




Building a future maritime environment where human ingenuity meets cutting-edge technology

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- 1. Understanding the change – what, why now, and hype vs. reality**
 - 2. Building a strong base for maritime automation and autonomy**
 - 3. Future maritime professionals – no dropouts, please!**
 - 4. Need to navigate together – it is not only about ships**



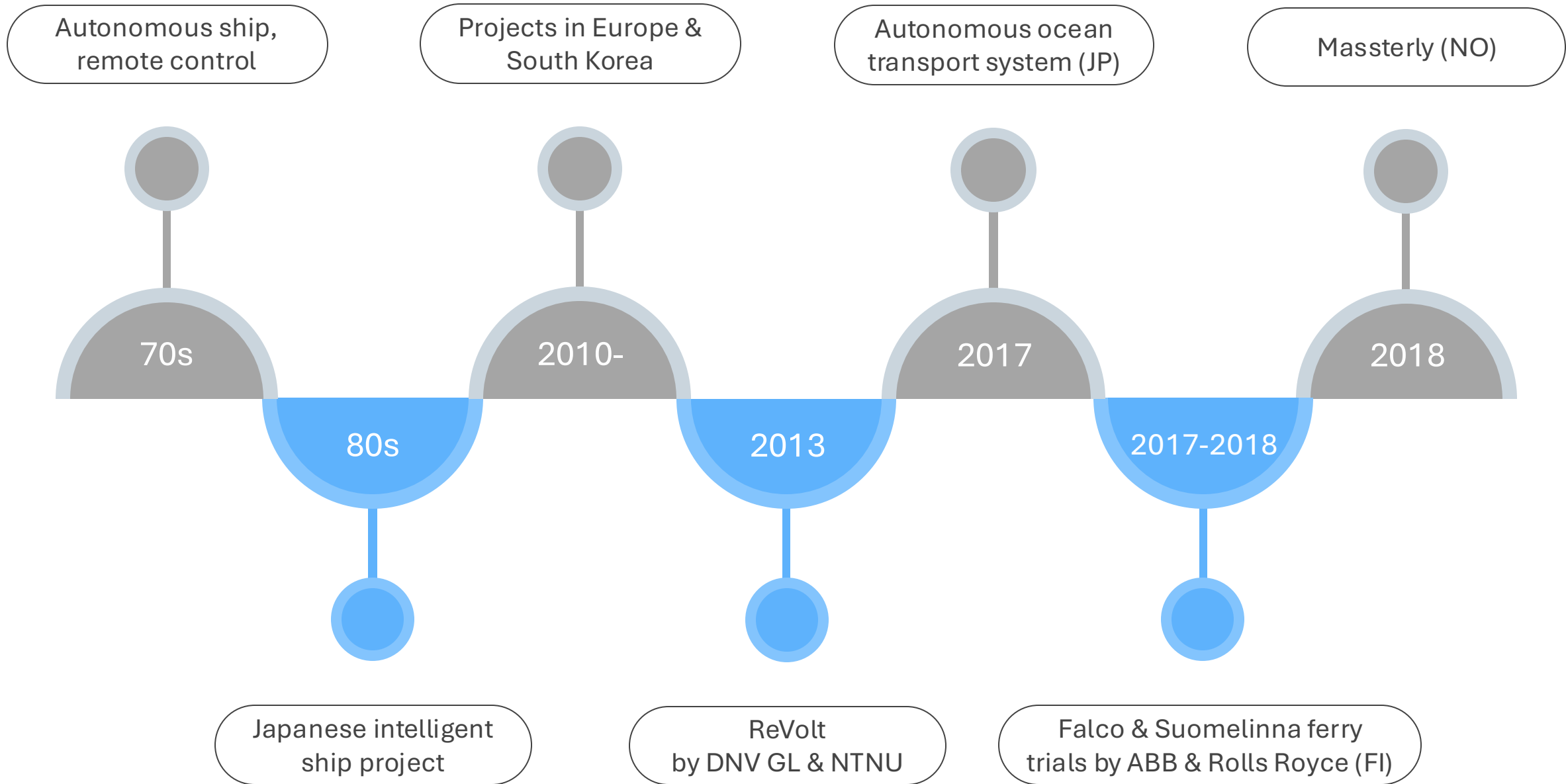
1. Understanding the change – what, why now, and hype vs. reality

MARITIME AUTOMATION AND AUTONOMY IS NOT A NEW IDEA

“In the future, the captains will perform their duties from an onshore office building, and the vessels will be navigated with the use of computers.”

Rolf Schonknecht (1970). Ships and shipping of tomorrow.







Study: Voyage optimization can cut emissions by 7.3 pct

February 14

ABS approves Japanese autonomous shipping project

24 Jul 2023 by Riviera News

We're still waiting for self-driving cars, but autonomous boats are already here

By Nadia Leigh-Hewitson, CNN

Updated 4:27 AM EDT, Fri May 26, 2023

Look, no hands! The autonomous ship is coming closer

BT


David Hughes

Published Tue, Sep 05, 2023 - 4:24 pm

A maritime artificial intelligence (AI) application has demonstrated fuel savings and reduced greenhouse gas emissions for fleets of tankers, ro-ro vessels, container ships and dry bulk carriers... automated situational awareness platform helped [to] ... cut 172,716-tonnes CO₂ emissions in 2023... 33% reduction in close encounters in open waters and a 40% decline in crossing events.

21 Feb 2024 Riviera News





2. Building a strong base for maritime automation and autonomy

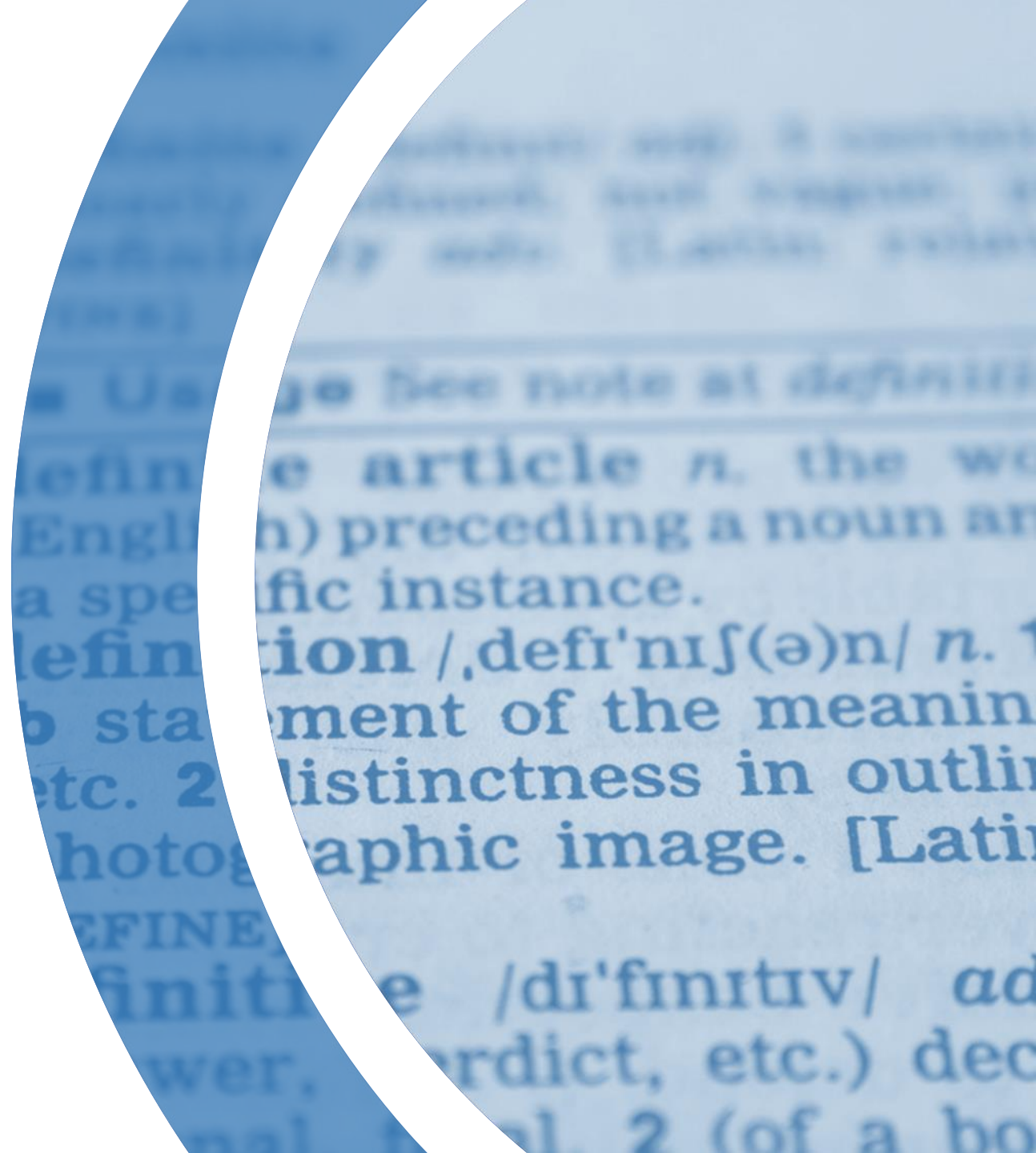
BUILDING BLOCKS OF A SOLID FOUNDATION

- Common terminology
- Shared understanding
- Human-centric development



COMMON TERMINOLOGY

A common terminology is urgently needed to ensure the **efficient creation** of new regulations and support the development of automation **across different transport modes**.



EMBRACING SYSTEM THINKING

A ship is a system of systems.
Instead of seeing a ship as one
big entity, it should be seen as a
collection of systems that
together produce a desired
outcome.



Navigation

Machinery and technical systems

Deck Operations



Voyage Management



Communication



Power generation



Electrical systems



Cargo operations



Mooring and anchoring



Situation Awareness



Ship Control



Steering and propulsion



System monitoring



Other deck operations



Lock and Bridge operations



Electronic Lookout



Collision Avoidance



Auto Docking



Industry's need for regulation
of automated functions

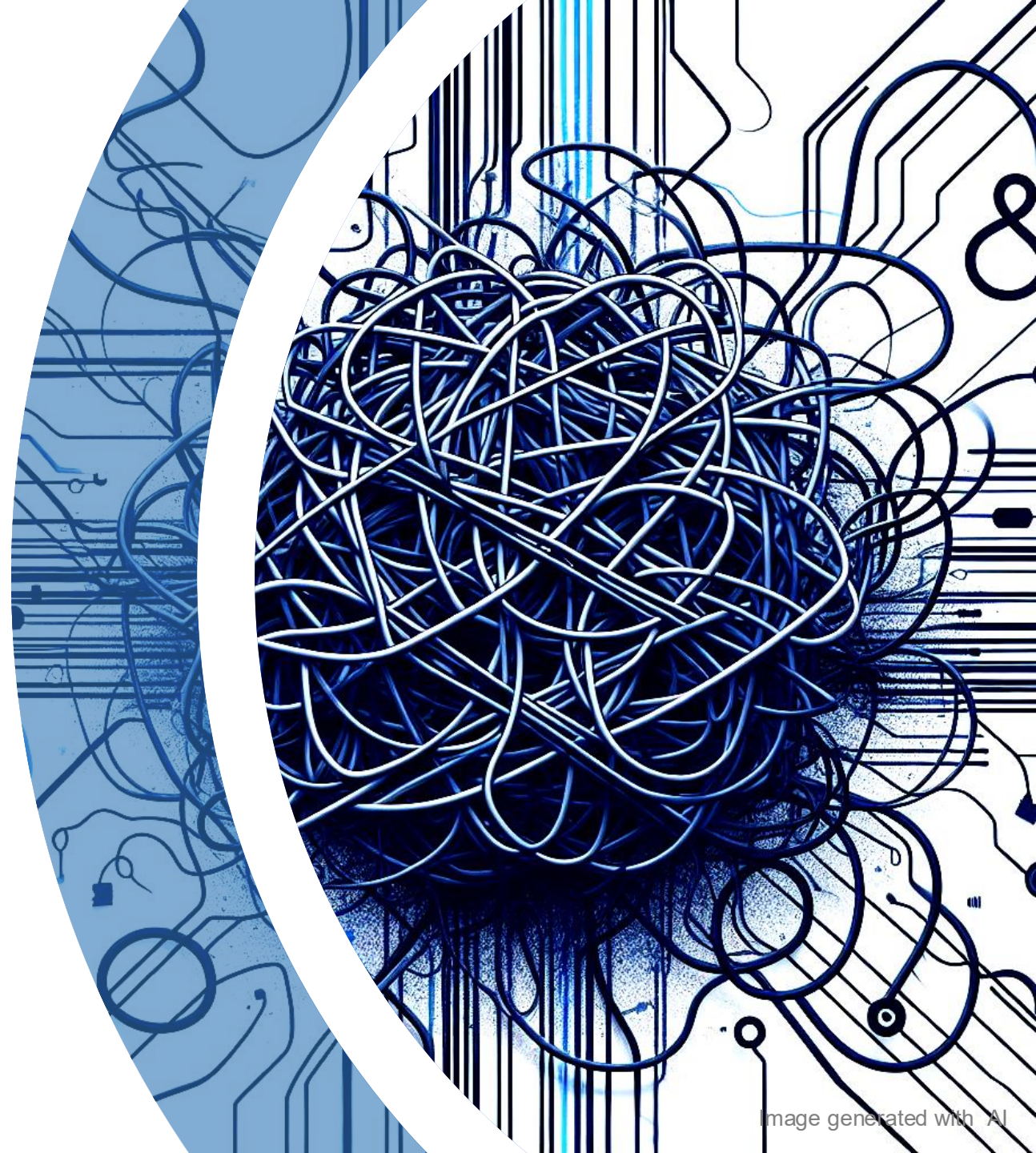
- goals, functional
and performance requirements

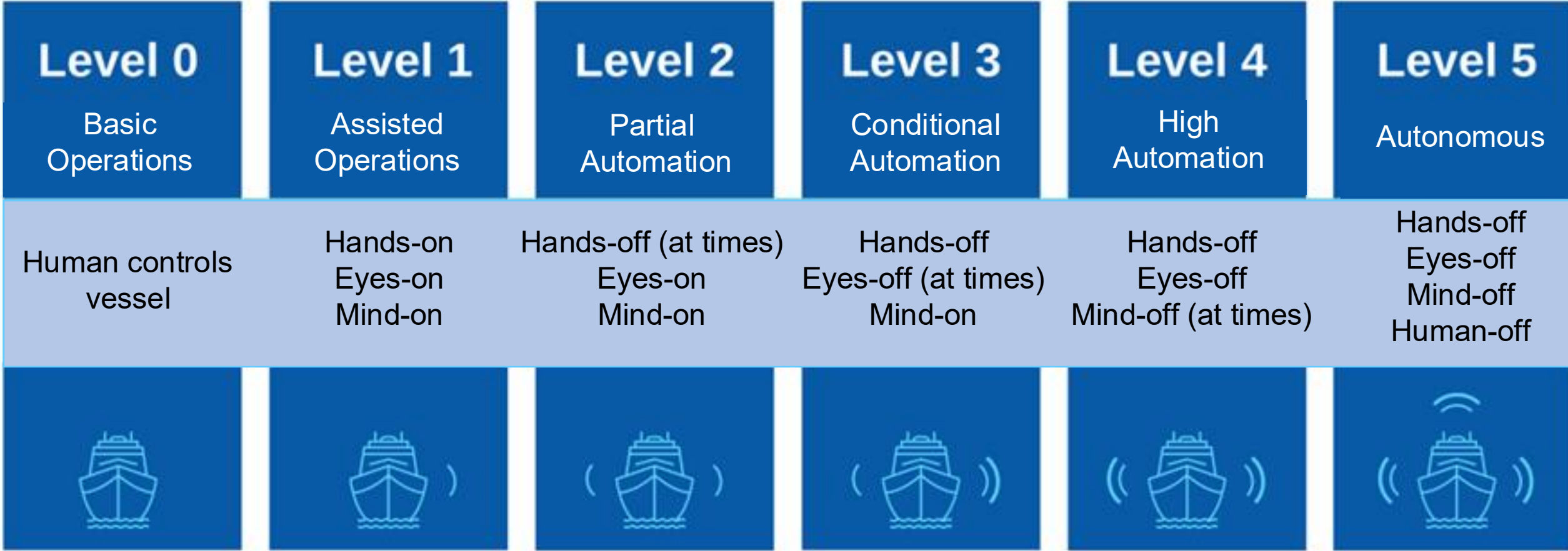
- The automation level of various systems may differ.
- Autonomy is a sum of automated functions.
- **A single fully autonomous system does not make the entire ship autonomous.**



MIXING APPLES WITH PEARS

It is time to **clarify the difference between core concepts** and eliminate the happy mixed use of terms.



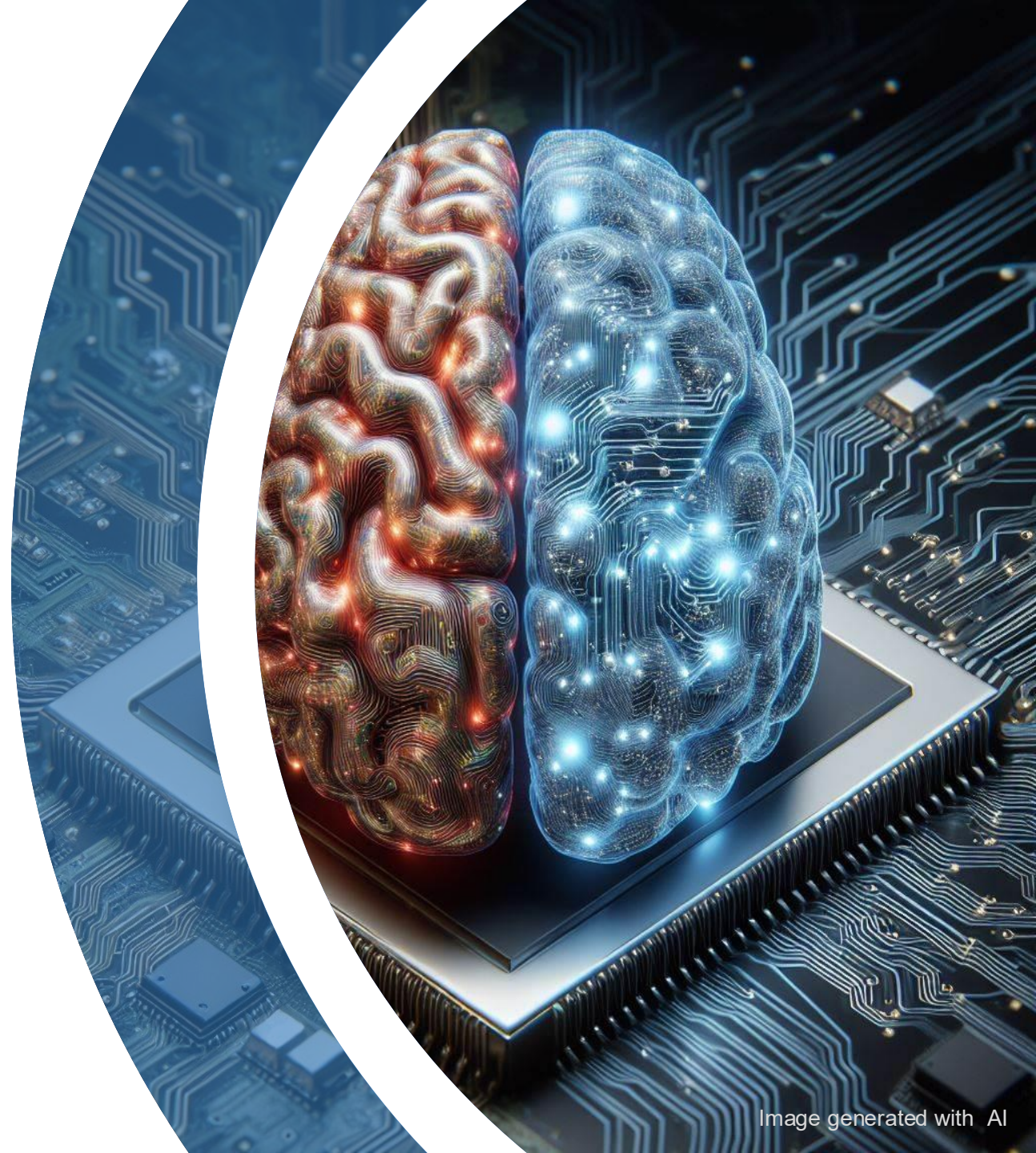




3. Future maritime professionals – no dropouts, please!

HUMAN-CENTRIC DEVELOPMENT

The current aim is to enhance human strengths with the strengths of technology while compensating for human weaknesses.



NO DROPOUTS, PLEASE!


We should create a future where current seafarers and other maritime professionals are able to maintain their expertise and professional pride.



IMPACT OF EVOLVING TECHNOLOGIES ON MARITIME CAREERS

- Previous, current, and new skills converge
- Cultural change progresses
- Change management becomes critical
- Emergence of new professions





4. Need to navigate together – it is not only about ships

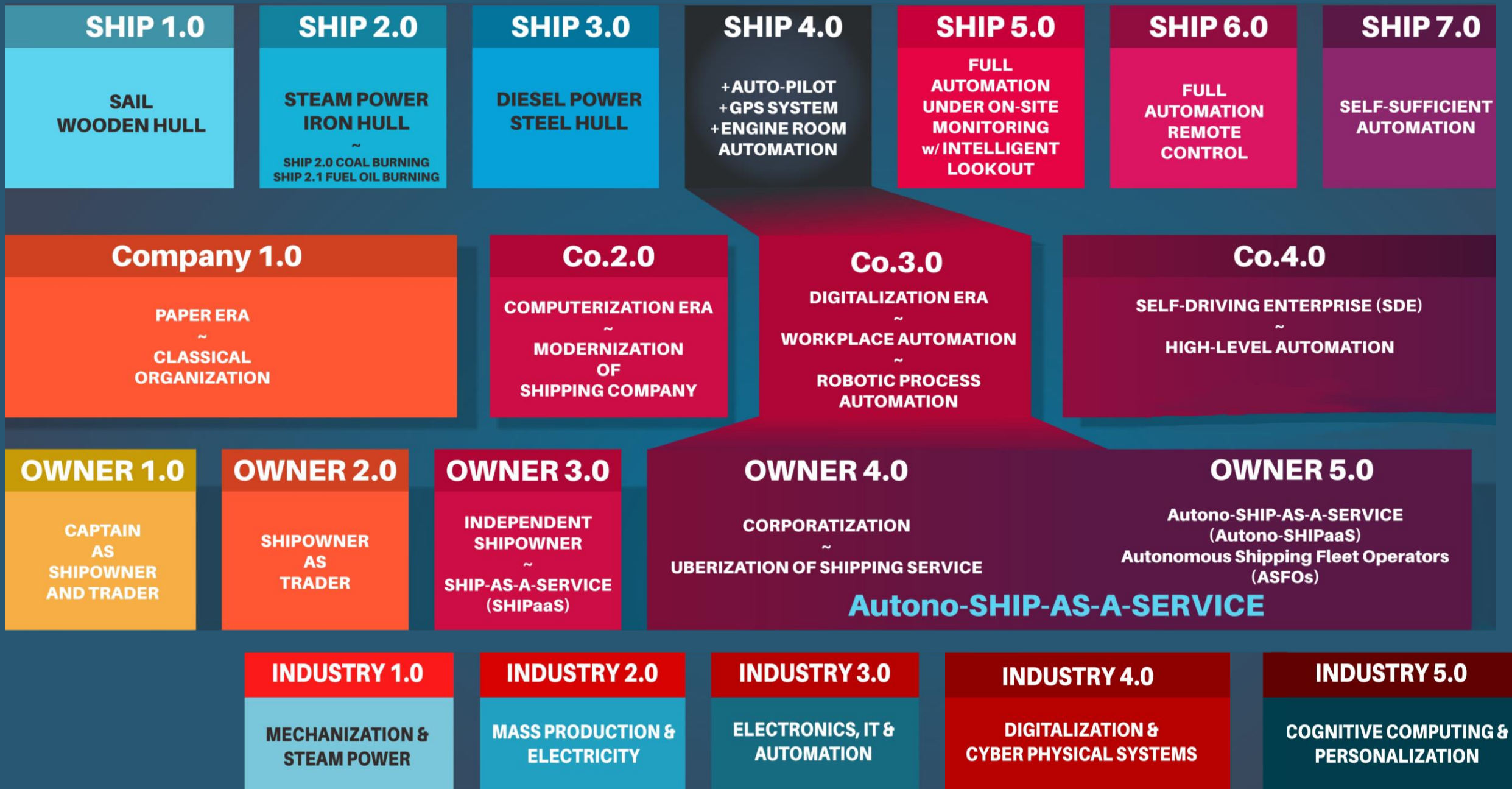
MARITIME TRANSPORT CHAIN

We have 4.5 million reasons to ensure the **synchronised development** of ship and port automation.



”Operating a fleet of smaller MASS at a higher frequency has quantifiable effects on inventory management while increasing flexibility and therefore resilience in the dependent supply chains.”







In summary...

The evolving technology creates transformation

- from manual to automated
- from digital to intelligent
- from operations to monitoring
- from traditional and existing to "something new"



**Yet, the fundamental need remains.
Cargo still needs to be transported
from point A to point B...**

- safely and efficiently,
- in compliance with regulations and agreements,
- by providing support to professionals onboard and onshore
- through jointly developed reliable technology.




Fully leveraging the opportunities offered by technology requires...

- extensive collaboration,
- enabling legislation,
- sustainable development.





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**ONE
SEA**