

ADMO

5G-Advanced
for
Digitalization
of Maritime
Operations



TURKU AMK 

Project goals



Establish comprehensive understanding on maritime connectivity and possibilities from 5G-Advanced

Provide opportunities to digitalize ship operations with 5G/5GA

Support companies developing digital services and products for ship building and shipping

TUAS test vessel

6.8 meters long and 3 meters wide aluminum body with a cabin.

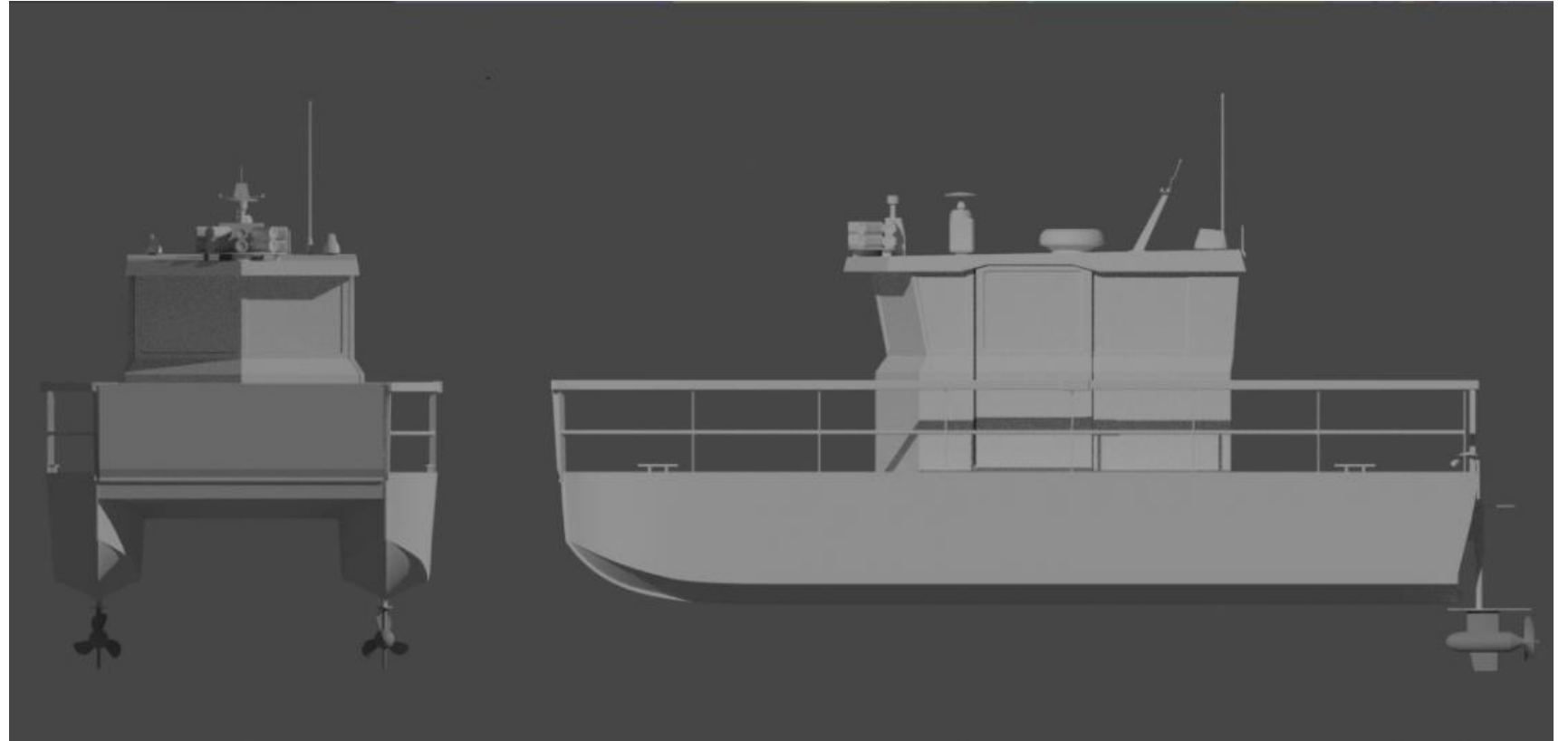
Two electric outboard pod motors.

Manual, remote and autonomous operation modes.

Batteries and a battery management system; capacity 34 kWh.

ICT infrastructure for AI algorithm testing.

Currently being built at Tuulissuo, in operation during summer 2023.

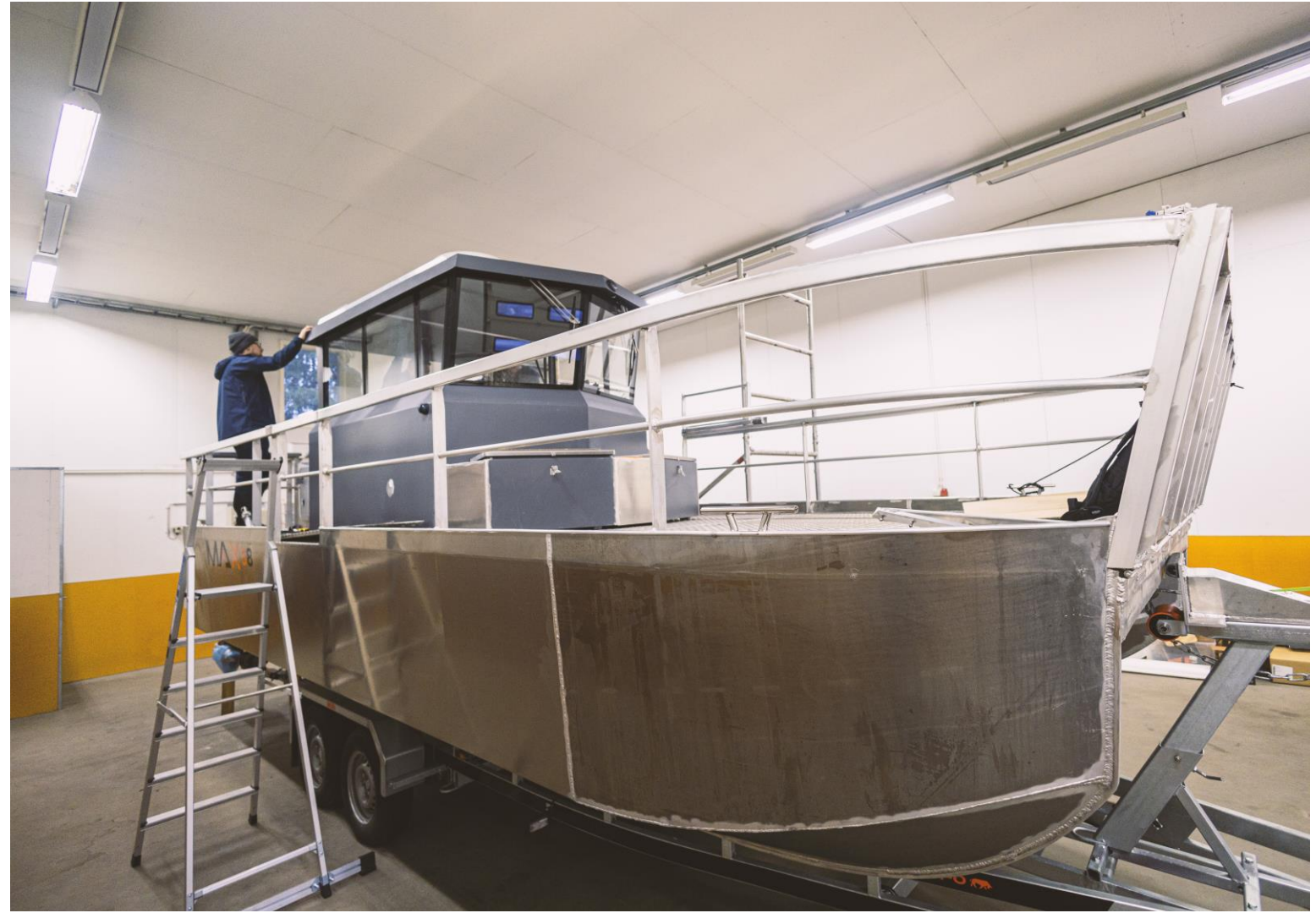


TUAS test vessel

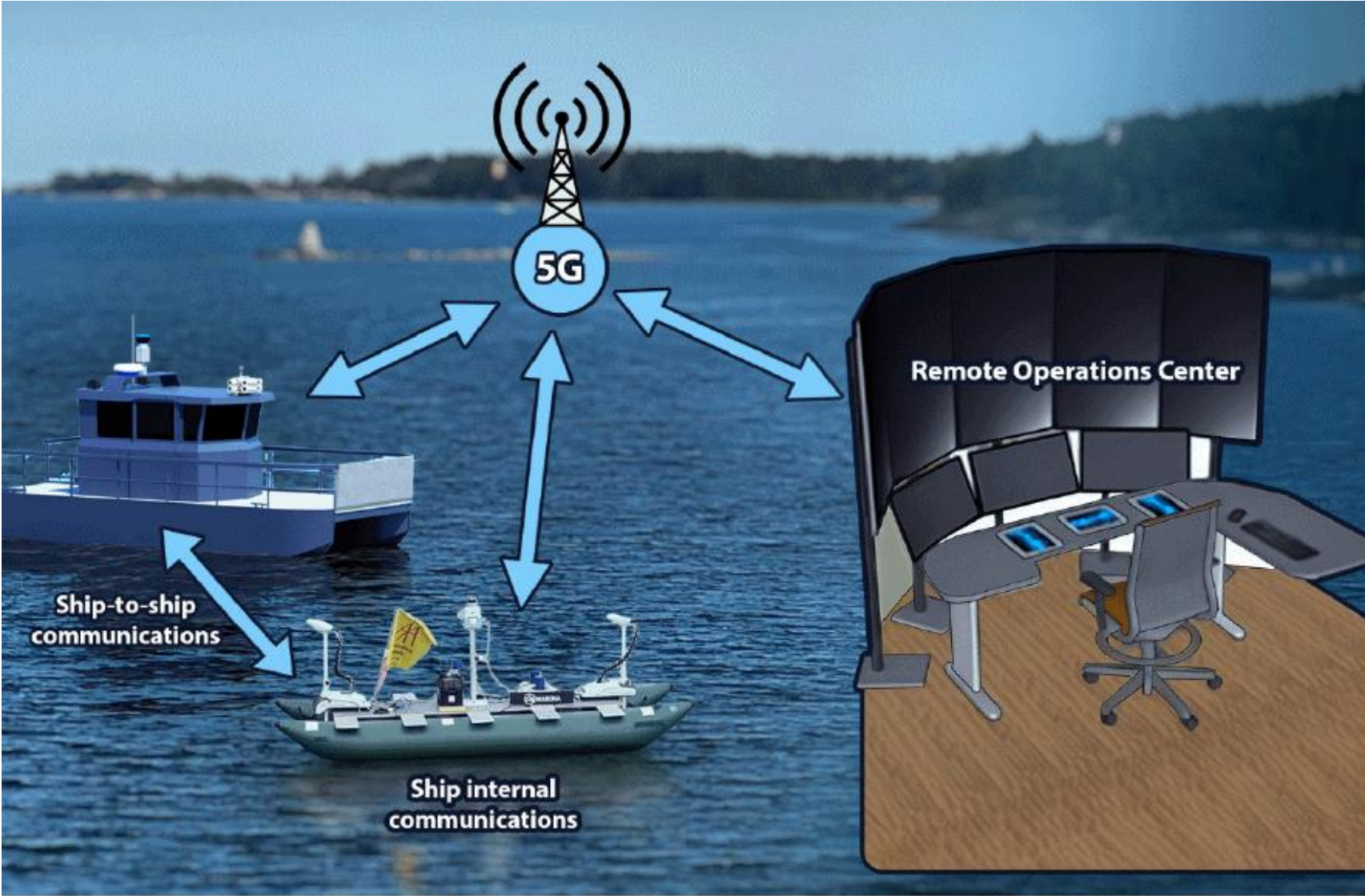
TUAS autonomous test vessel can be used for example as a sensing platform to collect data and test autonomous operations in Turku archipelago area.

Sensor examples:

- RGB and thermal cameras
- Lidars
- Weather data
- AIS
- Radar
- Sonar
- Spectrum sensor for mobile network analysis



Piloting



Remote Operations Center

- A remote operations center (ROC) will be built for the test vessel during spring 2023
- The vessel will be controlled with NMEA2000 messages, which will also be used to transfer the telemetry data from the vessel to the remote operations center.
- The architecture figure shown below may not be the final implementation and is removed from this shared version of the slides

First pilots

- Connectivity requirements for remote operation of a vessel
- Moving 5G base station in a vessel
 - Analysis of the regulatory requirements for a moving base station
 - Boat-to-shore connectivity
 - Boat-to-boat connectivity
- Other project use cases: *remote monitoring, remote pilotage, automated vessel operation, and smart fairway services.*

Let's talk!



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