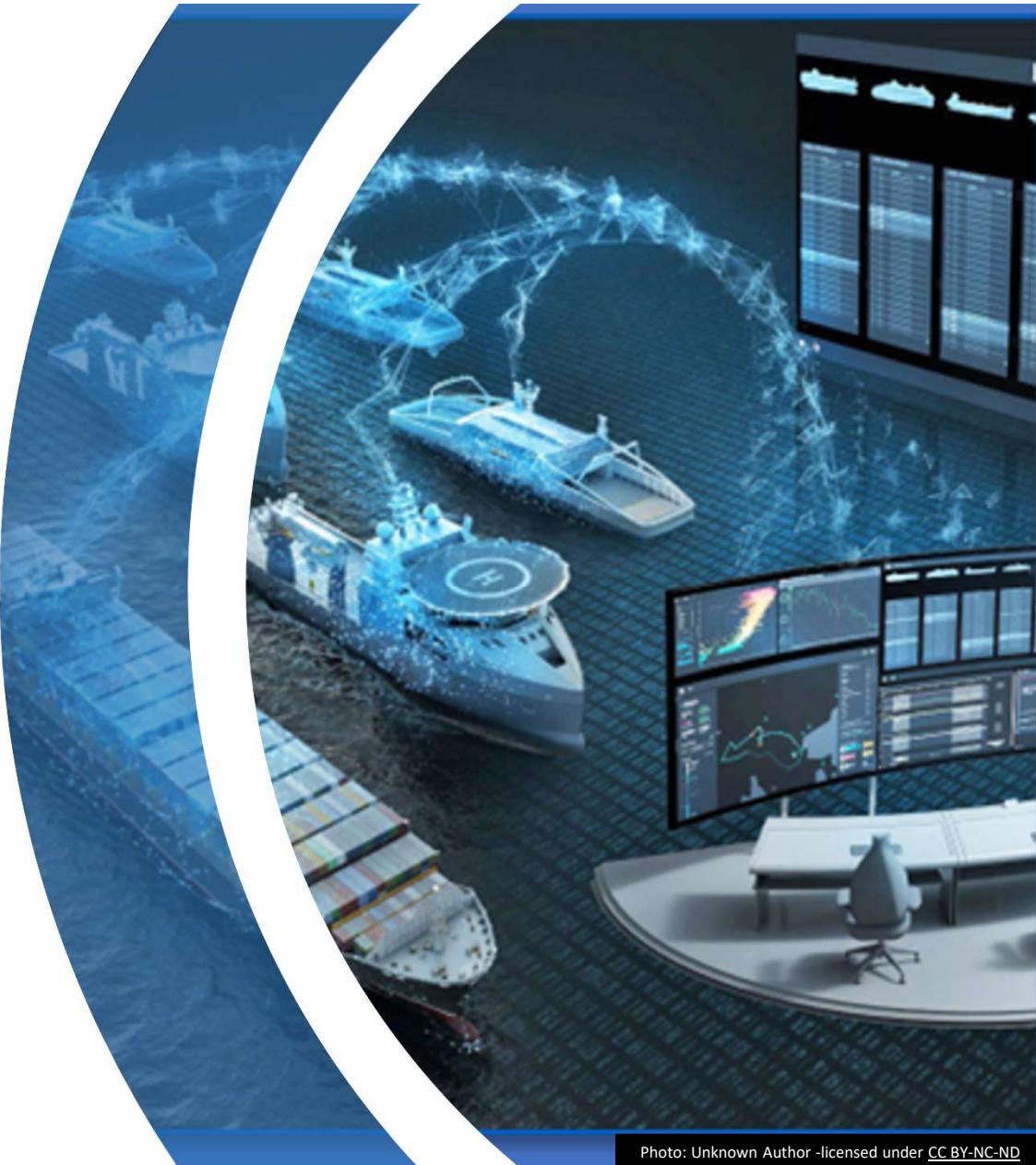
- Automation level of various systems may differ
- Autonomy is a sum of automated functions
- Single fully autonomous system does not make the entire ship autonomous

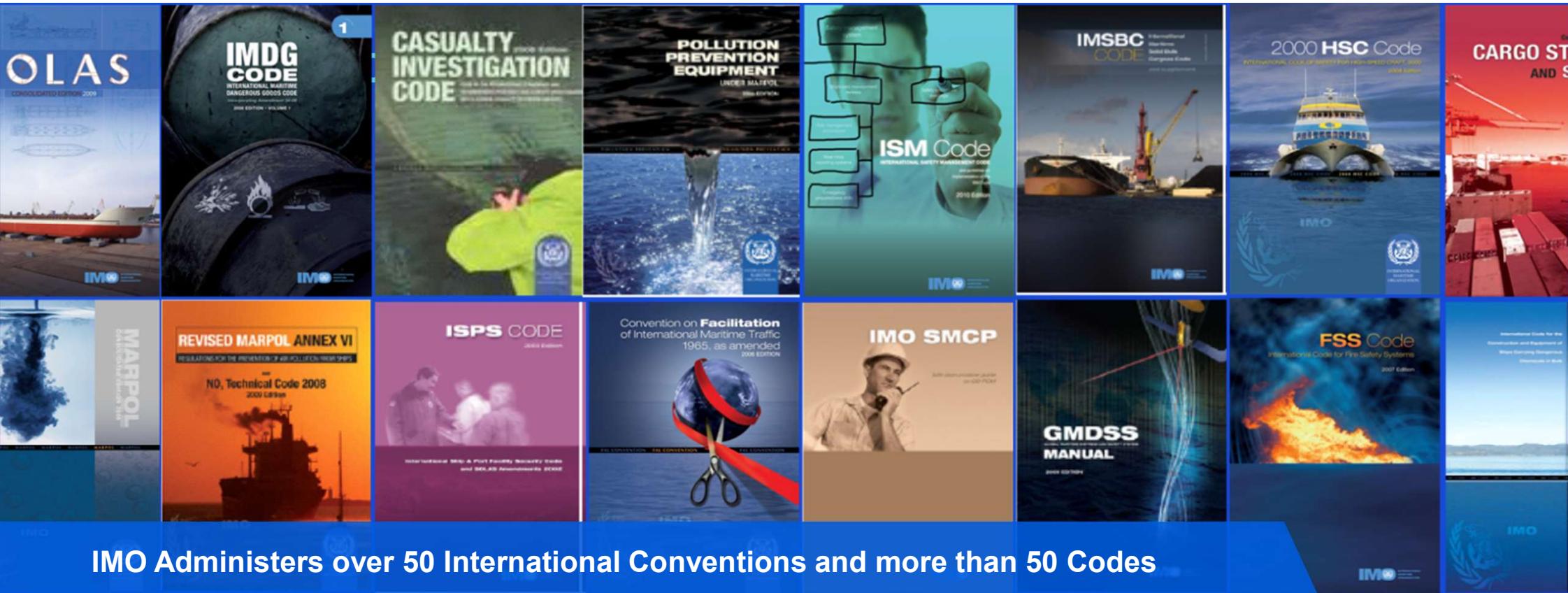




REMOTE SERVICES

Remote Operations Centre means a location remote from the MASS that can operate some or all aspects of the functions of the MASS





IMO Administers over 50 International Conventions and more than 50 Codes

- All these Codes are accompanied by Guidelines, Recommendations, Interpretations etc.
- The whole documentation compiles to over 11 000 documents

Clear and

common terminology

is urgently needed!...to

- Facilitate the discussion,
- Ensure cross modality application,
- Create a seamless transport chain.



Permit to operate

Bi-lateral or multilateral agreements should be the first step to establish international remote or autonomous maritime transport





One Sea Association

✉ info@one-sea.org

🌐 www.one-sea.org

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