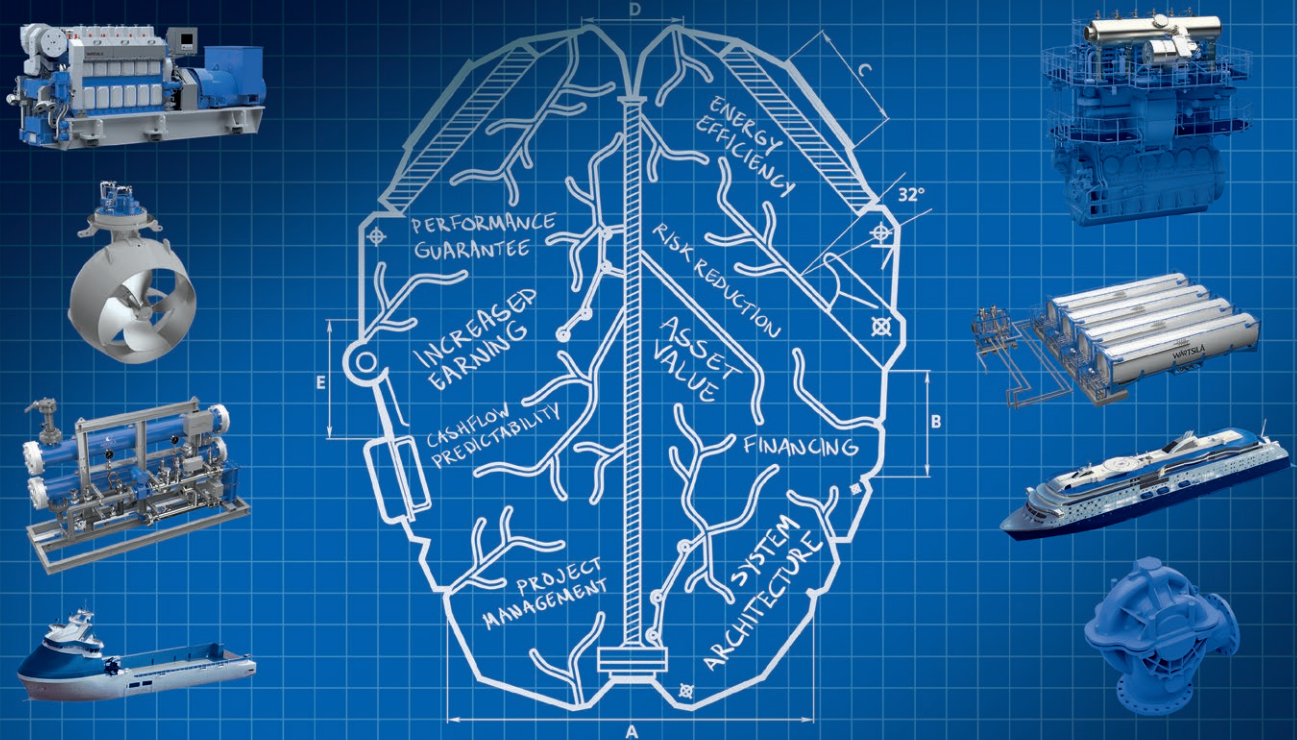


WÄRTSILÄ FRONT END SERVICES AND MARINE LIFECYCLE SOLUTIONS



TECHNICAL EXPERTISE SUPPORTED BY COMMERCIAL AND FINANCIAL EXCELLENCE

Risks, commercial viability, technical sustainability and competitiveness are all on today's agenda in the Marine and Oil & Gas markets. The right choices and decisions have to be made as early as possible, so competent development skills and know-how are critical to the success of investing in a new asset or modifying an existing asset.

Wärtsilä's front end services support you by minimizing commercial and technical risks with a view to the entire lifecycle of your investment.

Wärtsilä is able to provide front end services and marine lifecycle solutions with its global team of project developers and technical experts that can help you develop technically and commercially viable Marine or Oil & Gas projects.

By linking technical expertise with commercial and financial expertise, we offer a comprehensive approach to mitigating project risks.

THE OPTIMAL TECHNICAL AND COMMERCIAL SOLUTION

In the initial stage of your project development, when a new business concept is being evaluated, we explore the possible technical and commercial options. We call this the **system architecture**. Our deliverables are study reports confirming the optimal technology and commercial solutions for your specific development project.

Feasibility studies are carried out to define the strengths and weaknesses and close any potential gaps in the suggested solution. Our feasibility studies allow you

to confirm the technical and commercial viability of your project. Our deliverables are study reports confirming the technical feasibility of your specific development project.

Our **front end engineering services** (FEED) are designed to help you control project expenses and risks. These engineering services help define the technical solutions and costs, allowing you to enter a bidding competition or initiate the execution phase. Our deliverables are system engineering support services tailored to your specific FEED needs.



OPTIMIZE YOUR INVESTMENT

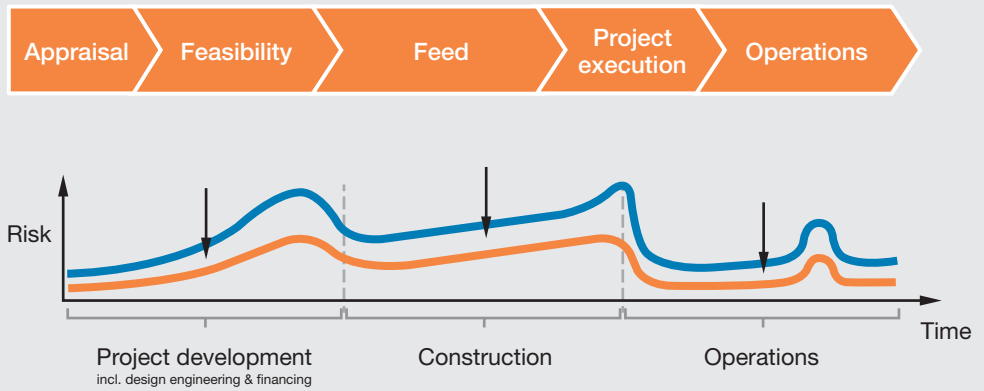
Capital expenses, operational expenses and other financial considerations (debt, construction finance, equity) are critical throughout the project value chain. Our **financial and business development** experts can provide support material to help you manage your investment.

Our **marine lifecycle solution consultancy** services can perform detailed upfront business modeling that provides you as the owner and investor clear transparency in the commercial asset lifecycle budget and business case. Our deliverables are tailored asset lifecycle investment analyses and reports including the relevant stress testing and sensitivity analyses.

Any small changes in financing rates or loan tenures can significantly affect the lifecycle profitability of your new asset. Our financial support and consultancy services can facilitate optimal Export Credit Agency utilization and help identify relevant and interesting sources of finance.

CUSTOMER BENEFITS OF OUR LIFECYCLE APPROACH:

- Reduced risks through technical and commercial transparency.
- Reduced costs through solid asset feasibility studies.
- Reduced lost revenue by minimizing asset-to-market risks (development & construction) and operational risks.
- Increased performance through the tailored technical and commercial optimisation of your asset.



P-63 FPSO

Customer: QUIP for Petrobras
Shipyard: COSCO, China
Location: Papa Terra oilfield, Brazil

Our responsibility:

- EPC delivery of 100 MW power modules.
- Commissioning, site supervision, start-up and operational, onboard offshore supervision.

"It is essential that the strategic partners we work with have not only the technology needed, but also field proven experience and support capabilities required for reliable long-term success. Wärtsilä has an outstanding track record in multifuel technology, as well as in providing ongoing technical and operational support," **Mr Miguelangelo Thomé**, CEO, QUIP.



HARVEY GULF

Shipowner: Harvey Gulf
Shipyard: TY Offshore Yards, US

Our responsibility:

Wärtsilä has delivered an integrated system including the dual-fuel machinery, an electrical and automation package, the complete propulsion system and the LNG fuel storage and handling components to a series of LNG-powered U.S. flagged vessels.



SIEM PEARL

Shipowner: Siem Offshore
Shipyard: Kleven Maritime

Our responsibility:

VS 491 AHTS CD ship design, two Wärtsilä 16V32 engines, two gearboxes (SCH 105), two controllable pitch propellers and Wärtsilä Low Loss Concept.