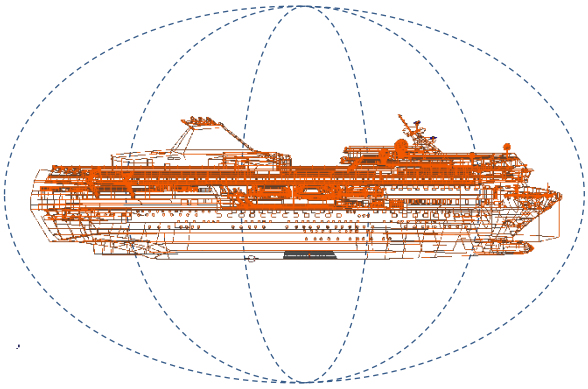
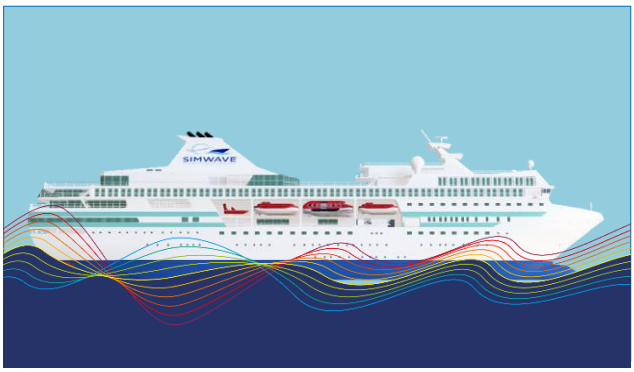
Applied research

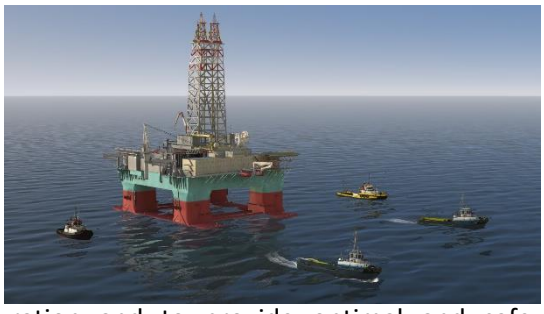




The fast development of the maritime and shipbuilding industries is improving the accuracy, usability and economic efficiency of ship operations and supports the international policy in maritime safety and environmental protection. However, assessment of the ship's manoeuvrability in the actual operation as well as in the design stage are challenging since it still based on conventional practical experiments.

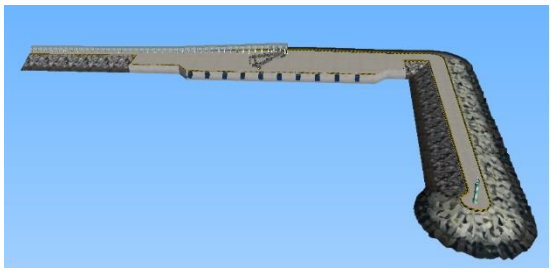
With a team of experts including master mainers, chief engineers, naval architects, graphic designers, programmers, skilful technicians who have deep knowledge and experiences in navigation, shipbuilding, visual design and scientific research, Simwave is providing an applied research service based on the world unique simulator centre, mathematical modelling and visual modelling tools for the arising demand.

- Modelling ships and floating objects for manoeuvring assessment: Mathematical models are built based on actual ships or designed vessels and floating objects including hydrodynamic characteristics of the wet hull and the aerodynamic influences of the dry structure. On top of this detailed parameters of the propulsion system, ship electrical system, ballast water system and mechanical system on board etc. are included meteorological, geographical characteristics, as well as practical traffic conditions, are inserted in the scenarios including storms, currents, waves, tides, depths, weather conditions such as rain, fog, snow, ice and day or night view.



- Modelling and assessment of loading-towing capacity: The choice of the ship for transport and towage, such as project cargo vessels, heavy-lift carriers, tugboats, anchor handling and offshore floating units can be modelled and calculated in the simulator including the necessary towing capacity to assess safe handling of the towing configuration and to provide optimal and safe manoeuvrability.

- The feasibility study of port design: The upgrading or new design of ports as well as geographical, meteorological conditions can be modelled. Evaluating the feasibility of a port construction project in the design stage can also be done in the simulators for applying changes in the ports/terminals/jetties when necessary.



- **The feasibility study on the navigational fairway and TSS:** The upgrading, as well as the development of the navigation fairways and traffic separation scheme (TSS), can be fully simulated with the conditions and requirements set out for required operation. Interaction of different types of ships can be applied to ensure the feasibility and the validity of the study.

- **Marine-related scientific research:** Simwaves' simulation systems also provide effective facilities and an environment for students and researchers from academic and business organizations and from universities to apply their related specific experiment or (PhD) research.

The research activities are based on Simwave's full mission bridge simulators, engine room simulator which are suitable for various types of vessels and a wide range of propulsion and propeller systems, such as diesel, electric, dual fuel, diesel-electric engines, conventional propeller, azimuth propeller, Voith Schneider, water jet ... The simulator assessment is conducted with the participation of experts assigned by the customers and/or involved authorities.