FACT SHEET

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Interreg North Sea Region
AVATAR
European Regional Development Fund
Sustainable urban freight transport with autonomous zero-emission vessels

EUROPEAN UNION

Maverick

Currently, road-based transport continues to dominate the logistics market, resulting in significant external costs, including accidents, air pollution, climate change, noise, and congestion. These issues are particularly severe in urban areas. Therefore, the Maverick vessel serves as a "game-changer" in freight transportation, characterized by its zero emissions, urban waterway transportation, 1-tonne transport capability, over-actuation, and automation.

The Maverick adopts a catamaran hull form, which benefits from a large open deck area, high transverse stability, and good low-speed maneuverability. It has two identical electric azimuth thrusters, one at the bow and one at the stern. Each thruster is controlled by a pair of identical programmable AC motor controllers that control the shaft rotation angle and motor revolutions.

The Maverick's thruster and battery states are continuously transmitted to the Programmable Logic Controller (PLC) via the CAN protocol. Subsequently, other devices, such as a PC, can access these data through the Human-Machine Interface (HMI). In addition to human control during on-board sailing or through remote operation from the Shore Control Center (SCC), following integration with proprioceptive and exteroceptive sensors, a computation terminal can efficiently control the Maverick by leveraging sensor data and vessel states data in two ways:

- On-board control: The computation terminal establishes a direct connection to the Maverick through the HMI.
- Remote control: The computation terminal remotely guides the Maverick via its cellular network.

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AVATAR project

The AVATAR project aims to tackle challenges of city freight distribution by developing, testing and assessing adequate technologies and business models for urban (highly) autonomous zero-emission Inland waterway transport (IWT) solutions.