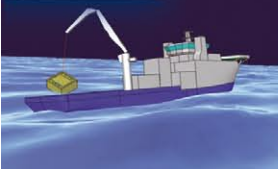
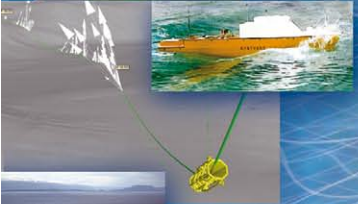


Your maritime R&D  
technology partner



# Shipping and Maritime Industry

MARINTEK has more than 60 years of experience in the development of cost-effective, high performance ships, where model testing constitutes the important element.

We have excellent technological expertise in the following strategic areas; Hydrodynamics, Cybernetics and Structures, Energy Technology and Logistics. These core technologies are our main assets available to our customers and their product development. Our deliverables are reports, software and simulators.

## Ship and Vehicle Performance

- Optimization of hull, propulsion and control systems
- Cavitation, excitation forces and noise
- Sea trails, speed/power and weather/wave corrections
- Weather routing
- Wash in congested waters and harbours
- Propulsion in seaway

## Wave Loads and Structural Response - Ships and Sea Structures

- Wave loads, extreme and fatigue
- Slamming impact loads and response
- Hydroelastic effects, modelling and testing
- Sloshing
- Optimization of structural design
- Hull monitoring systems

## Operations and Manoeuvring

- Comfort, motions and accelerations
- Operational criteria and limitations
- Sea rescue operations
- Manoeuvring in narrow and shallow waters
- Ship and underwater vehicle operations
- Ship/air vehicle operations
- Exploration of the sea
- Underwater vehicles and submarine operations

- Monitoring and control systems
- Simulators for decision support, remote piloting and training

## Shipping and Logistics

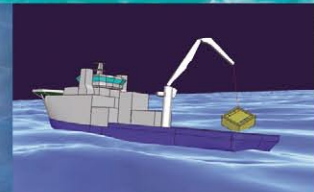
- Logistic support analyses
- Scenario analyses
- Decision support systems
- Web-based solutions for transport chain management
- Condition assessment and maintenance program development

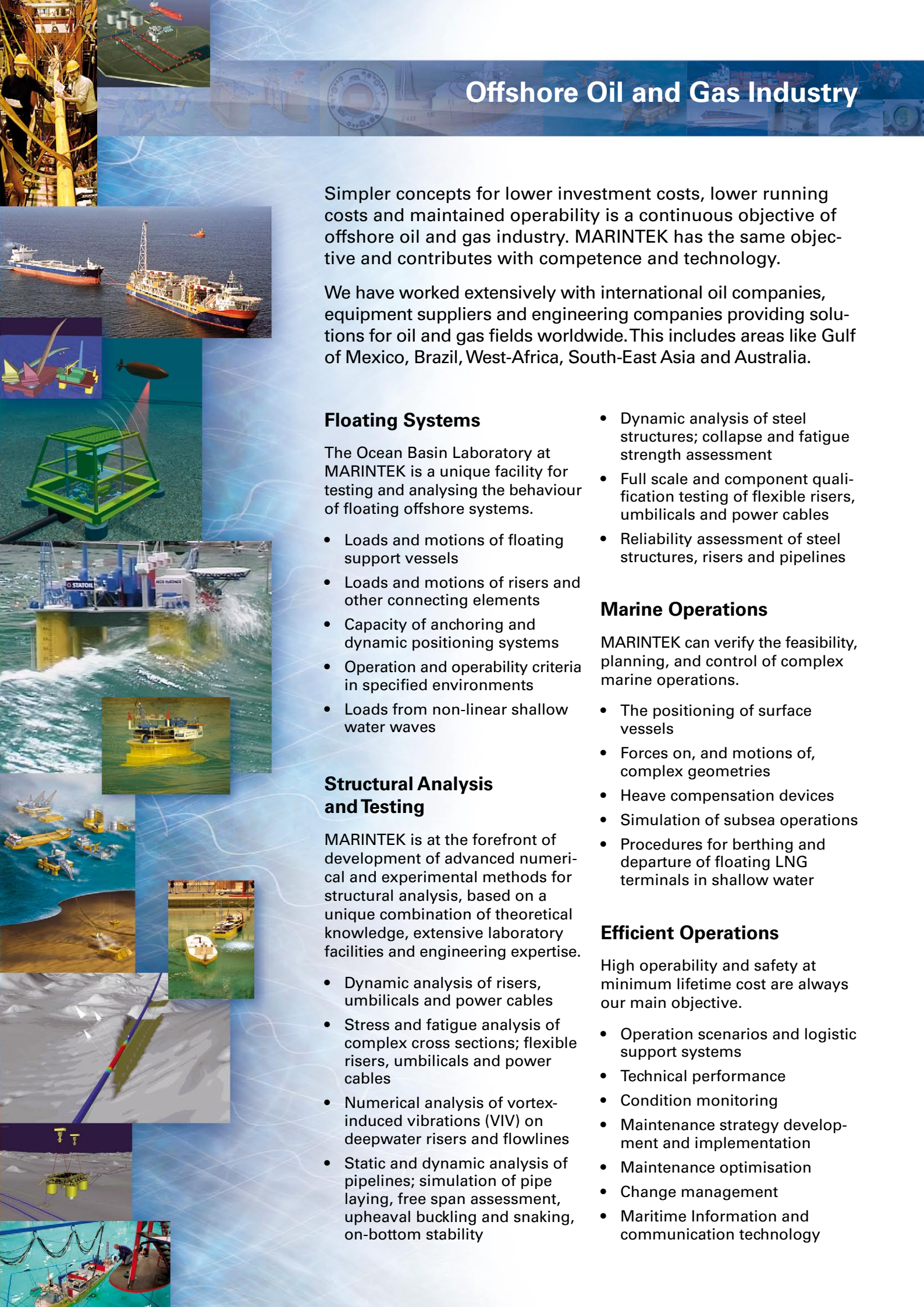
## Equipment Systems Performance

- Technical performance
- Condition monitoring
- Maintenance strategy development and implementation
- Maintenance optimisation

## Energy and Environment

- Low emission diesel and gas engine technology, exhaust gas cleaning
- Energy analysis and economization
- Maritime LNG distribution and applications
- Full scale laboratory testing and verification, flexibility in tasks and equipment
- Emission quantification, measurement and documentation
- Field measurement capability, e.g. gas analysis, power, motion, strain, vibration





# Offshore Oil and Gas Industry

Simpler concepts for lower investment costs, lower running costs and maintained operability is a continuous objective of offshore oil and gas industry. MARINTEK has the same objective and contributes with competence and technology.

We have worked extensively with international oil companies, equipment suppliers and engineering companies providing solutions for oil and gas fields worldwide. This includes areas like Gulf of Mexico, Brazil, West-Africa, South-East Asia and Australia.

## Floating Systems

The Ocean Basin Laboratory at MARINTEK is a unique facility for testing and analysing the behaviour of floating offshore systems.

- Loads and motions of floating support vessels
- Loads and motions of risers and other connecting elements
- Capacity of anchoring and dynamic positioning systems
- Operation and operability criteria in specified environments
- Loads from non-linear shallow water waves

## Structural Analysis and Testing

MARINTEK is at the forefront of development of advanced numerical and experimental methods for structural analysis, based on a unique combination of theoretical knowledge, extensive laboratory facilities and engineering expertise.

- Dynamic analysis of risers, umbilicals and power cables
- Stress and fatigue analysis of complex cross sections; flexible risers, umbilicals and power cables
- Numerical analysis of vortex-induced vibrations (VIV) on deepwater risers and flowlines
- Static and dynamic analysis of pipelines; simulation of pipe laying, free span assessment, upheaval buckling and snaking, on-bottom stability

- Dynamic analysis of steel structures; collapse and fatigue strength assessment
- Full scale and component qualification testing of flexible risers, umbilicals and power cables
- Reliability assessment of steel structures, risers and pipelines

## Marine Operations

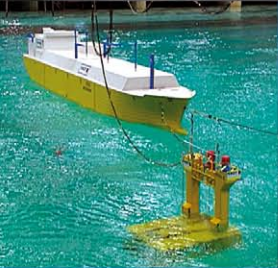
MARINTEK can verify the feasibility, planning, and control of complex marine operations.

- The positioning of surface vessels
- Forces on, and motions of, complex geometries
- Heave compensation devices
- Simulation of subsea operations
- Procedures for berthing and departure of floating LNG terminals in shallow water

## Efficient Operations

High operability and safety at minimum lifetime cost are always our main objective.

- Operation scenarios and logistic support systems
- Technical performance
- Condition monitoring
- Maintenance strategy development and implementation
- Maintenance optimisation
- Change management
- Maritime Information and communication technology



MARINTEK  
 P.O.Box 4125 Valentinlyst,  
 NO-7450 Trondheim, Norway  
 Phone: +47 7359 5500 Fax: +47 7359 5776  
 E-mail: [marintek@marintek.sintef.no](mailto:marintek@marintek.sintef.no)  
 URL: <http://www.marintek.sintef.no>



**Laboratory facilities:**

- Ocean basin
- Towing tanks
- Cavitation tunnel
- Energy-/machinery laboratory
- Marine structures laboratory

