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KONGSBERG MARITIME

The Value of Human Factors in the process of developing secure systems

18/10/2023

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Cyber Security, Remote & Autonomy and Systems



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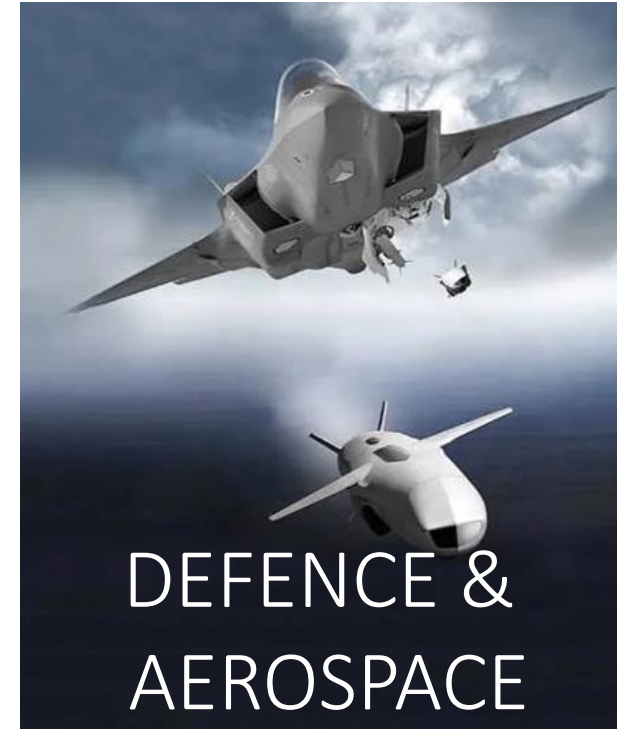
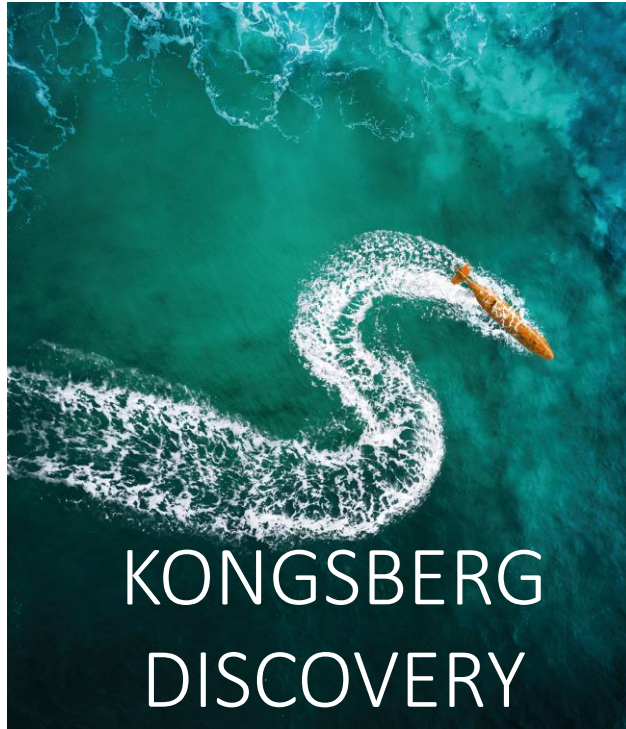
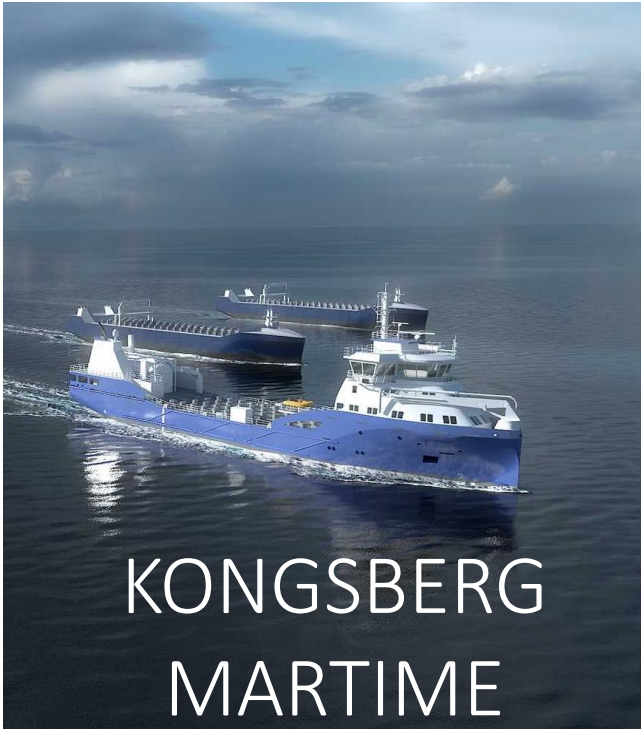
KONGSBERG SIZE AND SCOPE





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KONGSBERG – 4 strong business areas

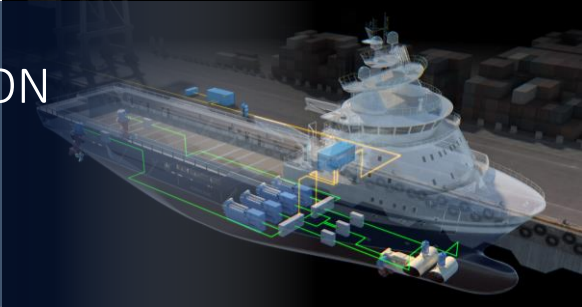


WORLD CLASS – Through people, technology and dedication

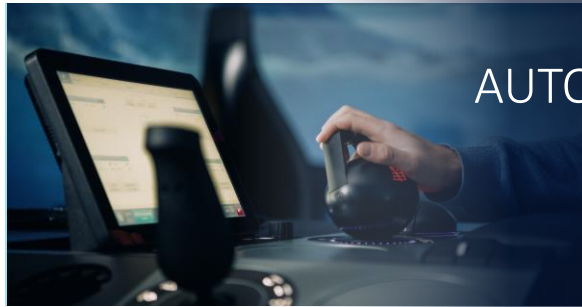


Kongsberg Maritime in brief

INTEGRATION
& ENERGY



AUTOMATION &
CONTROL



PROPULSION
& HANDLING



24/7 GLOBAL
CUSTOMER SUPPORT



GLOBAL SALES AND OPERATIONS

Protechting
people
and planet



6,000+
employees



19 BNOK
revenues*



32
countries



Equipment on
33,000 vessels

*2022 FY. Incl. Kongsberg Discovery



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Remote & Autonomous

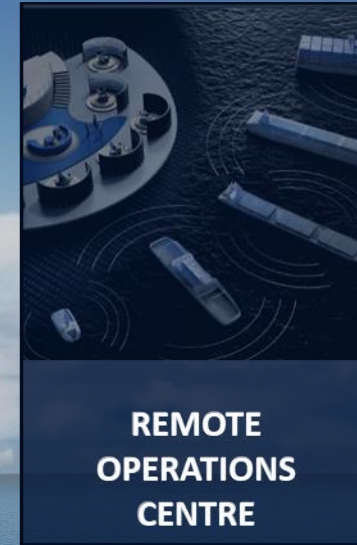
Integrated solutions



VESSEL
SYSTEMS



CONNECTIVITY
SYSTEM



REMOTE
OPERATIONS
CENTRE



The pioneer trail,
towards an **autonomous future**



Remote & Autonomous

Integrated solutions



Fully electric **autonomous** coastal feeders
- zero emissions





Remote & Autonomous

Integrated solutions



Future proofing sustainable subsea services through
remote and autonomous operations





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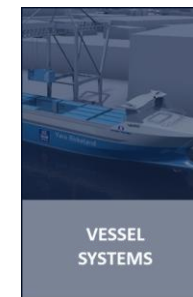
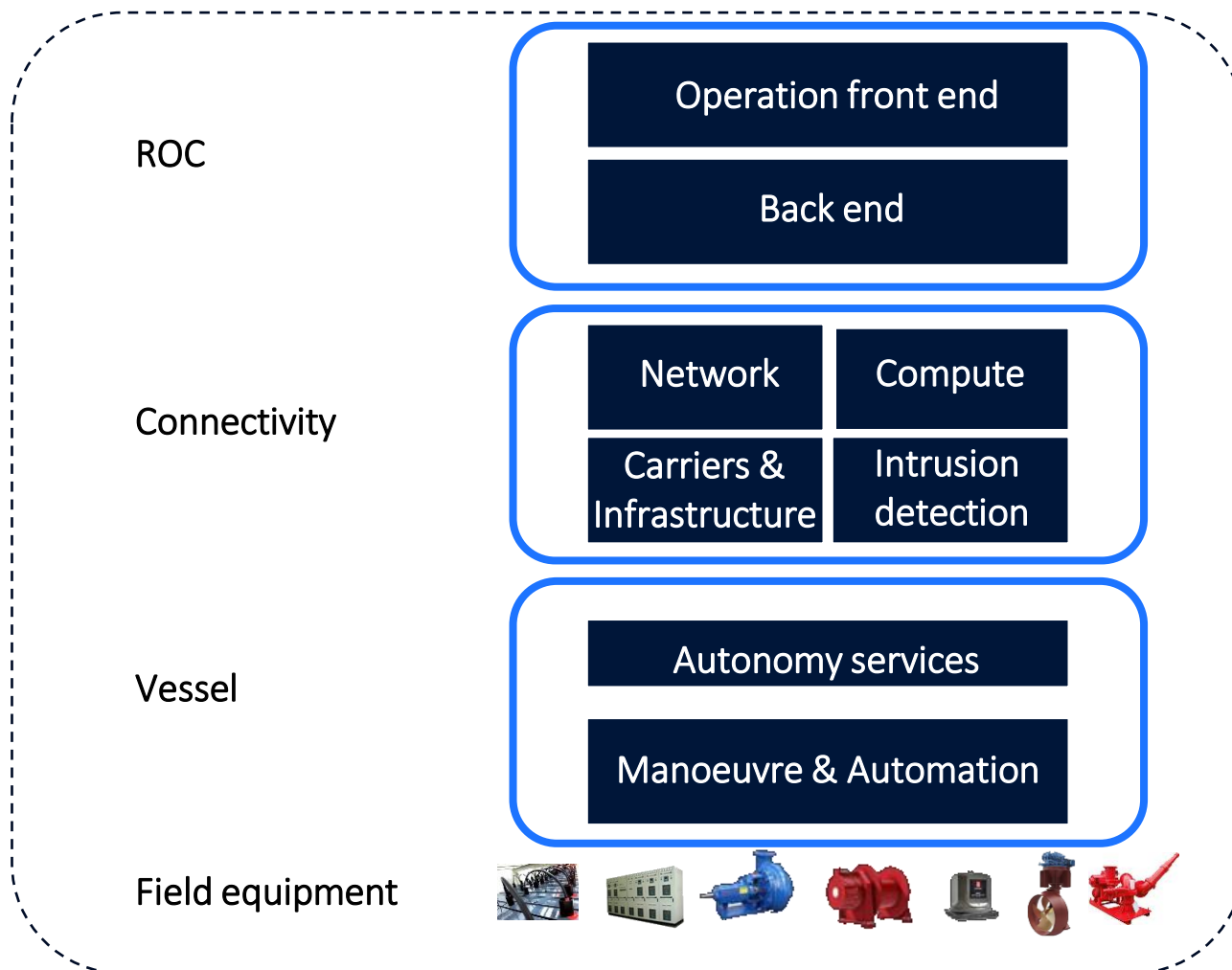
Remote & Autonomous Integrated solutions

Fully electric **autonomous** road ferries
- zero emission



R&A Integrated solution

Architecture overview



Enabling remote operations of vessels in a safe, efficient and secure manner.

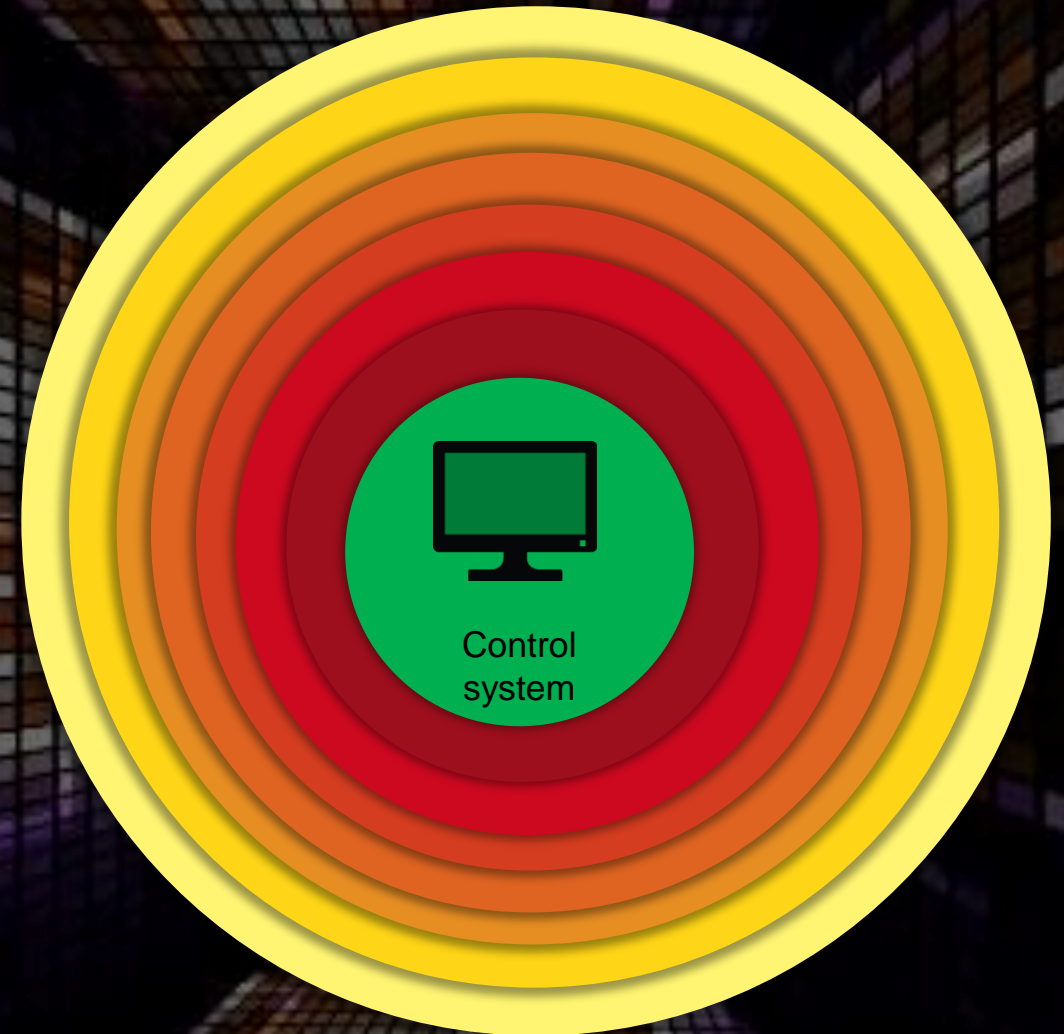
Provide a cyber secure, redundant, reliable and available communication link between vessels and remote operation centers.

Enable reliable and secure operations of unmanned vessels.

Cyber Security – Strategy

Layers of Cyber Security protection

- Physical security
- Procedures and policies
- Firewalls and network architecture
- Computer policies
- Account management
- Security updates
- Anti-Malware Protection solutions
- Software implementation





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The Customer's Journey

A Conservative Industry



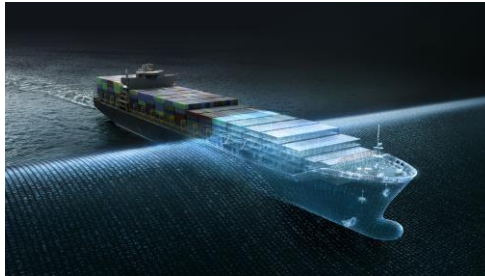
- 25 year vessel lifetime





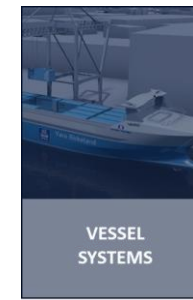
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**Manned
vessel
operation**



The Customers' Journey

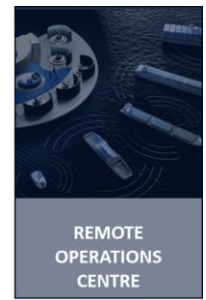
An Evolution – not a Revolution



VESSEL
SYSTEMS

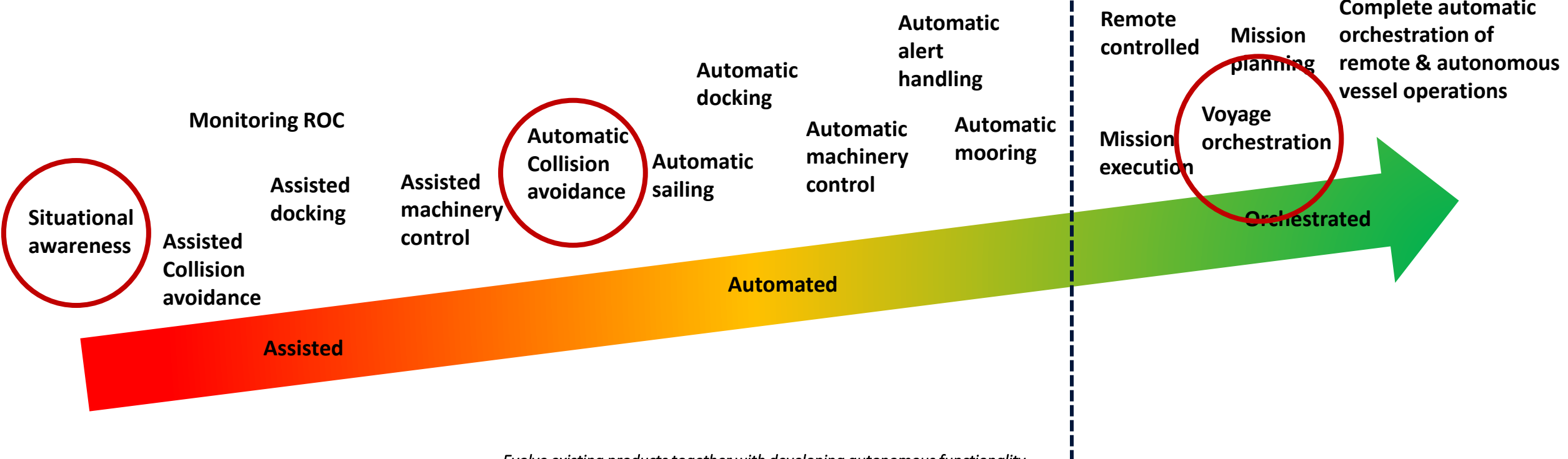


CONNECTIVITY
SYSTEM



REMOTE
OPERATIONS
CENTRE

**Unmanned
vessel
operation**



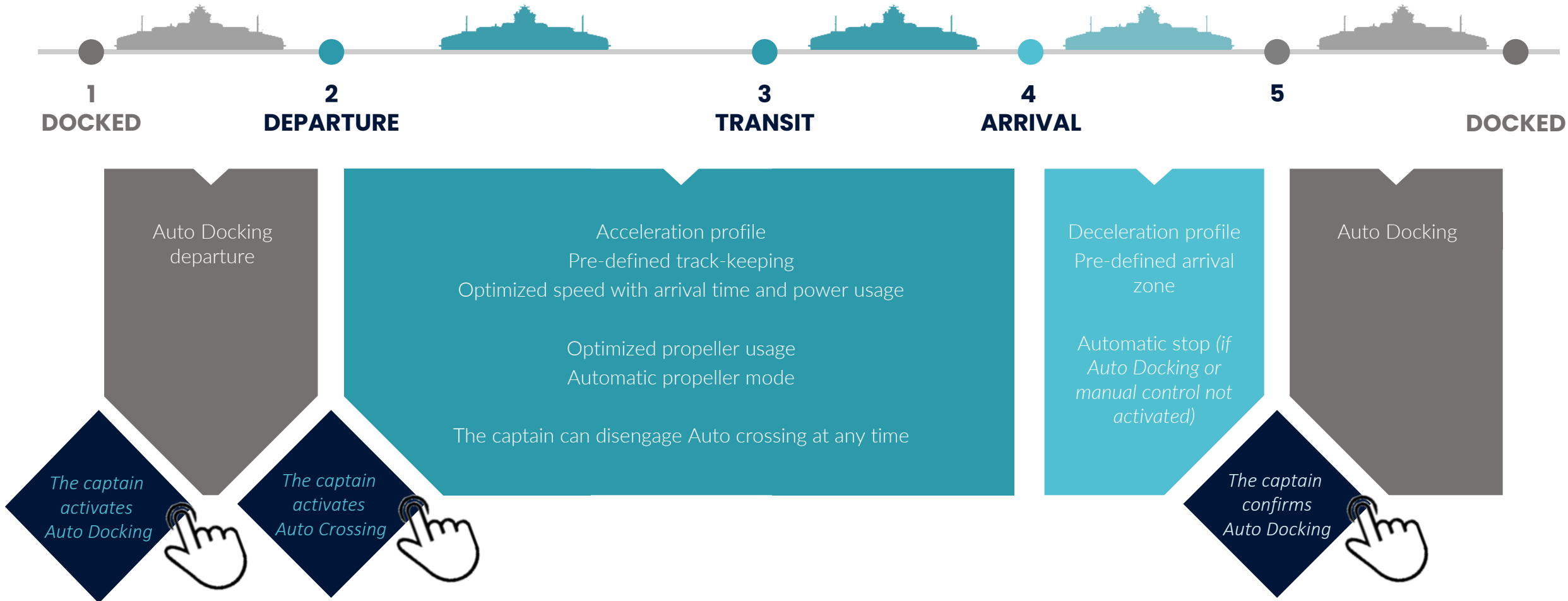
Evolve existing products together with developing autonomous functionality



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System Operation

Auto Crossing and Docking





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Value Proposition

People – Planet – Profit

Potential



BUSINESS

- Increasing revenue
- Increasing attractiveness
- Enabling lean operations
- Talent retention and attractiveness

Cash



COST

- Reducing crew costs
- Reducing fleet operation costs
- Reducing newbuild vessel costs
- Reducing fuel costs

Potential



SUSTAINABILITY

- Reducing traveling for onboard crew change
- Optimizing fuel and energy consumption
- Supporting emission regulations

Potential



RISK

- Reducing overall risk due to transparency and availability of data
- Reducing risk of interruption

Potential



SAFETY

- Reducing human errors
- Increasing situational awareness
- Removing humans from hazardous environments



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Value Proposition

Customers' Perceived Value

...depends on Customers'

- Speed of Adoption
- Risk Management Maturity
 - Risk Evaluation
- Long-term vs short-term focus
- Competitors



BUSINESS



COST



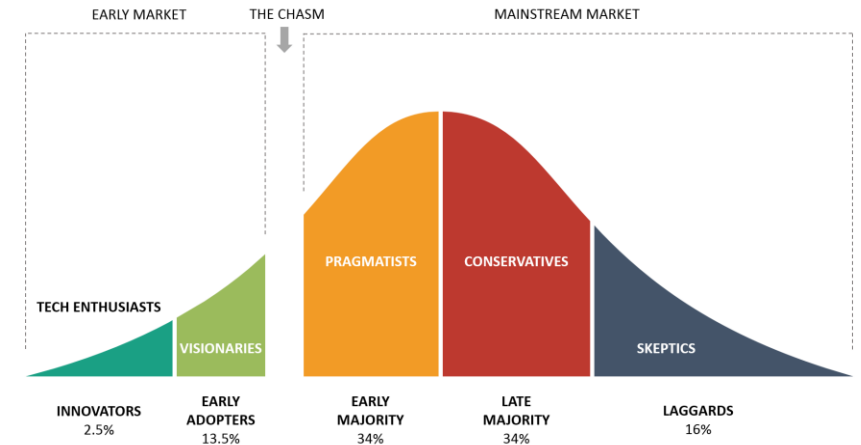
SUSTAINABILITY



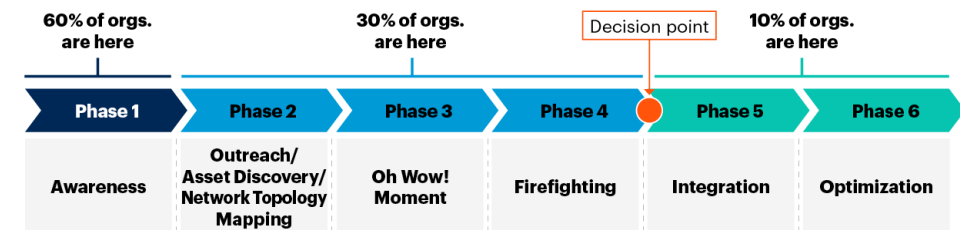
RISK



SAFETY



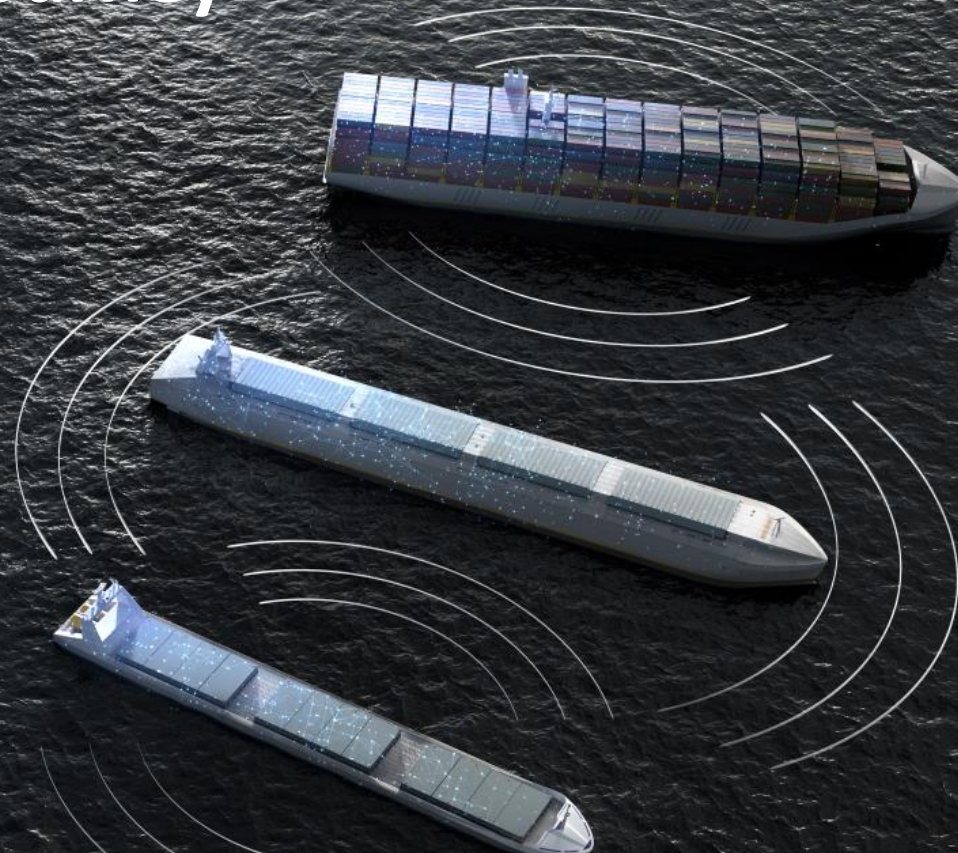
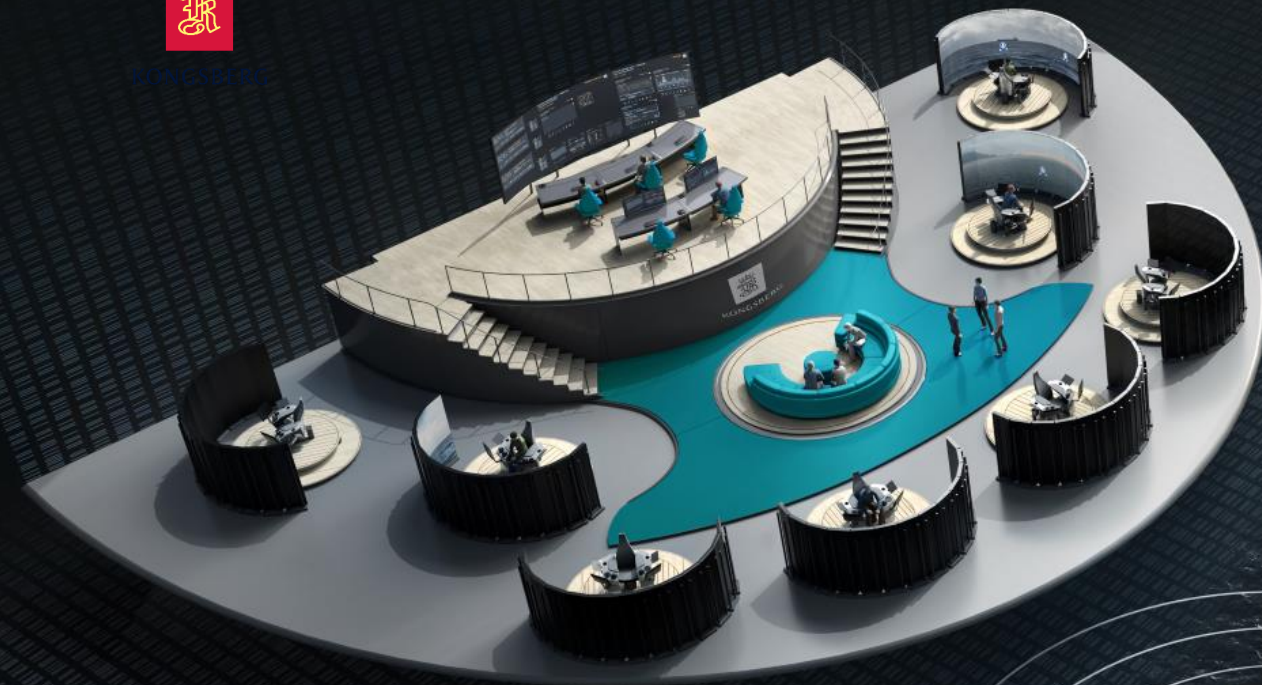
The OT/CPS Security Journey



A Digital Journey



RÖNNEBERG



Technology is a driver
Communicating Risk is the enabler

Thank You.



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Protecting people and planet

