



Streamlining complex pilotage with CAT PRO PPU



The Port of Cork Company recently executed a complex pilotage operation involving a heavy lift vessel transporting three Liebherr Ship-to-Shore container cranes. The vessel, with an overall length (LOA) of 169 meters and a beam of 40 meters, carried these cranes as cargo, extending its effective width to 134 meters. This oversized load presented significant navigational challenges, particularly in maneuvering through the restricted waters of Cork harbour and transitioning safely to open sea. Precise pilotage and advanced situational awareness were critical due to the vessel's restricted turning radius under load, compounded by the presence of usual maritime traffic.

CHALLENGE

This specific operation involved managing the complexities of oversized cargo dimensions, including limited vessel maneuverability due to extreme width and restricted turning radius. Key operational challenges included navigating confined waterways with minimum defined under keel clearance and ongoing marine traffic in the Port of Cork, while ensuring precise, real-time coordination with two tugboats to maintain control during critical maneuvers. The operation's success was

dependent on expert pilotage combined with advanced navigational technologies, as even the smallest error could lead to substantial safety and operational risks.

SOLUTION

Trelleborg's SafePilot CAT PRO PPU was deployed, providing advanced navigation support for the pilot in this high-risk scenario. The system included two wireless sensors and a Wi-Fi Extender that seamlessly connected to the ship's Pilot Plug, enabling access to AIS data





of nearby vessels for real-time traffic monitoring. Positioned on the bridge wing, the sensors provided independent data on the vessel's positioning (with SBAS corrections ensuring 0.60 m accuracy), rate of turn ($0.1^\circ/\text{min}$ accuracy), heading (0.05° accuracy), and speed ($1\text{ cm}/\text{sec}$ accuracy). This high level of precision allowed the pilot to maintain full control and situational awareness, independent of the onboard navigation systems, ensuring the heavy lift vessel's safe maneuvering in such a complex and dynamic environment. All critical data was displayed on a user-friendly iPad interface for the pilot, providing real-time predictions of the vessel's position and safe distances to hazards. The system accounted for the vessel's

oversized cargo, enabling a comprehensive overview of its footprint, and ensuring precise navigation at all times.

OUTCOME

The operation was completed successfully, with the heavy lift vessel safely navigating Cork harbour and transitioning to open waters safely. The CAT PRO was instrumental in enabling seamless coordination between the vessel and its support tugboats. Its precise positioning capabilities allowed the pilot to anticipate and confidently execute maneuvers, even in restricted areas. This case underscores the tangible value of advanced portable navigation solutions in managing complex maritime operations. By delivering 360-degree situational awareness, independent positioning and heading accuracy down to 1 cm, the CAT PRO PPU system not only ensures operational safety but also optimizes efficiency, reducing the risk of costly delays or incidents. As maritime traffic grows in scale and complexity, tools like CAT PRO PPU are proving to be indispensable for modern pilotage. With extended battery life, superior accuracy, and an easy setup surpassing other systems on the market, it provides the accuracy and reliability needed for even the most complex piloting operations.



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