

A stylized graphic of a ship's hull, rendered in dark blue and white, positioned in the upper right corner of the slide. The hull is shown from a side profile, with a white stripe running along its length. The background is a dark blue gradient with a pattern of lighter blue diagonal stripes.

Testing and verification of ship systems

Supporting vessel electrification in the FLEXSHIP project

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DATE

16/07/2025

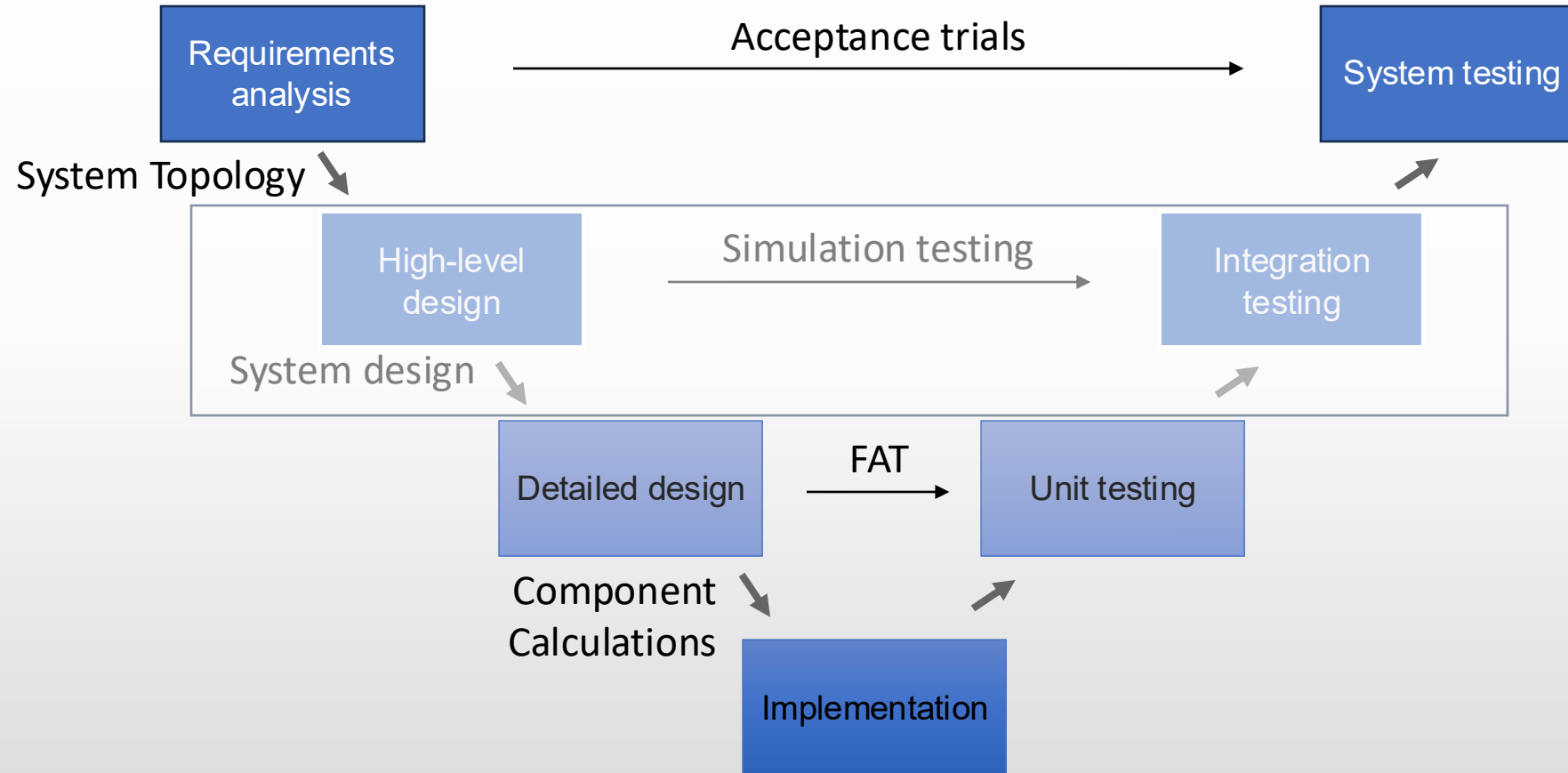
FLEXSHIP



Meeting agenda

Table of contents

1. Intro to Damen
2. The Verification and Validation steps
3. The electrification Lab
4. V&V in Flexship



Why relevant?

Factory Acceptance Tests

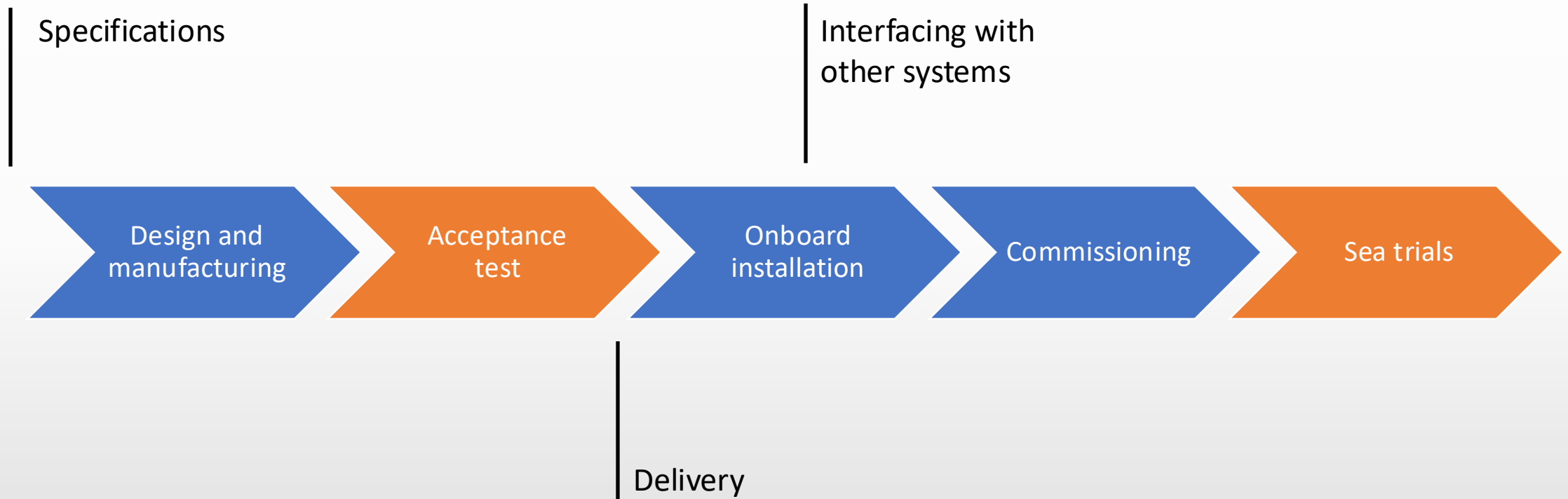
- Test of complete subsystem at manufacturer



Ship Acceptance Trials

- Test of complete ship and systems

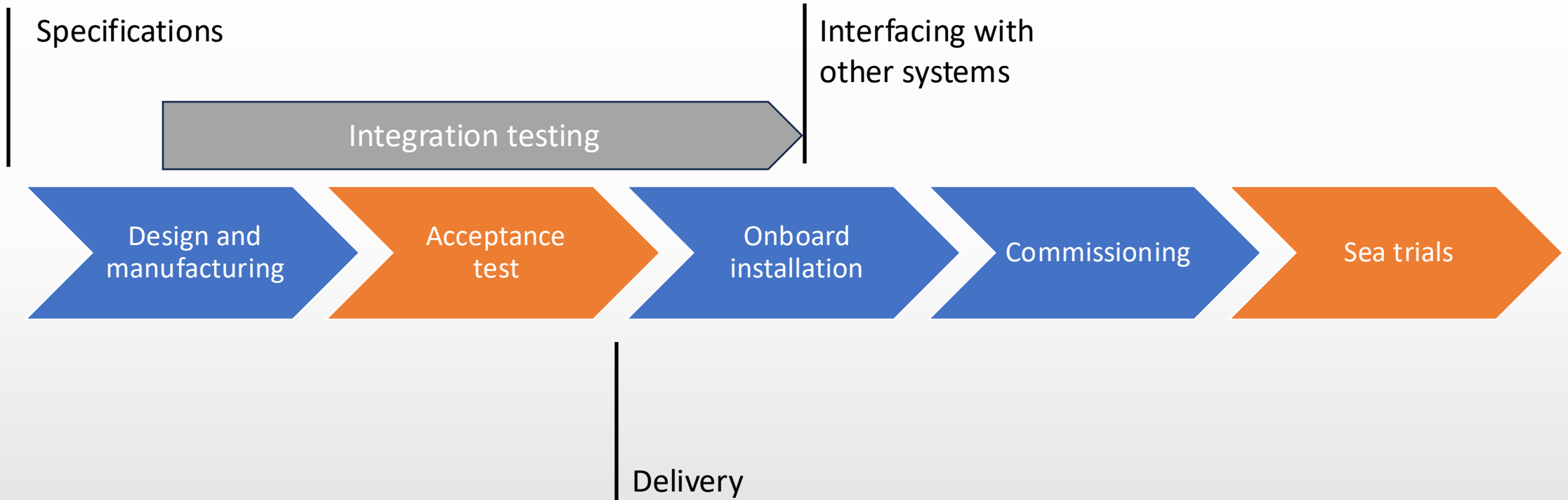




Integration testing

- Allows systems of systems to be tested together
- Multiple suppliers typically involved!
- Focus on interfaces and functional testing
- Actual components are not in same place or don't exist yet!





Integration testing

HIL testing

- Main focus to test automation system



Real Control
system



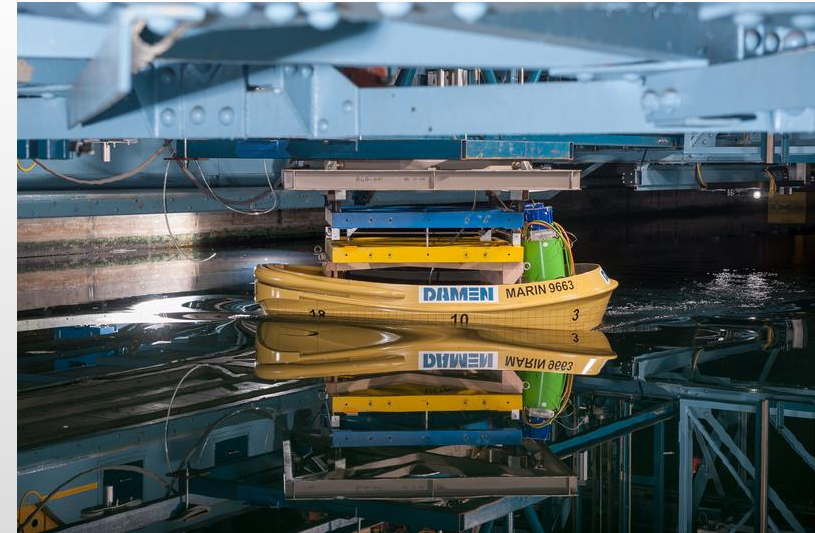
Physical vessel



Virtual vessel

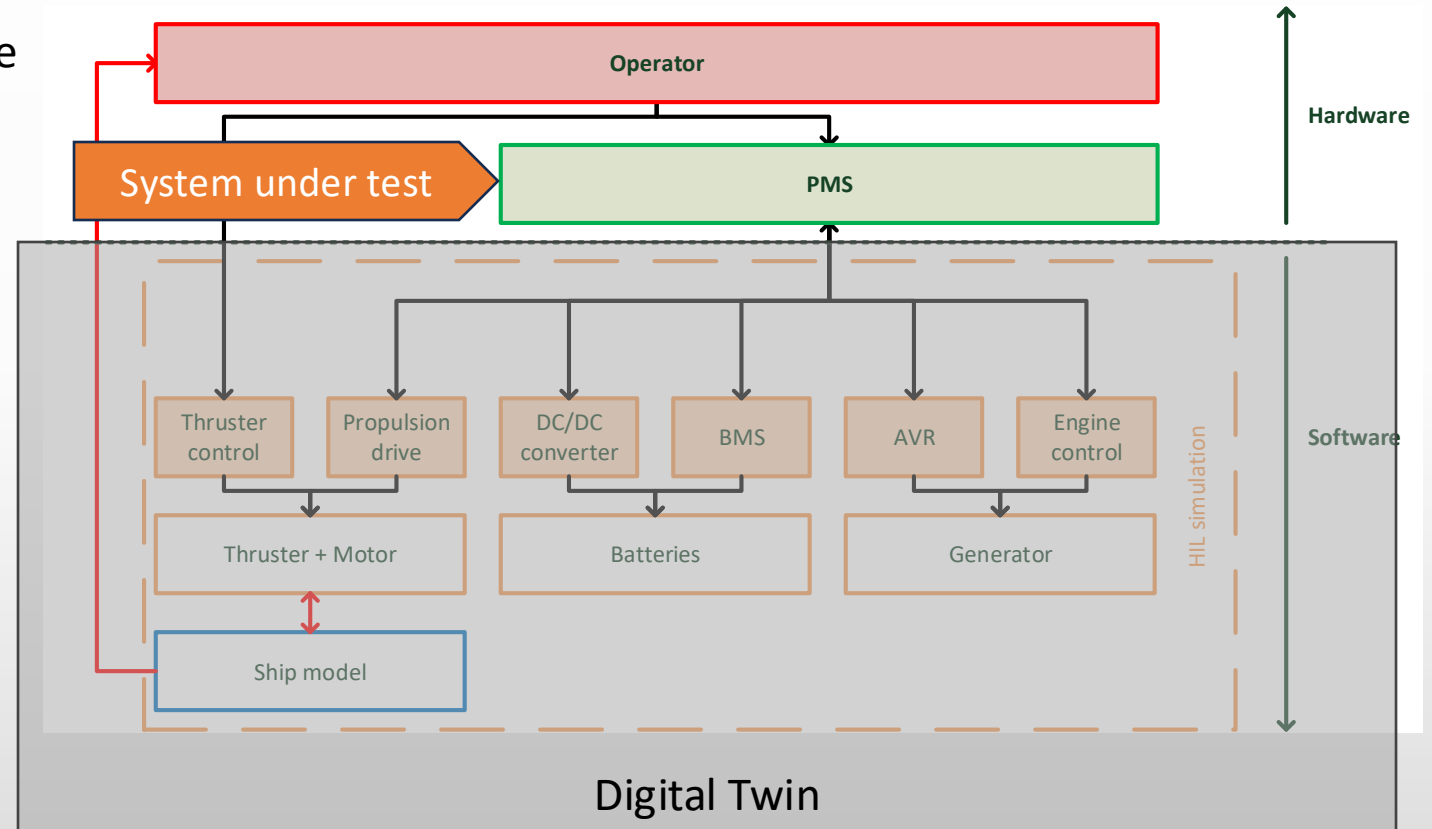
Reduced scale testing

- Main focus for components



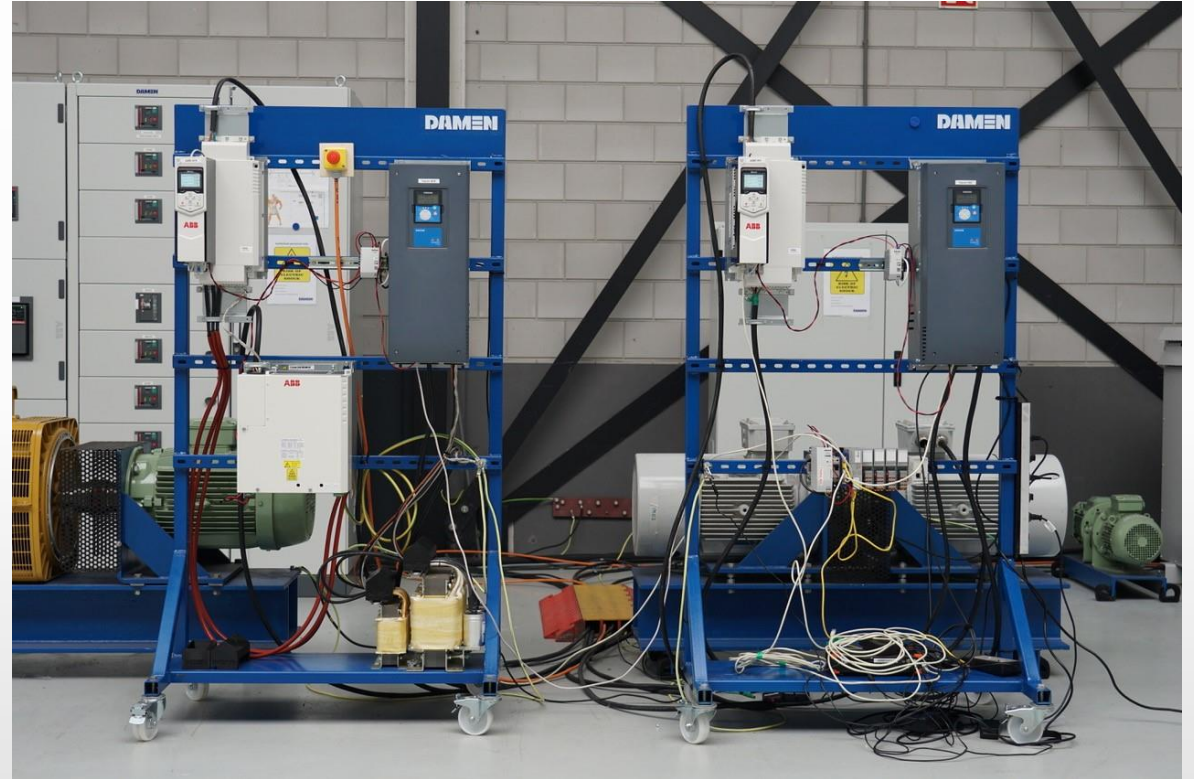
HIL testing

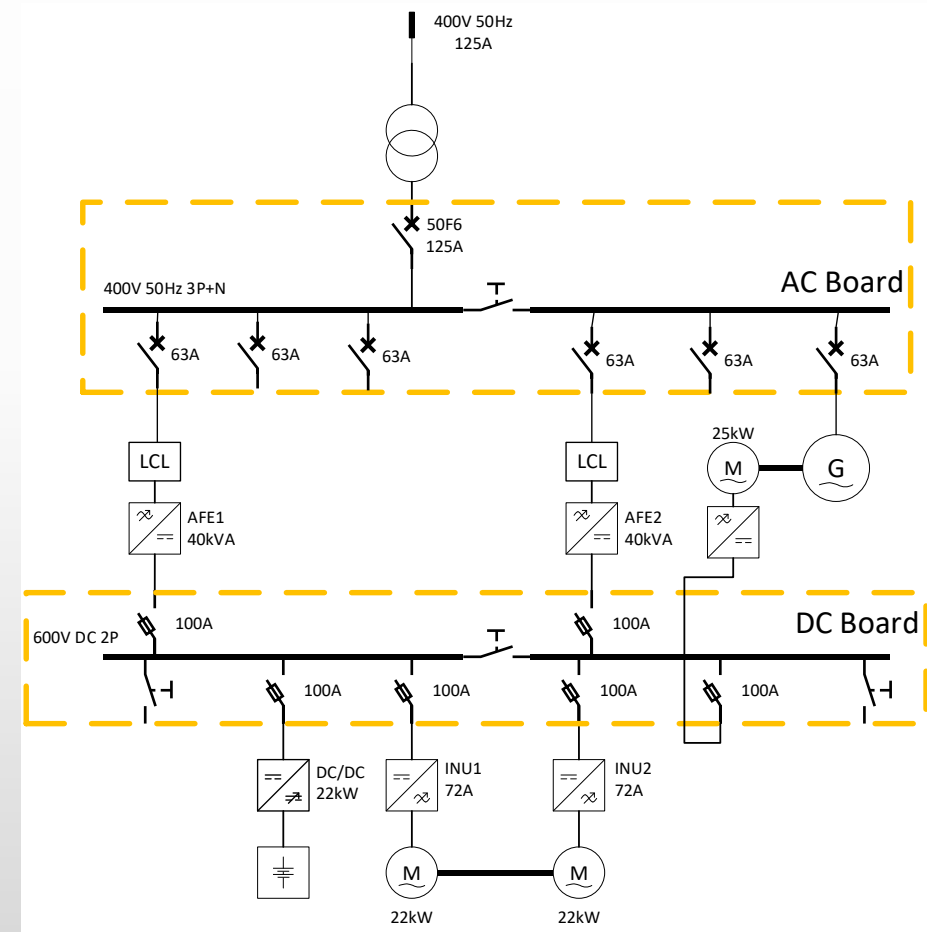
- Tests control systems on actual hardware
- Test system interfaces before system is built!
- Interfacing between multiple subsystem suppliers
- Done in the comfort of the office



Reduced scale testing

- Focus on components
- Real Hardware + Real Power
- Importance of scaling for representation
- Representative component is needed
- Harder to perform earlier stage

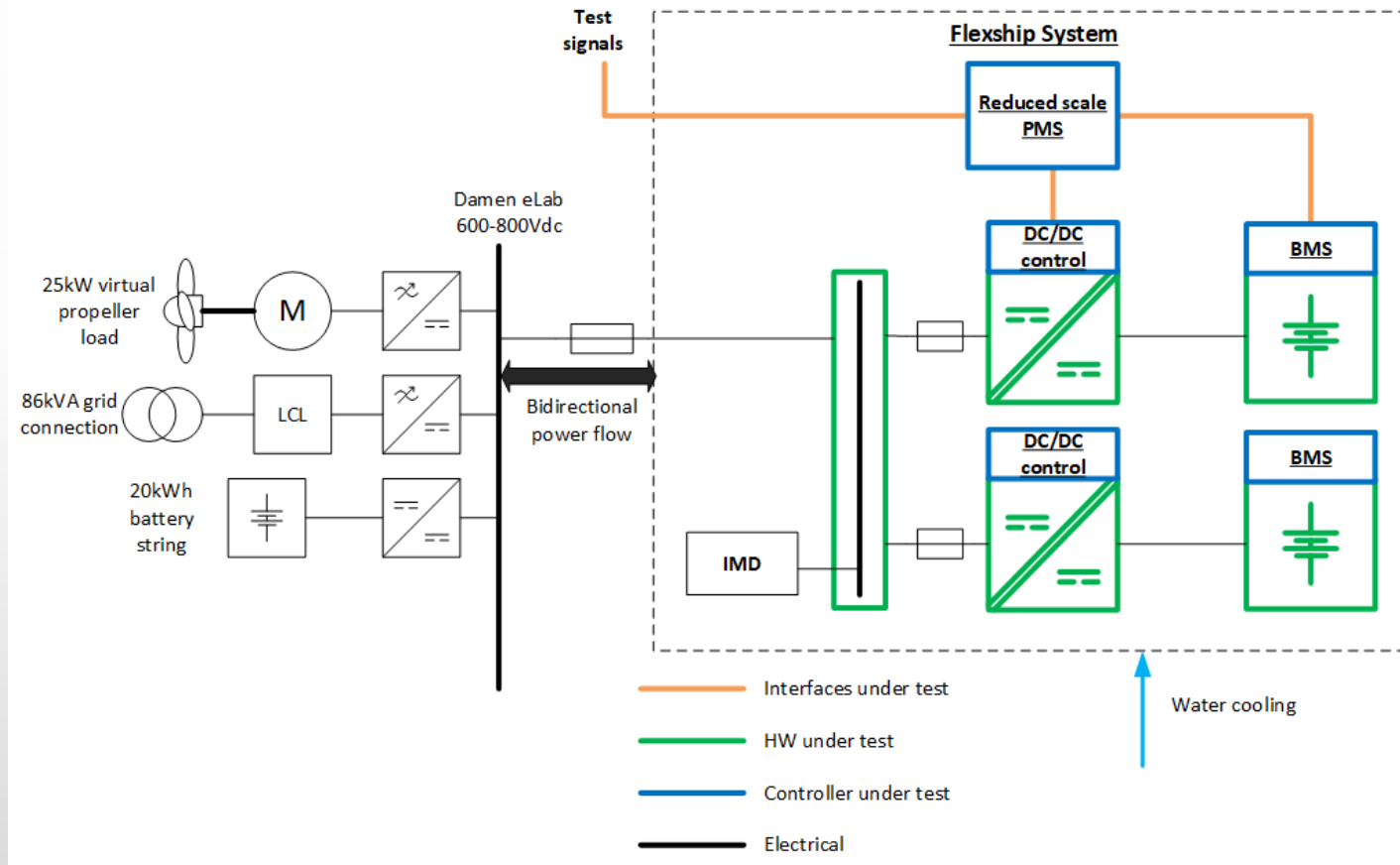




Verification in Flexship

Verify operation of developed modular system
Derisking of integration in lab rather than on ship

200kWh vs 3MWh!
50kW vs 300kW



Thanks for your attention!