

4TH ANNUAL FERRY SARETY AND TECHNOLOGY CONFERENCE, MARCH 21, 2018

Electric ferries and the use of data

Technology & Decision Making

Ryan Bishop, Sales Director NAM

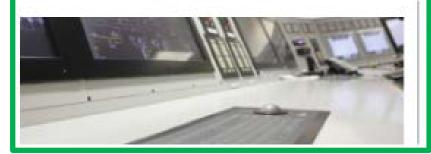


ABB Marine & Ports

Total integrated offer for the marine market



Integrated marine automation and marine software and analytics



Power Generation & Distribution Power Generation and Distribution, Onboard DC Grid and Dynamic AC



Propulsion

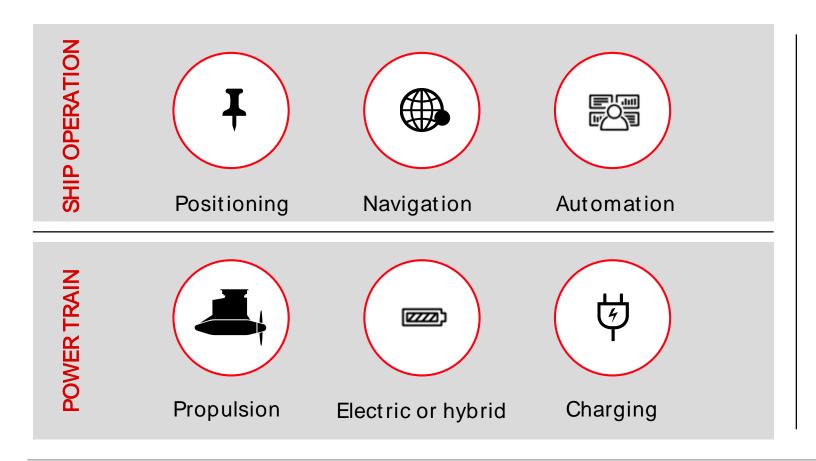
Electric Propulsion Azipod® propulsion and Thruster units

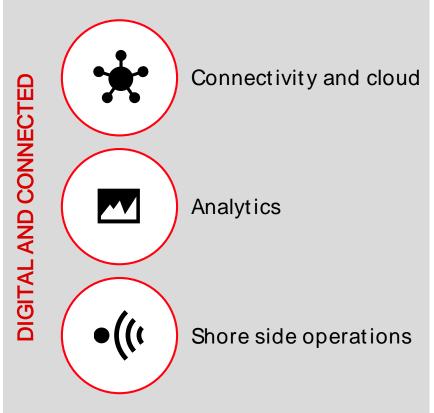




Electric, digital and connected

Maximizing the full potential in shipping







— Ship

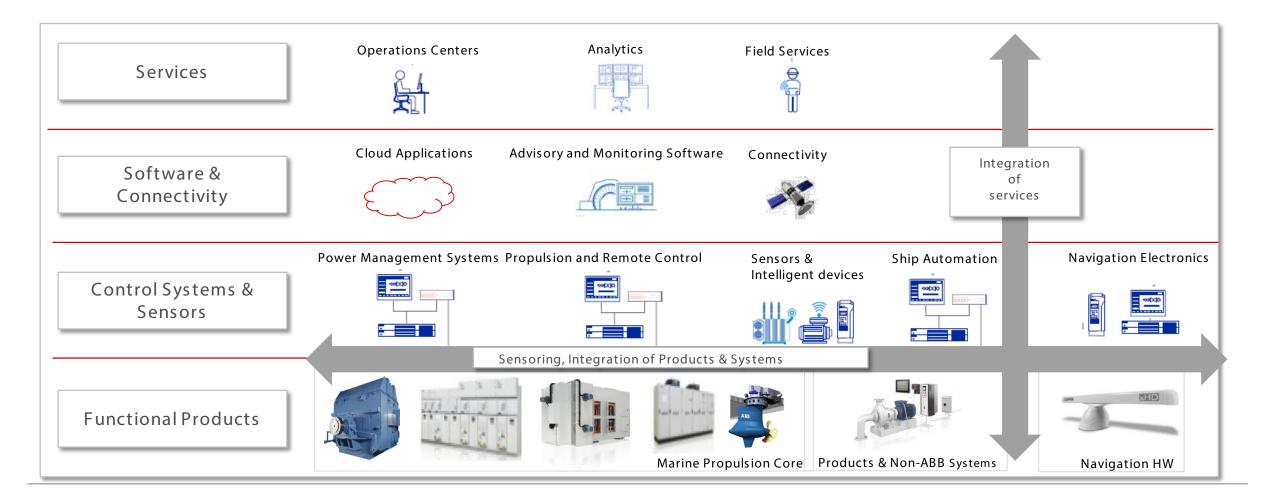
Thinking Traditional

Expert Support Field Services Services Power Management Systems Propulsion and Remote Control **Navigation Electronics Device Monitoring** Ship Automation Control Systems **Functional Products** Marine Propulsion Core Products & Non-ABB Systems Navigation HW



A formerly conservative industry is changing the way it operates

This requires integration and digitalization from bridge to propeller





How can data help in the Marine Market?

Identify

- Problems
- Failures
- Risks

Determine

- Cause
- Possible remedies
- Best Action

Act

 Make changes in response to problems/failures/risks



How does digitalization work in the real world?

Scene #1 – Captain onboard Ferry in Helsinki

Problem

Weather: causing issues with visability and unpredictable currents

Heavy traffic causing navigation issues

Operational Concern

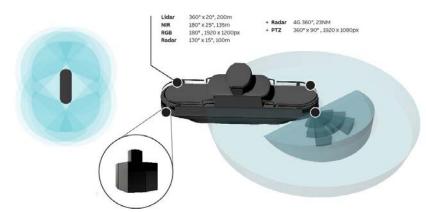
Navigation and docking is more complex due to overwhelming information from

Radars, limited visuals coming from isolated systems.

Digital Solution

Augmented reality system to improve situational awareness

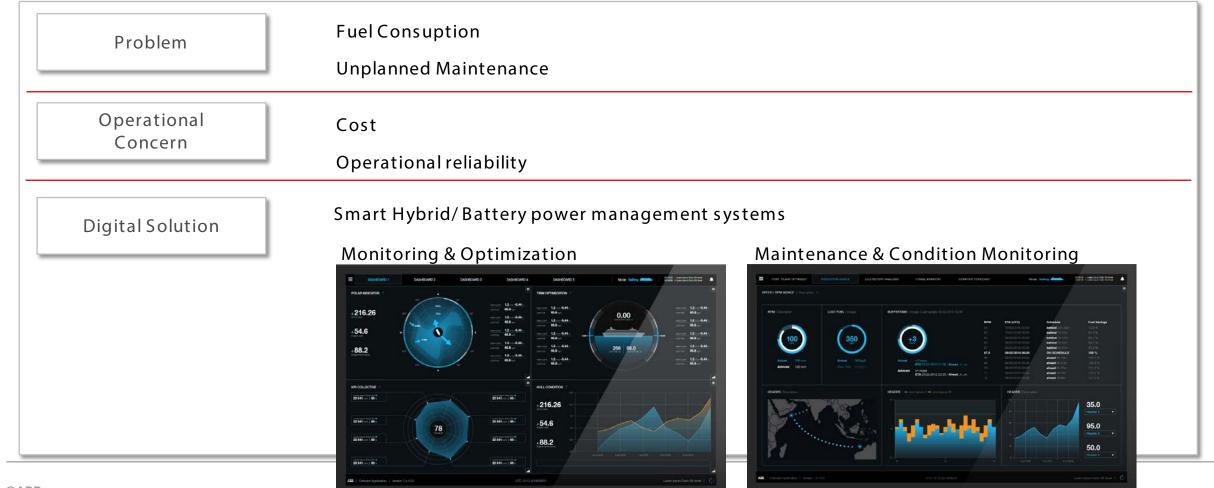






How does digitalization work in the real world?

Scene #2 – Port Engineer





How does digitalization work in the real world?

Scene #1 – Captain onboard Ferry in Helsinki

Problem

Weather causing visual and current issues

Heavy traffic causing navigation issues

Operational Concern

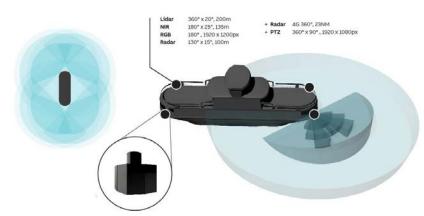
Navigation and docking is more complex due to overwhelming information from

Radars, limited visuals coming from isolated systems.

Digital Solution

Augmented reality system to improve situational awareness







Ferry References

Over 400 vessels, including nearly 100 ferry vessels and greater than 15 years experience of market leader motion forecast solution

ABB, Marine and Ports References - Ferries Electric power plant, propulsion, automation, remote control and advisory systems

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Why to Choose A Total Integrated Solution?

Benefits for Owner - User Experience



- Uniform look and feel for all ABB systems
- Fast access to key information
- Quick and easy way of navigating the mimics without loosing the overview
- Boosting operator's situation awareness and correct response
- Harmonic and hierarchical layout
- Day, high contrast and night color palettes



Why to Choose A Total Integrated Solution?

Power & Propulsion & Automation Integration Synergies for Shipyard

Interfaces between MSB, PMS, Propulsion Drives, Azipod XO and Automation – Approx. 1500IO's – are engineered, tested and pre-commissioned in-house by ABB

For the yard this means:

- ✓ Significant Risk, Resource and Time reductions in integration work for electrical and automation system
- ✓ Reduced cabling and minimized installation effort due to IEC61850 connectivity
- ✓ Shortened commissioning time and sea trials
- ✓ PMS integrated in Automation For this scope estimated interface between standalone PMS and IAS approx. 600 IOs
- ✓ Multisystem integration utilized E.g. Propulsion Drive Control and IAS approx. 2001Os

Additional Benefits:

- ✓ Single point of contact during project execution with highly experienced project management
- ✓ Changes required by class will be ABB's responsibility
- ✓ Simplified time synchronization. Alarms from propulsion, power and automation with exact time stamping

