



# **NAPLES SHIPPING WEEK SHIPPING TECHNOTREND**

**Centro Congressi Stazione Marittima**

**27 Settembre 2018**

**Seafarer 4.0: risks and opportunity for the  
training**

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# THE ITALIAN MARITIME ACADEMY

The Italian Maritime Academy Foundation is a Public High Technical School (ITS) in the area of sustainable mobility, and specialized in the port and maritime sectors.

It is an educational establishment supported and promoted by the Italian Ministry of Education, University and Research (MIUR).

The Head Office is situated at Villa Candida in Genova.

Two other Training Centres are located in Arenzano at Villa Figola de Geneys and at Villa Spinola Grimaldi in Lavagna



# THE ITALIAN MARITIME ACADEMY



The Academy provides Training Courses for:

- Deck and Engine Cadets
- Logistics and transportation
- Cruise Guests support services (catering and hospitality)
- On board services management

In addition, the Academy organizes advanced training courses for Captains and Chief Engineers, Deck Officers and Engineers, mandatory courses for navigation (ECDIS, radar, etc.), maritime education for developing Countries (IMSSEA), and other courses in dedicated areas such as chef and pastry/baker chef.

# Marine 4.0 – the Ship Digitalization era

1.0 Steam engines

1860 – 1910



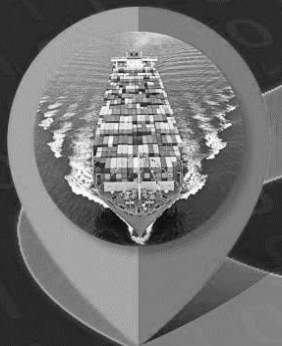
2.0 Mass production

1940



3.0 Containerization

1957



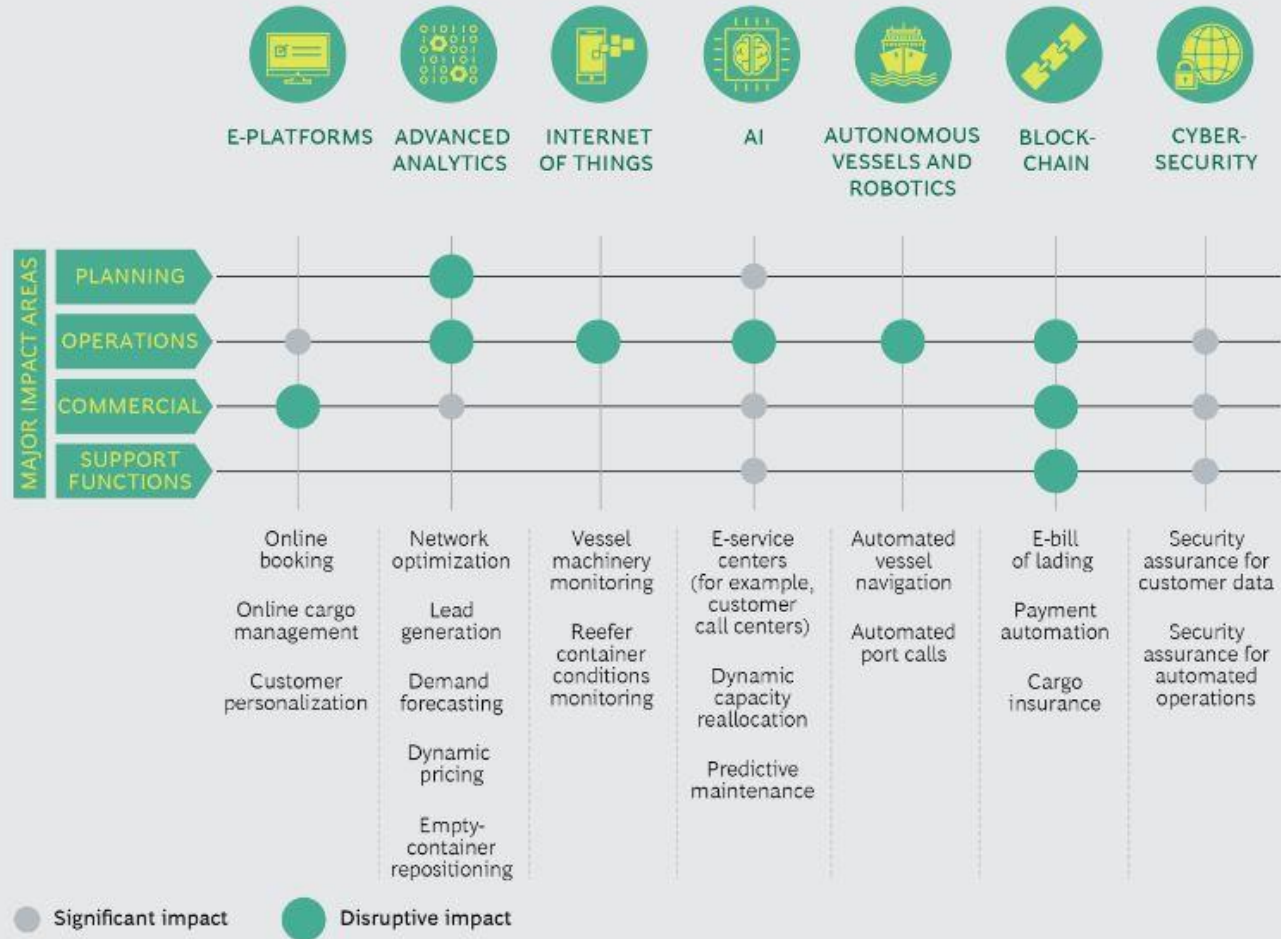
4.0 Digitalization

2010+



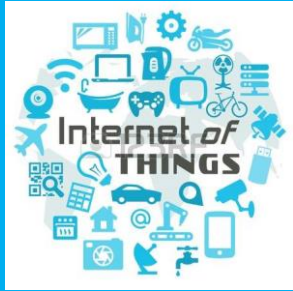
# DIGITALIZATION IN THE MARINE INDUSTRY

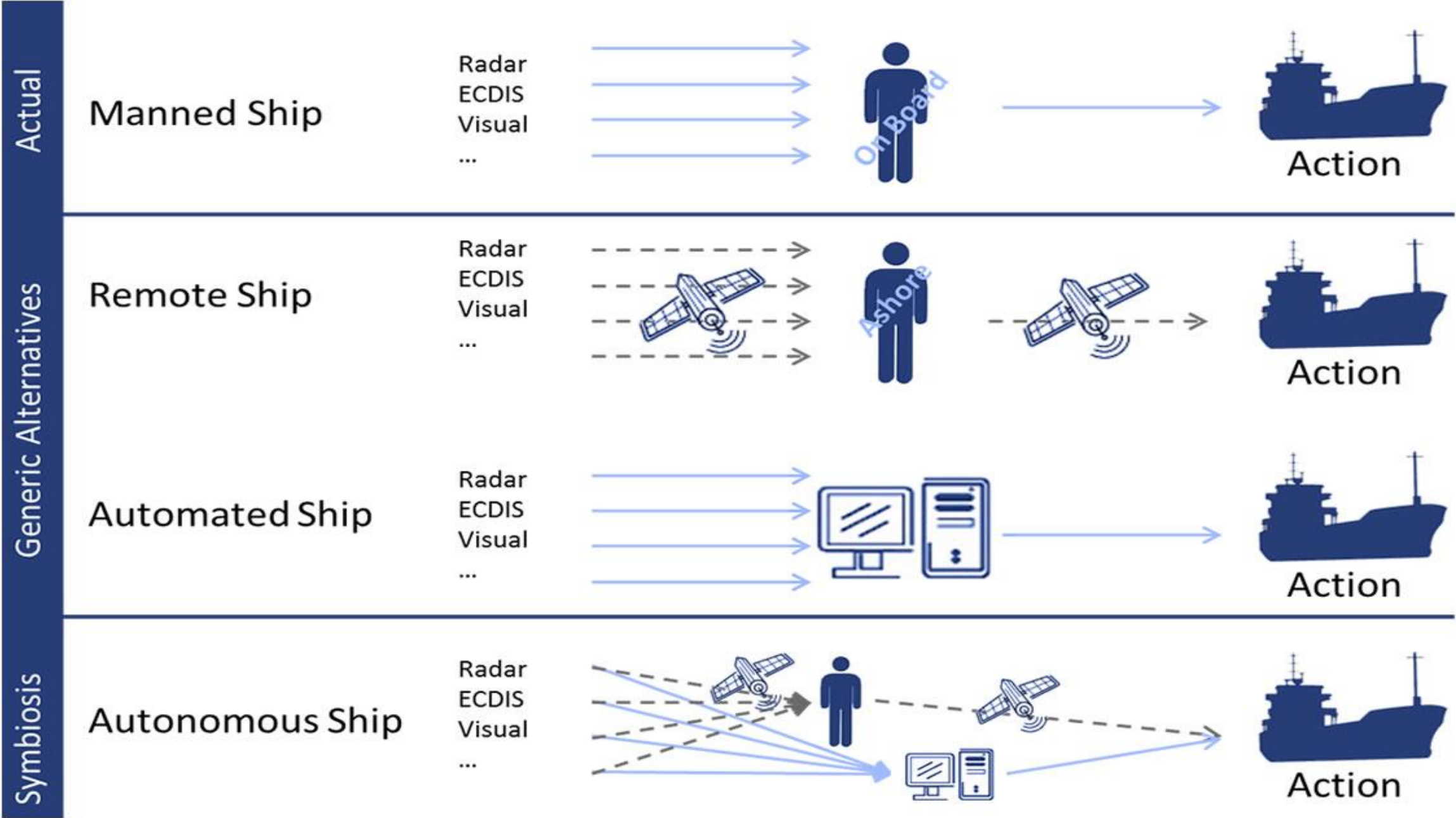
EXHIBIT 2 | Seven Digital Trends Will Transform Container Shipping



Source: BCG analysis.

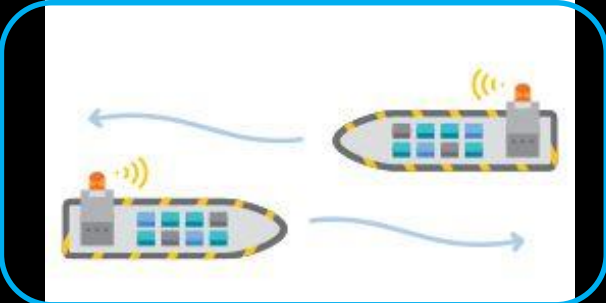
# EMERGING TECHNOLOGIES



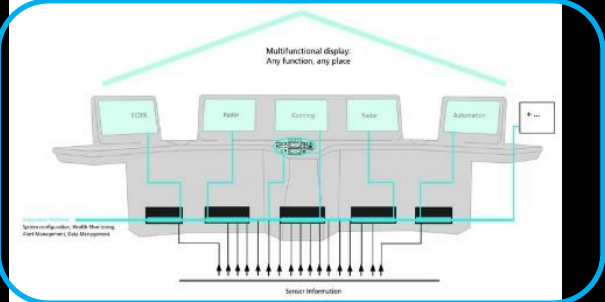


# SMART SHIP

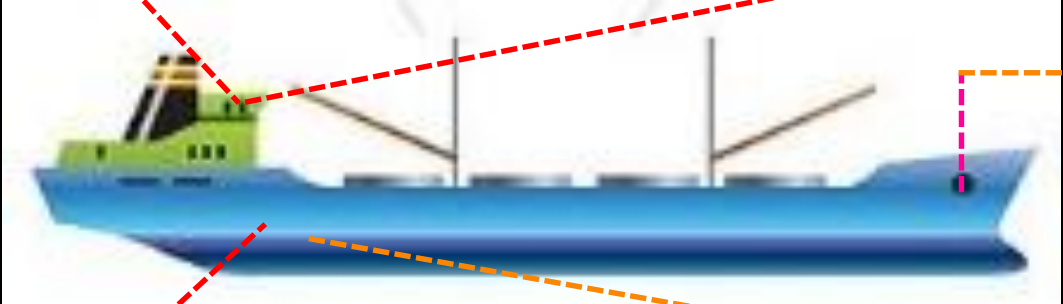
COLLISION AVOIDANCE



ROUTE PLANNING



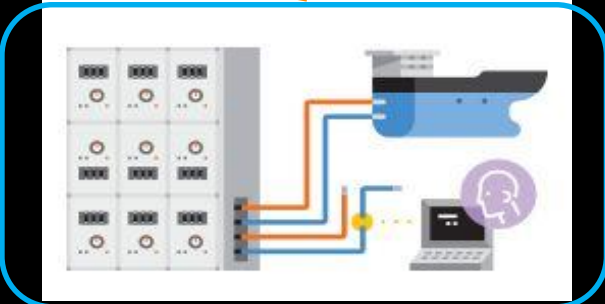
HARBOUR OPERATION



SHORE CONTROL CENTRE



PROPULSION CONTROL

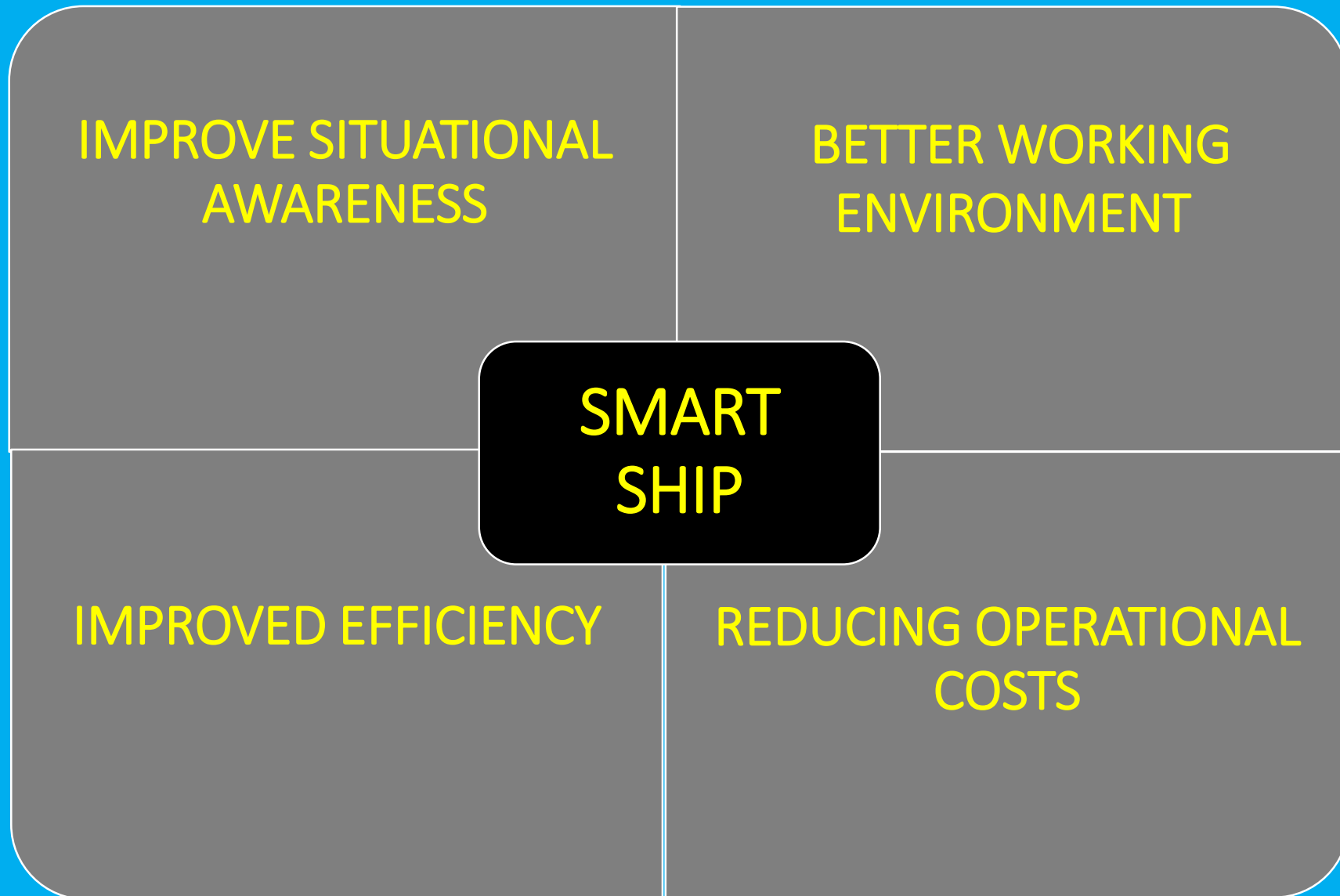


POWER & ENERGY MANAGEMENT

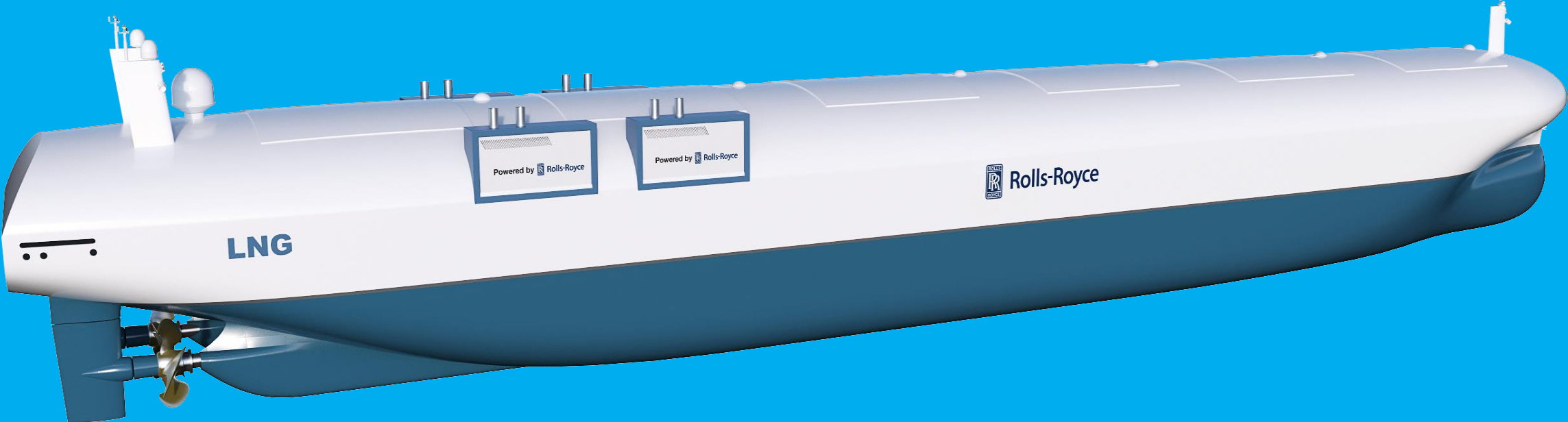


KPI MONITORING

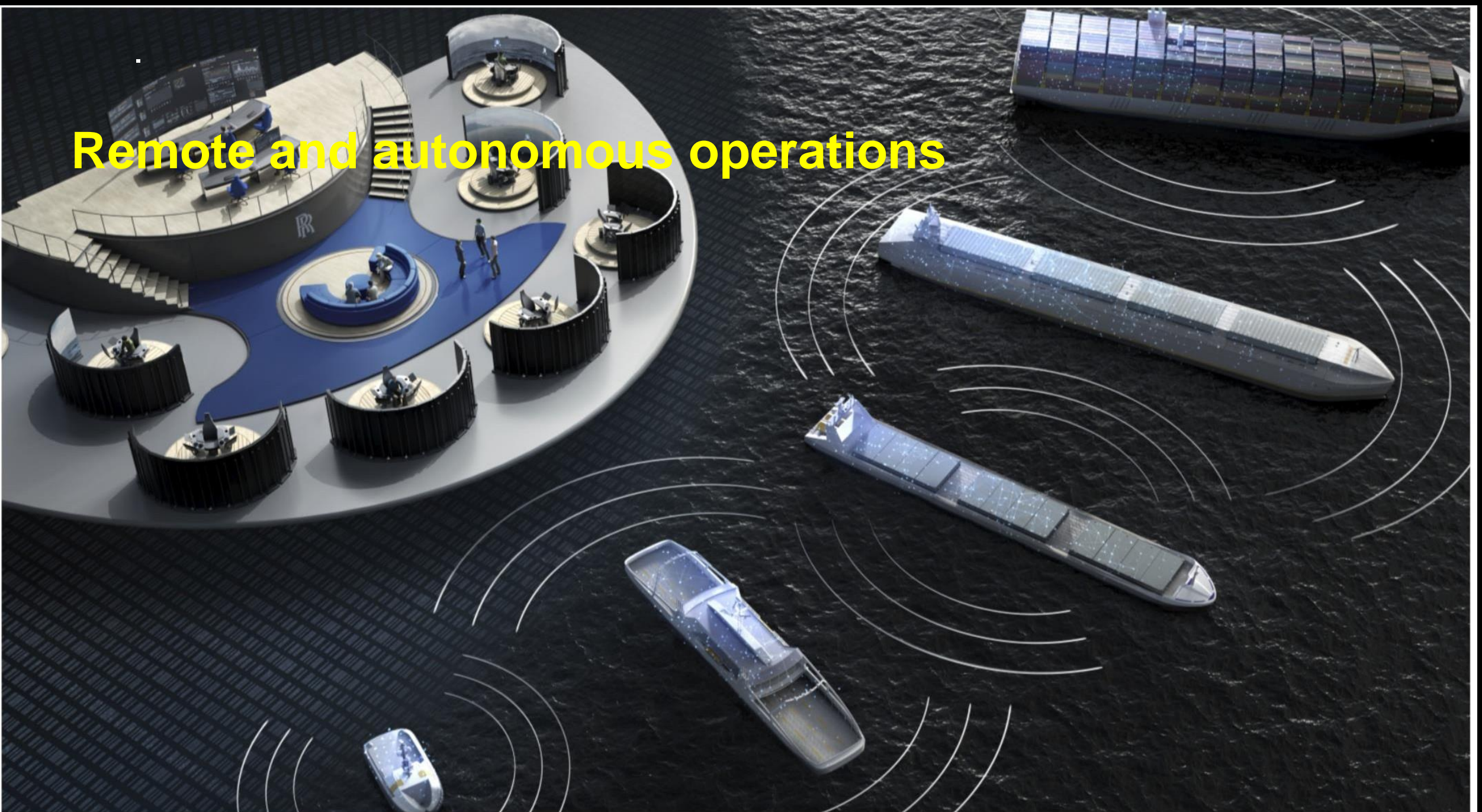
# SMART SHIP OBJECTIVES



# AUTONOMOUS SHIP



# Remote and autonomous operations



# E-NAVIGATION



**E-Navigation (IMO MSC 85 ):** *“E-navigation is the harmonized collection, integration, exchange, presentation and analysis of marine information on board and ashore by electronic means to enhance berth to berth navigation and related services for safety and security at sea and protection of the marine environment”.*

# NEW OPERATIONAL STRATEGY



Modern ships are more and more «high-tech containers» requiring an integrated approach to operation.

The role of officers and engineers shifts from that of a traditional operator to a «resources manager», able to analyze and evaluate large amount of data and information for achieving safe and efficient operation of the vessel.

This especially in cases where emergency conditions occur, like automatic control systems failure, and the officers/engineers are be able to take home the vessel



# NEW TRAINING REQUIREMENTS



- Hybrid propulsion
- Gas fuelled ships (IGF Code)
- Smart ships
- Autonomous ships
- Environment Awareness & Energy Management
- Polar waters operation

New methods of training supporting class room:

- ✓ WEB based training and e-learning
- ✓ Real time simulators
- ✓ Virtual reality

# NEW COMPETENCIES



- Process large amounts of data
- Focus on critical issues
- Work with remote teams
- Understand the possible evolution of the operational situation (situational awareness)
- Learn continuously
- Cope with increased stress
- Communicate effectively
- Lead people

# ELECTRICAL – ELECTRONIC ENGINEER



- Responsible for the maintenance and repair of electrical systems onboard, including:

- Generators and motors
- Main and auxiliary distribution system
- Frequency converters
- Transformers

- Responsible for the maintenance and repair of electronic systems onboard, including:

- Automation system
- Navigation system
- Communication system, etc

- Interface to shore control centre for refits and upgrades

# IT OFFICER



- Monitor and maintain the computers hardware, operating systems and application software (back up management)
- Manage the back up of all software programs installed onboard
- Monitor and maintain the computer networks
- Support for trouble shooting and repairing
- Update the computer systems configuration
- Management of cyber security according to the Company policy
- Interface to shore control centre for updates and upgrades

# CONCLUSIONS



- ❑ Training is about practice, about skill, about learning how to do things. It is different from education that is about theory and understanding values
- ❑ Owners should have a systemic approach to training
- ❑ Training is an asset requiring investments to maintain its value and it is part of a continuous improvement process
- ❑ Owners should consider to form consortia for training to share the costs
- ❑ Incentive plans should be provided by Government

*“This new ship here is fitted according to the reported increase of knowledge among mankind. Namely, she is cumbered end to end, with bells and trumpets and clock and wires, it has been told to me, can call voices out of the air of the waters to con the ship while her crew sleep...*

*But sleep Thou lightly.*

*It has not yet been told to me that the Sea has ceased to be the Sea...”*

*Rudyard Kipling*