Société Radio Navigation Algérie
ARI SIMULATION PRODUCTS

www.srnalger.com
www.arisimulation.com

Overview

ARI Simulation is a global leader in the production of sophisticated simulation and virtual reality training solutions for the marine & offshore, energy, mining & construction, defence and general industries.

At the forefront of innovation, our simulators stand as the pinnacle of excellence, meticulously crafted to adhere to the highest international standards set by respected industry authorities like IMO, STCW 2010, The Nautical Institute, OPITO, AMERC, IMCA, and more. Our marine, offshore, and crane solutions have achieved the prestigious Class A Standard certification from DNV, exemplifying our commitment to excellence.

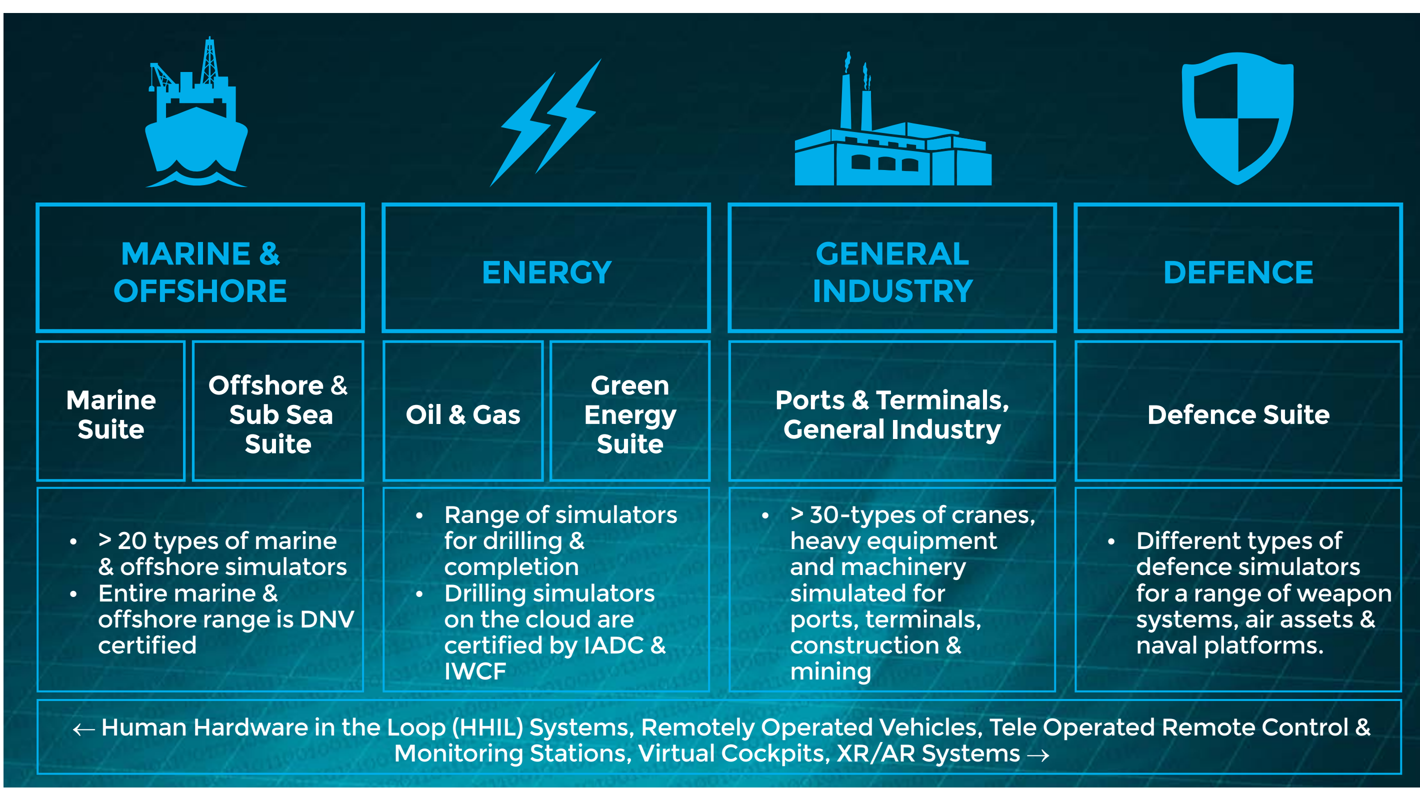
Two decades ago, we embarked on our journey by introducing our first simulator to the world. Since then, we've successfully delivered and commissioned over 1000 cutting-edge simulation systems, transcending borders to serve clients worldwide.

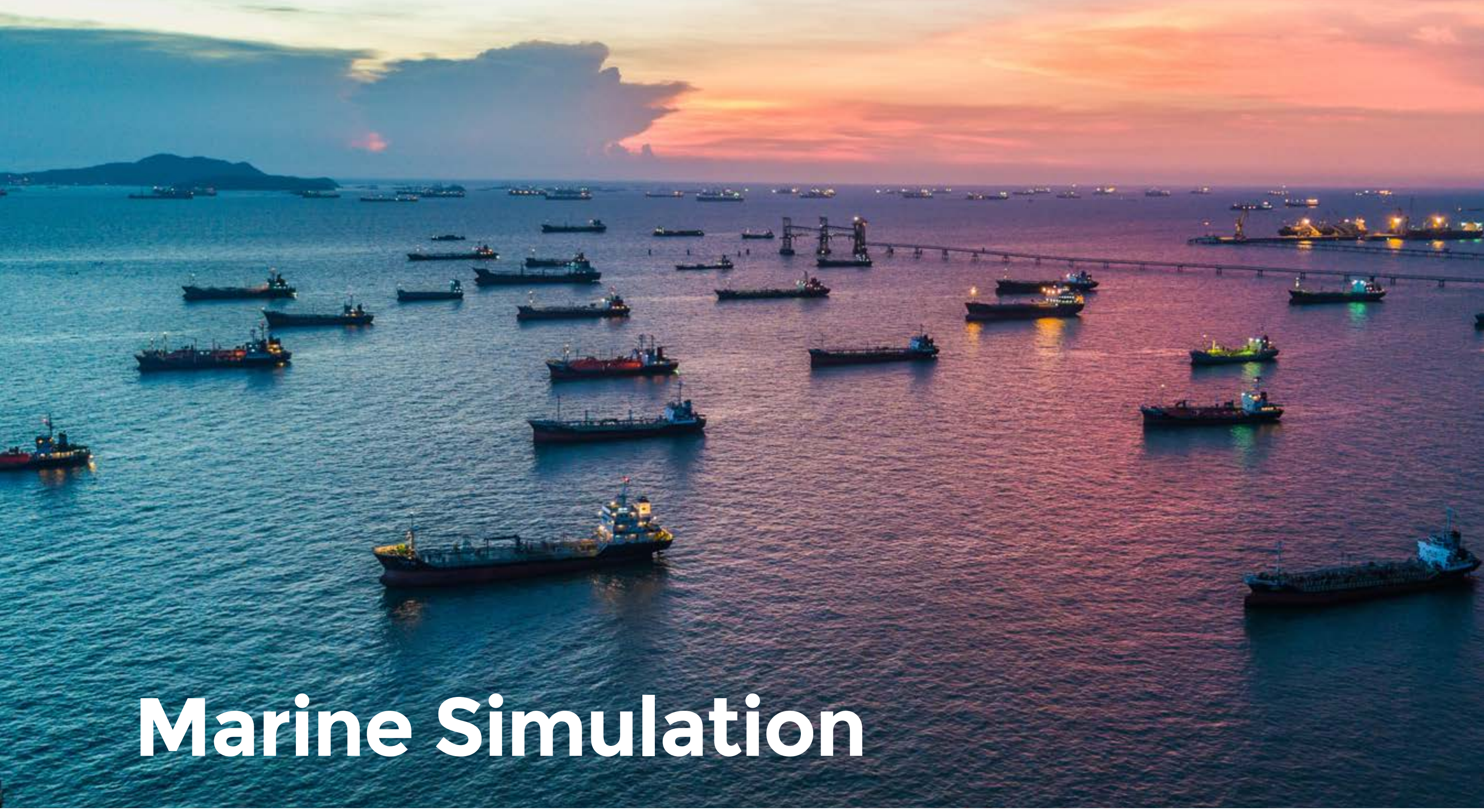
Our customers today include key industry leaders in each of our markets.

Developing customised solutions has always been one of our key strengths and we have created some of the most exacting simulator recreations of our client's own equipment, machinery, ships and geographies in the large number of customised simulator solutions we have delivered.

Our forte lies in crafting tailor-made solutions for our customers.

Our customer focus and attention to detail is reflected in our commitment to quality in everything we do.





Marine Simulation

The ARI Marine & Logistics Simulation product portfolio covers the entire range of marine operations including Bridge, Engine, Cargo and Communication.

NAVIGATION SIMULATION

The ARI Full Mission Ship Maneuvering Simulator is designed, built and installed in accordance with the requirements of IMO, STCW 2010 and is approved by DNV to the highest Class A Standards.

It is a complete maritime navigation training solution for all training needs related to navigation and ship handling. The elements include RADAR-ARPA, ECDIS and navigational equipment. Training is conducted in a compelling immersive atmosphere with full visual, instrument and aural clues available to the trainees.

INSTALLATION PICTURE
BRIDGE SIMULATOR

ARI's Navigation Simulators are available in a large number of configurations ranging from tabletop and part task trainers to large scale installations with 360° field of view with various navigation equipment integrated into the simulation systems.

The Navigation Simulators fully provide for specialized navigation operations such as Integrated Bridge Systems, Ice Navigation, Ship-to-Ship operations, SBM operations, VTIS operations and others as required to meet specific training and assessment requirements.

TUG SIMULATION

The ARI Tug Handling Simulator provides an excellent training platform for both new and experienced tug operators to improve their tug handling skills and practice for emergency maneuvers and response. Available in multiple configuration types, the simulator closely resembles the layout and equipment of a modern tug maneuvering station and navigating bridge. Multiple tug types, including ASD tugs, are available in the vessel library and the sophisticated behavioral model ensures that complex tug maneuvers are performed to a high degree of accuracy and reliability under a variety of environmental and operational conditions.

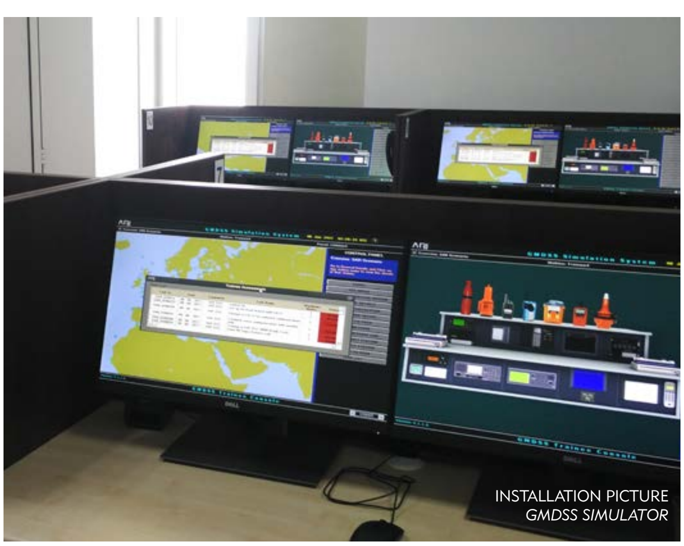
VTS SIMULATION

The ARI VTS simulator has been designed, built and implemented to meet and exceed the relevant recommendations as prescribed in IALA model courses V-103. The simulator provides a platform to carry out consistent, quality training of Vessel Traffic Service (VTS) operating personnel.

The simulator is designed to train the candidates to deal with real world vessel traffic management situations under normal and emergency situations in simulated environments.

Training sessions can be based on pre-prepared scenarios each of which can be designed to allow fulfillment of specified training objectives. The scenarios can be graded in complexity so as to meet the training requirements for operators who may have considerable spread in their individual experience levels.

GMDSS SIMULATION



The ARI GMDSS Simulator provides complete operational training in communication using GMDSS equipment as found on marine and offshore units. The simulator complies with the Performance standards for simulators as defined in Section A-I/12 and B-I/12 of STCW 2010 and DNV to the highest Class A Standard. Specific configurations are AMERC approved.

The ARI GMDSS Simulator provides an operating environment for the trainee similar to that of operating a GMDSS station on a modern ship. It is suitable for the purpose of training navigators at all levels, for handling distress and routine communication at sea using satellite and terrestrial communication equipment.

ENGINE | PROPULSION | MACHINERY SPACE

The ARI Full Mission Engine Room Simulator is a multi- functional training solution suitable for training Marine Engineers at Watch-Keeping, Operational and Management levels.

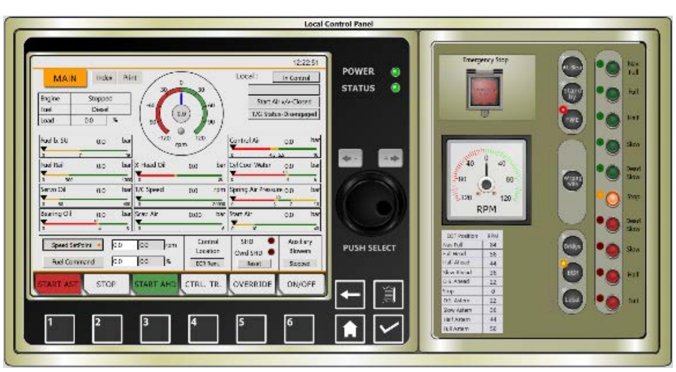
Multiple propulsion and engine room types are modeled including slow, medium & high-speed diesel engines, electric propulsion, azimuth propulsion, waterjet engines and others. The engine room comprises a Main Engine Control Room, Electrical Switch Board, and Simulated Machinery Space including a Mimic Pipeline Panel, and Local Operating Stations.

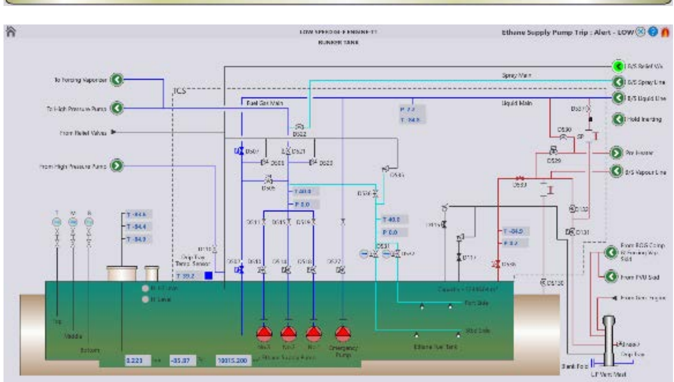
Simulation of specialized systems such as High Voltage, Power Management, Fire Fighting and Offshore vessel specific sub systems for the handling of mud, brine and cement are also available.

NEW ENGINE MODELS

- NEW FUELS

  LNG | ETHANE | METHANOL | AMMONIA | LPG
- EMISSION CONTROL SYSTEMS





New Engines/ Green Fuel/ Decarbonization

- XDF (LNG)
- ME-GIE (High Pressure injection with Ethane)
- ME-LGI-M (Methanol)
- ME – LGI-A (AMMONIA)
- ME-GA (Low pressure LNG gas admission)
- ME-LGI P (LPG)

Emission control systems:

- HP SCR (High Pressure SCR)
- LP SCR (Low Pressure SCR)
- EGR (Exhaust Gas Recirculation)

PROCESS & CARGO HANDLING SIMULATOR

The ARI Liquid Cargo Handling Simulator simulates the real time process flow control systems used in the storage and transfer of potentially hazardous bulk liquids from shore to ship and vice versa, and is capable of being used for training over the full range of situations from routine operations to emergencies with catastrophic potential.

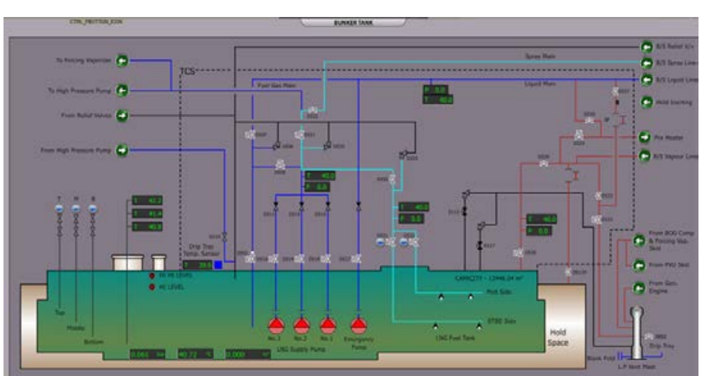
INSTALLATION PICTURE
CARGO SIMULATOR

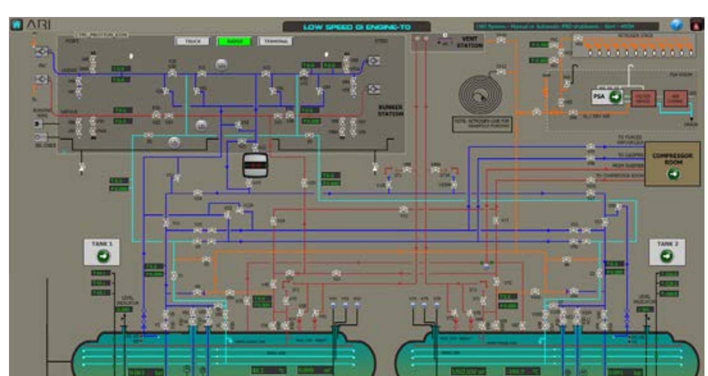
The simulator is an advanced training solution for officers at the operational and management levels. It is a scalable solution starting with a single PC instructor-less solution ranging up to full mission configurations comprising cargo control consoles, instructor stations, mimic pipeline panels and more.

The ARI Liquid Cargo Handling Simulator is considered to be amongst the most versatile and flexible training tools of its kind in the world. The model library includes Oil Tankers, VLCC, Product Tanker, Chemical Tanker, LPG Carriers and LNG Carriers. Each simulated vessel is equipped with a fully functional load calculator. The mathematical model that drives fluid behavior in the simulator is exceptionally powerful and ensures that accurate and reliable results are observed under every condition likely to be experienced during vessel cargo operations.

LNG BUNKERING

Designed to advance training in liquefied natural gas operations. Experience cutting-edge technology for a safer and more efficient bunkering process.


LNG BUNKERING - B TYPE TANK


LNG BUNKERING - C TYPE TANK

Offshore Simulation

The ARI Offshore Bridge Simulator recreates the complete experience of operating on the bridge of an offshore vessel, with both fore and aft bridge stations coupled with an extremely high level fidelity visual system.

Our Multifunctional Offshore Bridge Simulator delivers an immersive virtual reality experience so real you'll believe you are actually there. A broad range of offshore vessels can be provided in the system including fully functional PSVs, AHTSVs, MPSVs, MSVs and more. These vessel models are available with a variety of control and propulsion systems including conventional telegraphs, azimuth controls, Z-drives, thrusters and joystick controls.

INSTALLATION PICTURE
OFFSHORE BRIDGE SIMULATOR

DP SIMULATOR

The ARI Dynamic Positioning Simulator provides a powerful platform for DP training and certification that fully complies with NI and DNV to the highest Class A Standards.

The ARI DP Simulator is a scalable product that can be provided as a standalone trainer in a classroom, a multi - station configuration or integrated into the ARI Offshore Bridge Simulator where it can deliver the complete experience of DP/DP-2 or DP-3 operations in a bridge environment.

We work closely with several DP equipment manufacturers and can offer simulator solutions in which OEM DP systems are interfaced to our simulator for those clients that require real DP systems for their training programs.

INSTALLATION PICTURE
DP SIMULATOR

ANCHOR HANDLING SIMULATOR

MULTIPLE VESSELS | COMPLEX MISSIONS

The ARI Anchor Handling Simulator is an add on module for the offshore bridge simulator providing complete anchor handling capabilities supporting basic and advanced AH operations.

The simulator provides a richly detailed, physics based simulation of the anchor handling process: from transmission of the anchor pattern, interpretation and planning; picking up pennant wires and anchors to deployment and retrieval of anchors in position.

A full set of winch controls are provided which operate in parallel with the vessel handling control systems. Single and multiple vessel missions can be executed.

MACHINERY SIMULATOR

The ARI Machinery Simulator recreates the propulsion and machinery plant of an offshore vessel providing a comprehensive platform for training & assessment of operating personnel.

The ARI Machinery Simulator simulates all the machinery related processes of an offshore vessel and fully supports conventional and diesel electric azimuth propulsion systems. The system also supports offshore systems such as FIFI, cargo handling systems, hydraulic system controls and implements a complete power management system.

INSTALLATION PICTURE
MACHINERY SIMULATOR

The entire machinery space of the vessel, with all equipment, machinery and controls is also available in 3D and can be used as a separate familiarization platform or in a fully interactive mode linked to the running simulation.

e-Sim.cloud/ & Digital Technologies

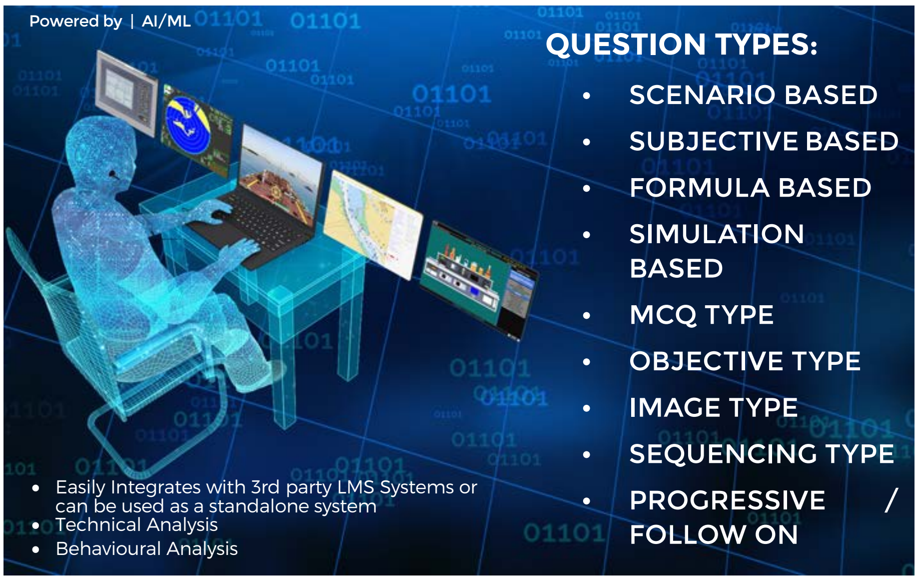
ARI's digital suite of products represents the pinnacle of cutting-edge technology, seamlessly complementing the comprehensive range of physical simulators.

As a fully-realized SaaS offering, ARI's digital software solutions offer an unparalleled, integrated approach to digital learning, training, and compliance. Bridging the gap in training, evaluation, and assessment across industries, the ARI digital suite has been carefully engineered to offer a complete digital environment for online content delivery, including cloud simulations, VR modules, digital classes, e-examinations, e-assessments, and e-certifications. From cloud-based simulators that eliminate the need for physical training centers, to state-of-the-art digital examination solutions that employ smart automated assessments to ensure compliance, ARI provides an all-encompassing solution for your every need.

With the releases of ARI's Digital operations and real time digital services platforms for real- world applications, ARI continues to provide innovative solutions for Industry & Workforce 4.0.

AUTOMATED SCENARIO/SIMULATION BASED ASSESSMENT

ARI's Automated Scenario/Simulation Based Assessment (ASBA) platform sets the standards for digital assessment and overcomes all the limitations of the current assessment-based products for the maritime industry.



- Smart, Adaptive, Scenario Based Question Banks
- Engagement Monitoring
- Dashboard for Analysis
- Report Generation
- Shorter Test Cycles & Immediate Results
- Precise and Fair Scoring
- Secure
- Enhanced & Convenient Candidate Experience
- Can be used for Training, Screening, Assessment & Competency Development
- Enhanced Post test Analysis
- Supports Scenario Based Adaptive Testing for a Range of Industry Verticals
- Different Levels of Proctoring available

ARI E-EXAMINATIONS SYSTEM

The ARI e-Exam platform is designed to deliver the complete cycle of the examination process in a contactless manner.

- For high stake examinations and assessments
- Fully online version – candidates need not visit examination centre at any stage
- Can be extended to include conduct of digital examinations at authorized examination centres
- Operating Modes: Remote, Physical, and Hybrid Versions
- Supports all formats of written examinations, including pen & paper
- All existing formats can be supported

CLOUD BASED SIMULATION TRAINING

Using ARI cloud systems more than 60,000 certificates have been generated. ARI is amongst only 3 globally certified simulation companies to be approved by both IADC & the IWCF for the critical cloud-based assessment of drilling & well control operations. ARI's Marine range of Cloud based simulation modules are DNV Class A Approved. As a part of its digital cloud initiative all versions of simulators in ARI's portfolio are available through ARI's Cloud Based Simulation Training.

- Fully online version – candidates need not visit examination centre at any stage
- Can be extended to include conduct of digital examinations at authorized examination centres
- Hybrid versions
- Supports all formats of written examinations, including pen & paper
- All existing formats can be supported

ARI'S CLOUD BASED SIMULATORS

- Navigation and Ship Handling Simulator
- Engine Room and Machinery Space Simulator
- Cargo Handling Simulators
- GMDSS / Communications Simulator
- Tug Handling Simulator
- Offshore Vessel Handling Simulator
- Dynamic Positioning Simulator
- Container Terminal Crane & Equipment Handling Simulators
- Drilling & Oil Well Control Simulator
- Mining Simulators
- Alternate Energy Simulators

NEW MODULES - SHIP SIMULATION- NAVIGATE THE FUTURE WITH PRECISION

ARI has recently launched the following New Modules/ Plugins such as:

- e – Observer
- Hybrid/ Blended Simulations
- AR/VR/MR
- Drone/Missile/Piracy and S&R Module
- STS/SPM/ MultiPoint Mooring
- Helicopters
- Fast Crafts
- Pilot Boat Manoeuvres including Pilot Boarding
- Jack-up Barge / Offshore Module
- ...

E-OBSERVER

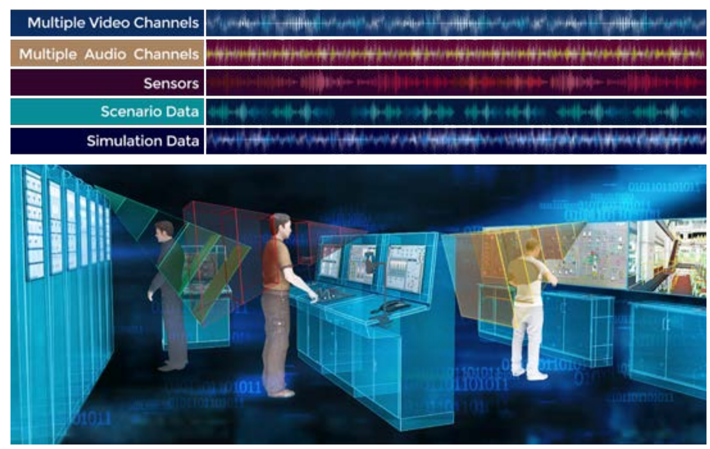
e-Observer is a tool for Enhanced Surveillance, real time monitoring aimed at streamlining training efficiency by integrating and displaying critical information in a cohesive and accessible manner.

INTEGRATION WITH REAL-TIME DIGITAL MONITORING

We have designed the next generation of maritime simulators with the requisite technology wherein the audio and video feeds of the trainees are captured and analyzed in real time with the help of sensors embedded into the simulator consoles.

The information thus captured is analyzed in conjunction with information gathered from the simulator such as Feeds from the multiple video channels, Multiple sensor inputs, Simulation scenario data, Simulation data, Biometric data of the trainees. These critical data points are then analyzed, providing a holistic evaluation of the training outcomes and decision making – both technical and behavioral.

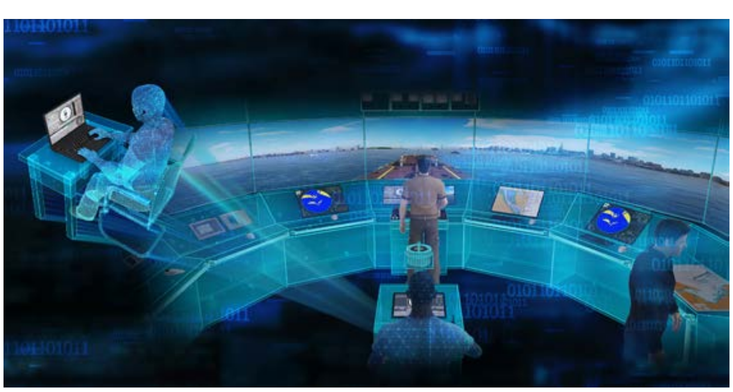
e-Observer



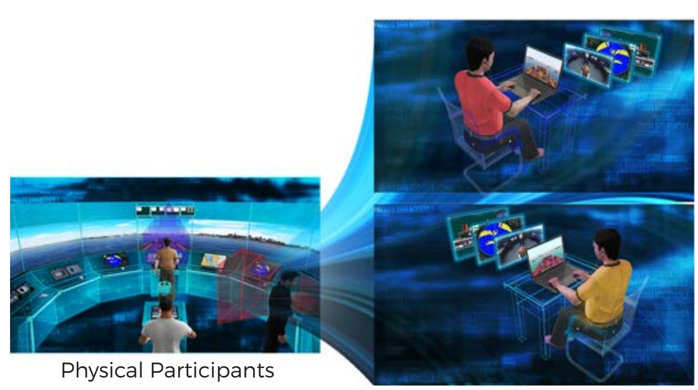
Trainee Audio/ Video feeds and Multiple sensor data being gathered in a Simulation Training environment

SIMULATORS WITH HYBRID / BLENDED CAPABILITY

Simulators enable remote trainees to fully engage in training, accessing the same functionalities as on-site participants through video, RADAR, ECDIS, and more. Instructors can monitor all participants, ensuring a sustainable and future-proof training experience.



Operations in Hybrid Mode - Remote participant within a bridge team training environment



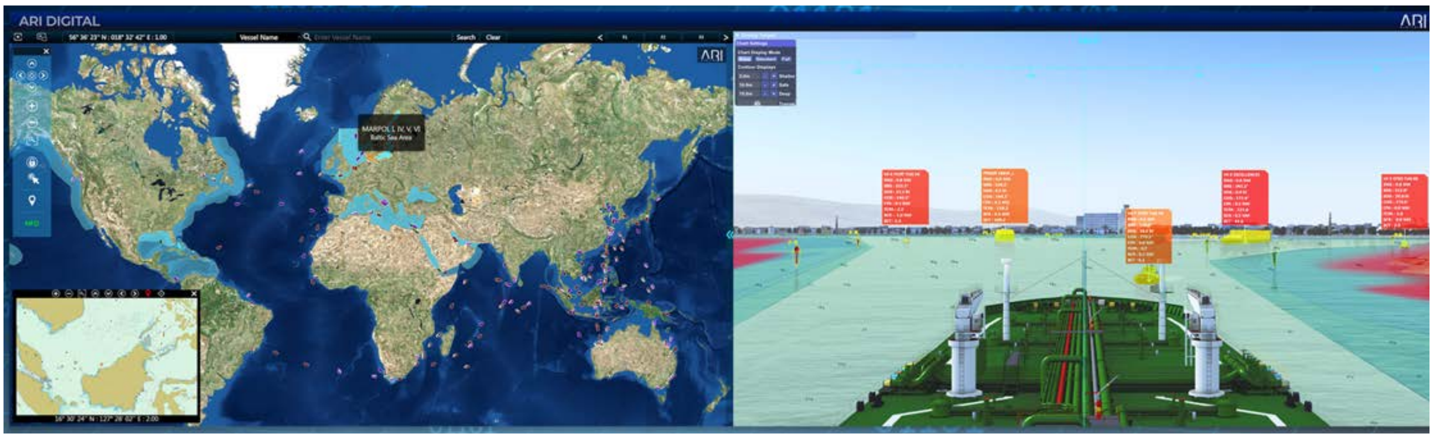
Physical Participants

Remote Participants

GLOBAL TEAMS

JUST IN TIME (JIT) - BASED ON REAL WORLD DATA

Just in time simulation provides the opportunity for staff, both on board the ship and ashore to simulate an upcoming real-world scenario with traffic, weather conditions, port entry and similar scenarios based on real world & forecasted conditions.

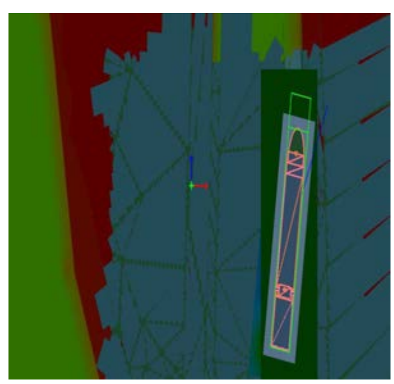


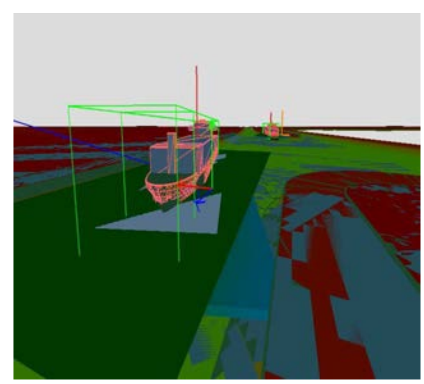
STATE-OF-THE-ART SIMULATION PLATFORM

Next Generation Ship Model Behavior

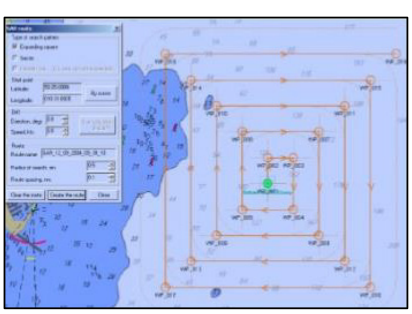
Unmatched Visualization Experience:

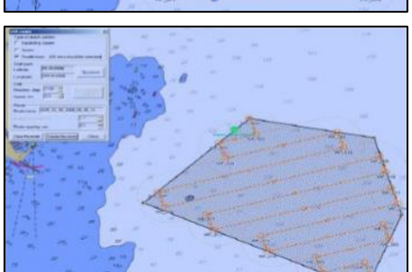
- Advanced Data Analytics and Assessment
- Advanced Tools for Port and Ship Modelling
- Scalability & Integrability
- Physical I Online I Hybrid





SEARCH AND RESCUE MODULE

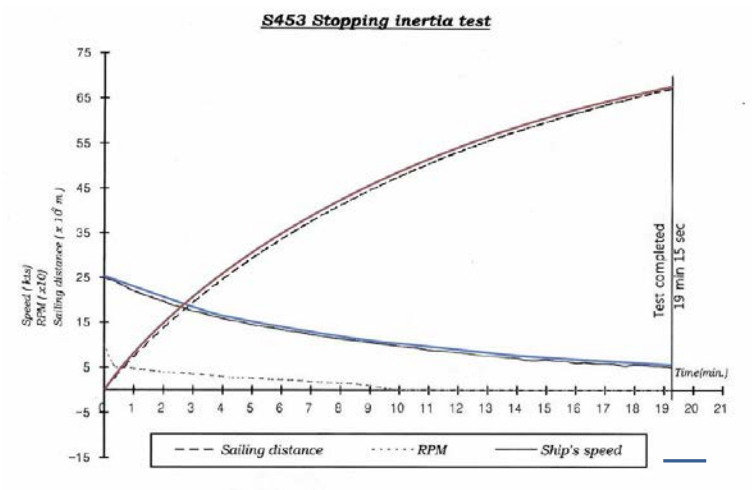


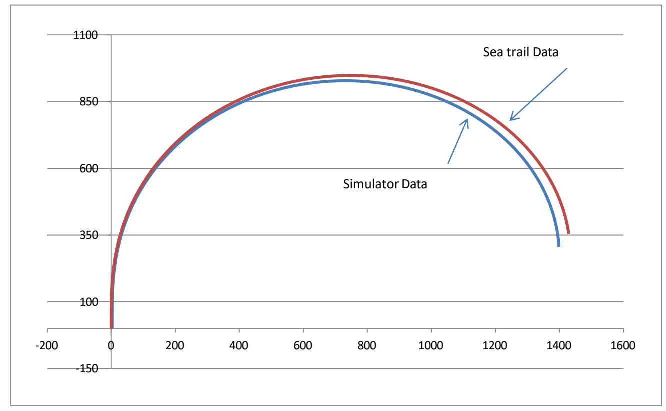


1. Scenario-Based Training:
    - Man overboard
    - Responding to distress situations
    - Medical emergencies
2. Coordination and Communication
3. Navigation and Maneuvering:
    - Search Patterns:
        1. Expanding square
        2. Parallel track
        3. Creeping line
    - Dynamic Maneuvering:
        1. Handling ships in various sea conditions
        2. Navigating rough seas and strong currents to reach distressed areas quickly and safely
4. Emergency Response

BEST IN CLASS MODEL FIDELITY

Comparison – original vessel sea trial data vs. simulated vessel model test data

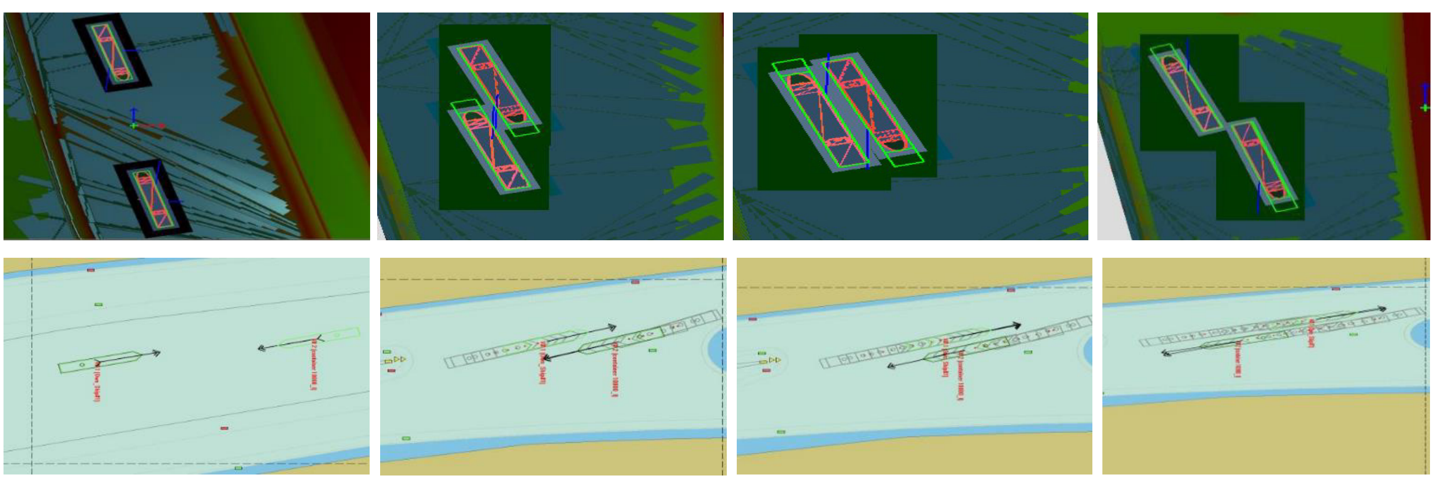




Comparison – Simulated vessel model test data overlaid on Original Vessel sea trials data

Container 10,000 TEU

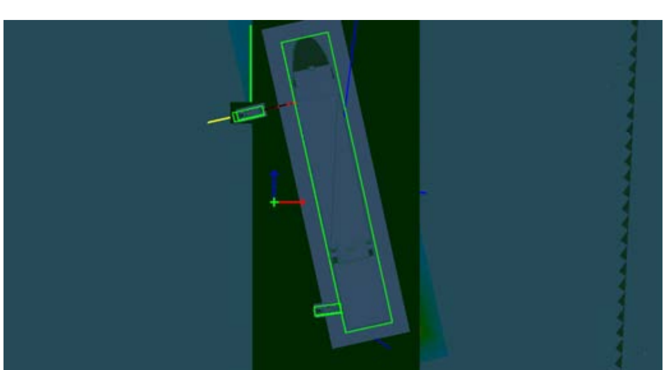
HYDRODYNAMIC INTERACTION - INSIDE THE MODEL



Comparison – Simulated vessel model test data overlaid on Original Vessel sea trials data

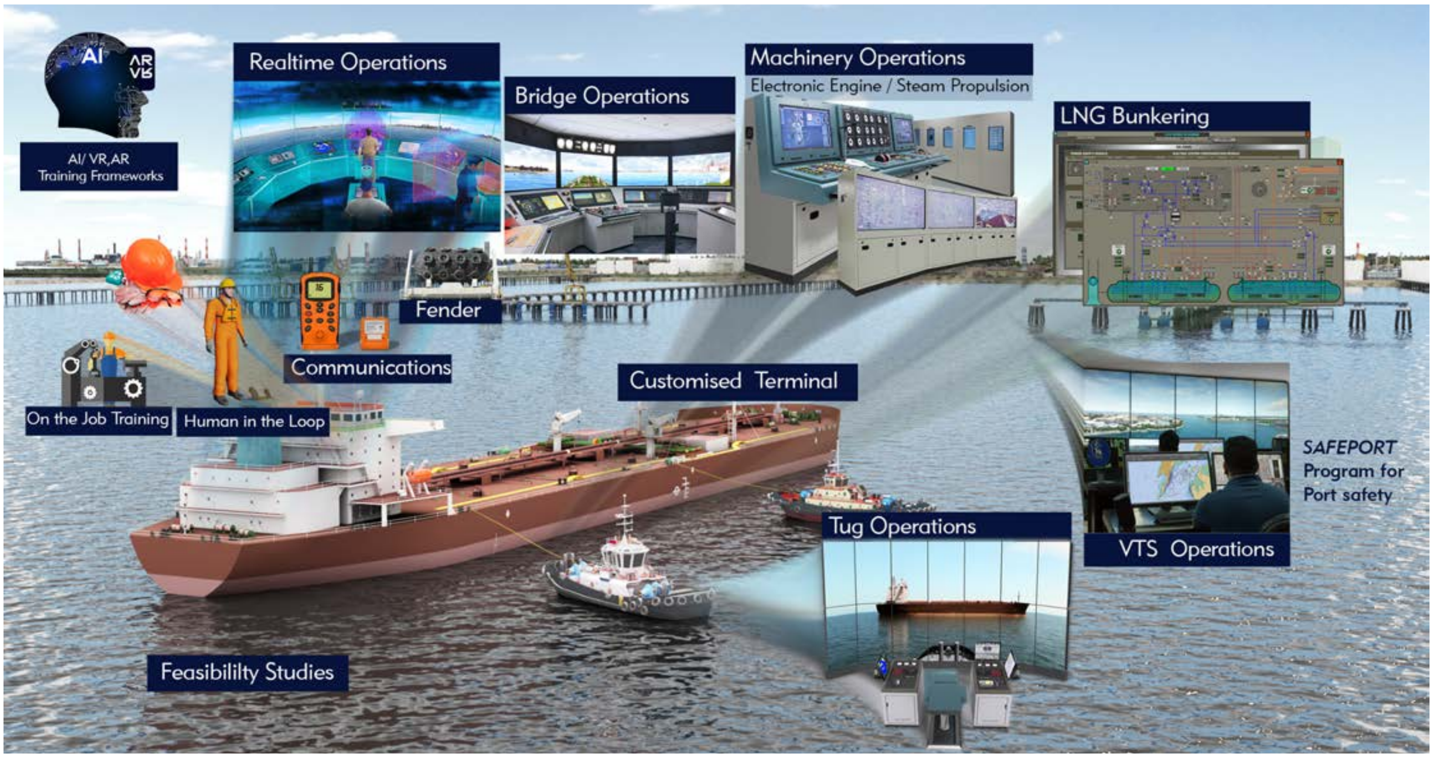
Container 10,000 TEU

HYDRODYNAMIC INTERACTION - EXTERNAL FORCES

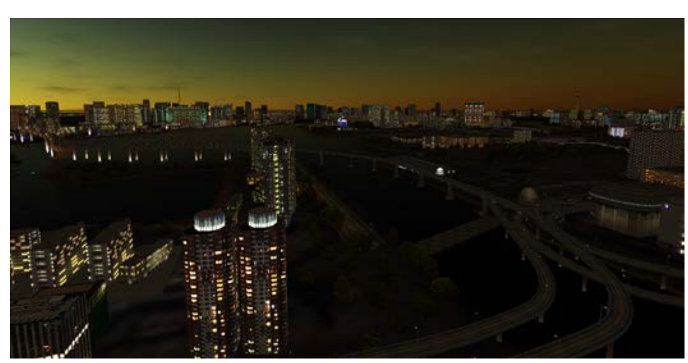


Container 13,100 TEU

INTEGRATED TRAINING SCENARIOS

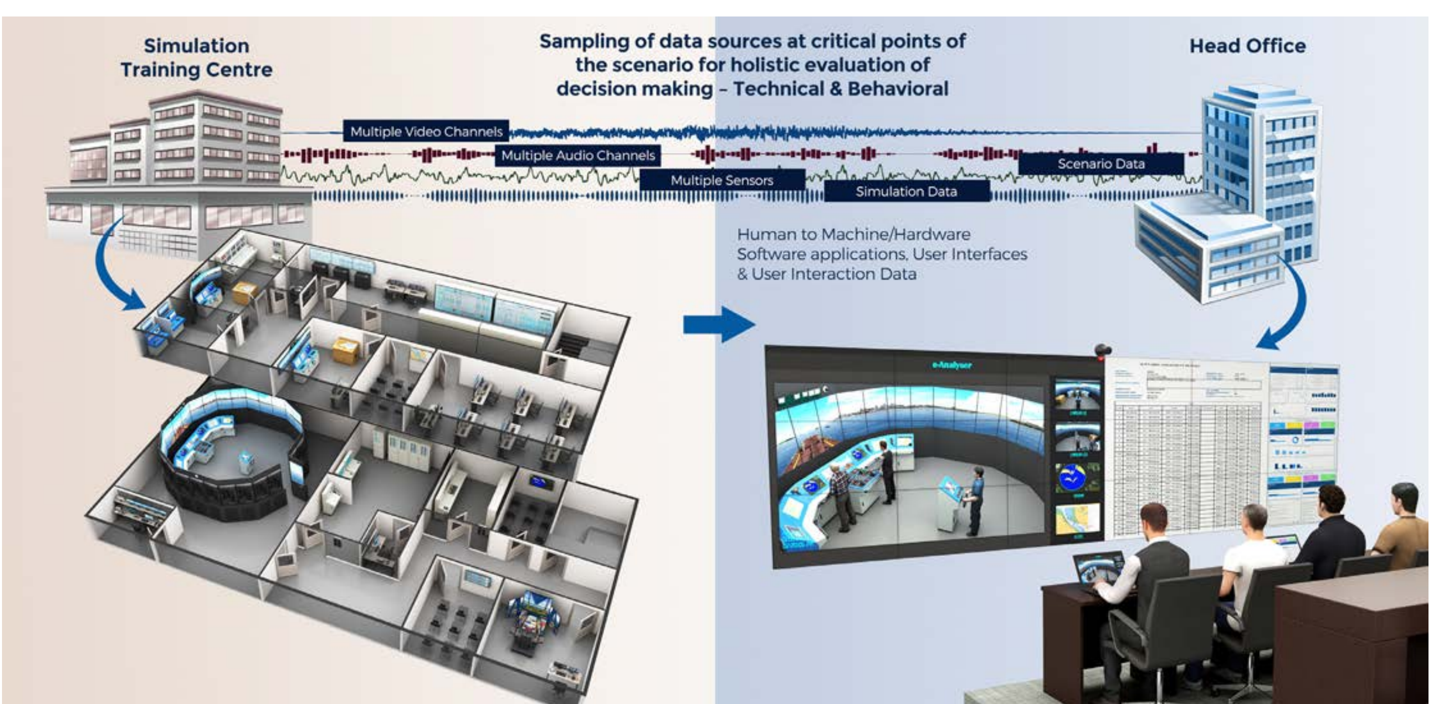


VISUALIZATION



E-ANALYSER TOOL

Our advanced e-Analyser tool integrates seamlessly with the bridge simulator, capturing and analyzing trainee actions through audio, video, sensor, and CCTV feeds. This data is fed into our e-Analyser engine, where the data is analysed using advanced AI / ML engines for next-generation briefing and assessment, enhancing training outcomes and operational efficiency.



Feasibility Studies

SIMULATION STUDIES

Simulation studies for vessel navigation and maneuvering are an integral part of any Port development project – be it a Greenfield or Brownfield port, harbour, berth, river, terminal or inland waterway.

The ARI SAFEPORT program is designed to help in studying the feasibility of safe navigational operation of the intended vessel type(s) in the proposed maneuvering area before large resources are committed to the development of waterways and port infrastructure.

This solution is now successfully being used in the industry to conduct simulation studies to analyse the following:

- Ability of vessels to maneuver in the approach channel/turning circle in a safe, timely & efficient manner under the combined effects of current, wind, tide & swell.
- Ability of vessels to arrive & depart from proposed berths.
- Confirm the size, power & number of tugs to assist the vessels during transit, turning, berthing and un-berthing including the ability to assist the vessel during emergency conditions.
- Ability of river boats, including barge convoys, to negotiate the bends and turns of river sections including entering and leaving lock area, if required.
- ...

Simulation study in progress for inland waterway / large river area

Vessel Model

ARI will develop the specific vessel model for studying the maneuvering feasibility in the proposed waterway environment. The model is fully customised to the sea trials data provided. Alternatively, an existing model from the ARI library of vessel models can be chosen for the study.

The Complete Study

Feasibility studies can be focused on evaluating many different aspects of navigational safety and capabilities of the simulated vessel model in the virtual environment. A large range of parameters can be studied.

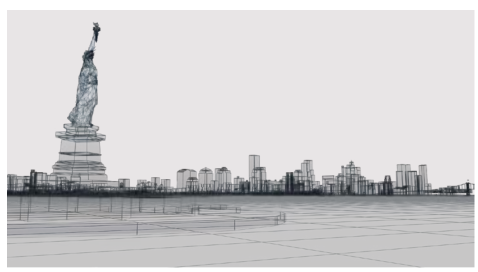
Custom Creation

The process of preparing for the simulation study invariably involves custom creating a number of models, compatible with the proprietary simulation platform, that together permit an accurate, reliable and repeatable simulation study to be carried out.


Real


Simulated


Real


3D wire mesh model

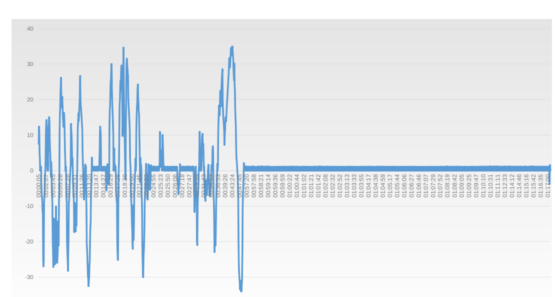

Simulated

Analysis and Reporting

ARI Simulation will provide a comprehensive report on the simulation study carried out, with meaningful data and insightful conclusions in line with the objectives of the study.

- Simulation runs matrix with conditions of each run
- Description of the ship models used for study including validation data and pilot cards
- Description of the environmental parameters used for the study and the reasons for selecting the threshold values
- Results of each run including graphical presentation of vessel track and data plots
- Data for Tug usage including power used and direction of push / pull, duly time stamped for synchronization with vessel location / movement
- Data relevant to vessel movement presented as tables or graphs for easy correlation
- Assessment of the difficulty of the maneuvers based on the personal appraisal of the pilots / mariners responsible for each run.


Vessel tracks recorded during simulation runs


Multiple data plot types are included in the report to provide a comprehensive review of the study results obtained

VR | AR | MR BASED SIMULATOR TRAINING

ARI's cutting-edge Mixed Reality (MR) solutions redefine training and operational efficiency in the marine, offshore, and crane industries. By seamlessly integrating the physical and digital worlds, our MR platforms offer immersive, interactive simulations that enhance learning, safety, and decision-making.

APPLICATIONS:

MARINE SIMULATION: Experience lifelike ship handling and navigation scenarios, enabling maritime professionals to hone their skills in a risk-free environment. ARI's MR solutions replicate real-world conditions with precision, ensuring comprehensive training for captains, officers, and crew.

OFFSHORE OPERATIONS: Equip offshore personnel with the tools to practice complex tasks such as rig operations, emergency procedures, and equipment handling. MR simulations provide a realistic platform for mastering critical operations, reducing on-site risks, and improving overall efficiency.

CRANE SIMULATION: ARI's MR technology offers crane operators a dynamic training environment that replicates the challenges of lifting, loading, and maneuvering in diverse conditions. This immersive approach accelerates skill acquisition, enhances safety protocols, and minimizes operational downtime.

DEFENCE SIMULATION

ARI D-SERIES Simulation offers a range of sophisticated simulator products suitable for armed forces and smaller response units for use in training, mission rehearsal and other defence related applications.

Bridge Operations

Machinery Operations

Command and Control (C&C)

Submarine Systems

Tele-Robotic and Autonomous

Built on the proven and certified simulation technology that drives our private sector product ranges, the ARI D-SERIES products are built to military grade standards and add a considerable set of unique defence related features. Our technologies are used by multiple armed forces all over the world.

ARI D-SERIES simulators are designed and built to deliver a high degree of integration and interoperability, enabling the practice of missions involving multiple force elements performing in their own individual roles towards a common objective.

INSTALLATION PICTURE
WARSHIP SIMULATOR

Using integrated synthetic defence environments that offer unprecedented levels of realism and virtual world immersion, commanders can create and test operational plans, check operational readiness and improve overall effectiveness at individual and collective levels.

ARI HEMM TRAINING SIMULATORS

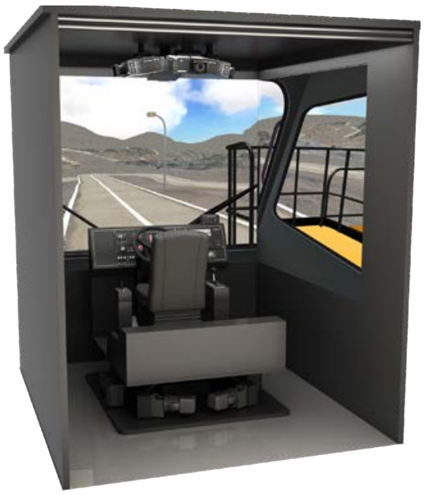
ARI Heavy Earth Moving Machinery (HEMM) Simulators for high quality training of personnel engaged in mining operations.

ARI Heavy Earth Moving Machinery (HEMM) Simulation Systems are globally recognized as 'class leading' and offer high levels of realism in visualization & behavioral modeling of equipment used in mining.

ARI offers high levels of flexibility to training providers in selecting the size, type and layout of simulators and equipment modules that will best serve their current and future training needs.

Custom solutions can be built on request – Customization is a key strength of ARI.

Controls used for operation of simulated equipment can be 'near-replicas'. Alternatively, ARI can use real cabin and controls provided by OEMs and interface ARI software modules to create high levels of immersive realism for simulation training.



Universal HEMM Simulator with Cabin and Motion Platform

MINING AND CONSTRUCTION EQUIPMENT

Dumpers

Tippers

Dozers

Backhoes

Excavators

Wheel Loaders

Bucketwheel Excavators

LHDs

Drills

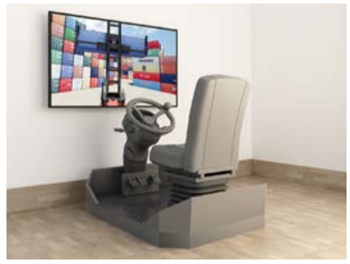
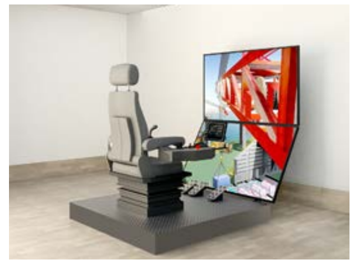
Shovels

Crane Simulation

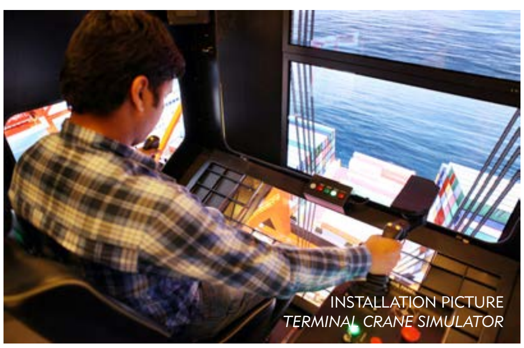
The ARI Crane Simulators provide a realistic reproduction of the visual, behavioral and operational of various crane types while making the operation of the simulator extremely simple and intuitive for trainees and instructors.

ARI offers a broad range of crane simulators for operational training in all essential aspects of container, offshore and bulk handling operations across various crane types including: QC (Quay Crane), RTG (Rubber Tired Gantry), RMG (Rail Mounted Gantry), SG (Ship Gantry), PC (Pedestal Crane), SC (Straddle Carrier), Mobile Telescopic Boom Crane, Tower Type Construction Crane, Floating Barge Crane, Offshore Pedestal Crane, Knuckle Boom Crane, Vessel Mounted Crane, and other client specific cranes and equipment types.

ARI has crane simulation solutions to suit all requirements and budgets, from low cost desktop installations through kit based portable multipurpose trainers and up to multiple PC, instructor controlled, full mission solutions.





INSTALLATION PICTURE
TERMINAL CRANE SIMULATOR


INSTALLATION PICTURE
OFFSHORE CRANE SIMULATOR

The simulator provides a virtual non-destructive training environment for accelerated, hands on training for both novice and experienced operators. Trainees can repetitively practice routine and specific tasks to imbibe safe and efficient work practices. ARI simulators - with their enhanced visual, motion and sound systems - represent the state of the art in crane simulation for operations training for enhanced safety and improved productivity.

A typical full mission crane simulator includes: a replica operator cabin; seat; swappable plug & play control consoles; high fidelity visual system; sound system; option of motion platforms; an instructor station with CCTV, stealth view & debriefing sections in a classroom or container configuration.

The ARI Offshore Crane Simulator is approved by DNV to the highest Class ‘A’ Standards. All stages of OPITO offshore crane operator training and assessment can be carried out using the simulator. The ARI Crane Simulator also encapsulates the API standards for crane types.

Swappable Replica Crane Control Consoles

Crane control consoles emulate those on a real crane and are designed as plug and play devices that can be swapped based on the crane type, make and model.



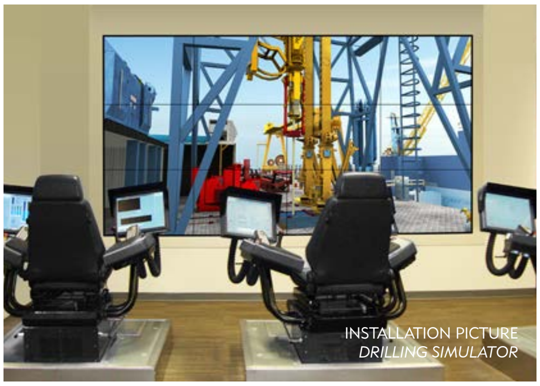
Motion System

The operator cabin can be installed on a motion platform.

Drilling and Well Control Simulation

The ARI Drilling Simulator offers a powerful array of simulation training capabilities to those involved in the oil and gas drilling industry.

Using the latest technologies in high-fidelity graphics and engineering simulation, the Drilling Simulator provides a complete and detailed immersive simulation experience of the complete drilling operations on a virtual rig including pipe-handling, tripping in, tripping out, drilling, mud system operation, cementing operations and well control training.



INSTALLATION PICTURE
DRILLING SIMULATOR

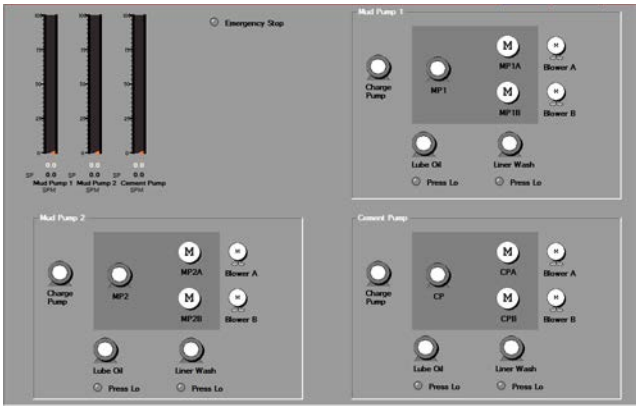
The ARI Drilling and Well Control Simulator is available in a range of modular configurations, from small scale, portable solutions suitable for remote and on-rig training, to containerized portable solutions to full mission multi trainee solutions suitable for deployment in training centers and academic institutions.

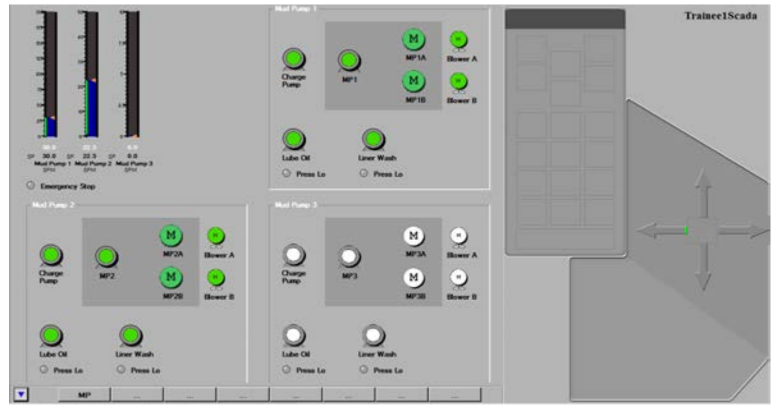
The (Virtual) Drill Floor

Suitable for use in procedural, operations and well control training, the ARI Drilling and Well Control Simulator provides a completely immersive environment based around the driller and assistant driller workstations in the drillers cabin on the drill floor. With control and monitoring systems that replicate those found on a real rig, including the display and SCADA systems and with virtual CCTV monitoring, training and assessments are conducted in an entirely realistic environment.

Mud System

The mud system simulates the entire mud path and can realistically simulate all necessary parameters.





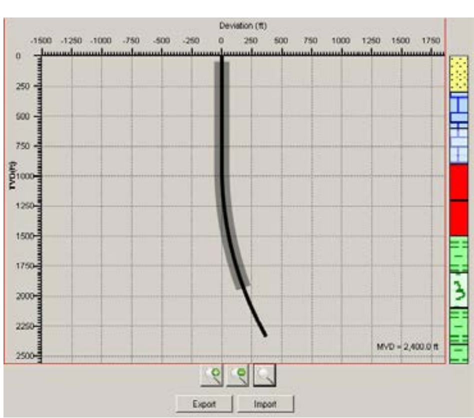
Well Control Training Applications

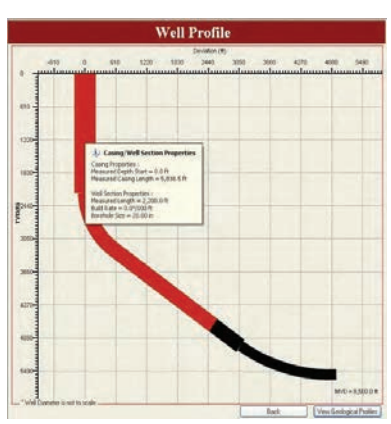
The ARI Drilling and Well Control Simulator includes ARI's Standard Edition Downhole Model which models pressure, temperature and other conditions in the well into the surface feedback and monitoring systems. Most well control training scenarios can be created using this configuration. For more sophisticated well control applications, ARI offers the Advanced Downhole Module, which supports rheology models, pressure calculations, drill cutting transportation and filter cake formations.

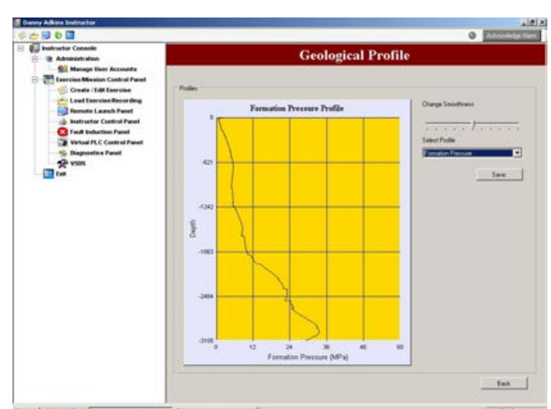
Downhole data can be returned to the surface using LWD or MWD techniques.

Complete well profiles can be defined to provide multi-dimensional training features. Special consideration has been given to the modeling of drill string dynamics with full support for effects like drill string whirling, vibration, twist, torsional stick slip, bit bouncing and more.

Virtual Well Plan







VirtualWellPlan is a module which allows complete well plans to be entered into the system and stored as *VirtualWell* scenarios. A complete range of geological, pressure and temperature information can be entered and stored into the well plan library in the simulator mission control application. *VirtualWellPlan* has an easy to use graphical interface and supports vertical, directional and multi-lateral wells and sections.

Subsea / ROV Simulation

The ARI ROV Simulator is certified by DNV to the highest Class A Standard, and meets the requirements for Class A simulator according to IMCA guidelines pertaining to ROV simulator classes, their performance and viability for training.

The simulator can be used by ROV manufacturers, operators, oil companies and others for tasks such as field visualization (as built), mission planning, dive plan development / evaluation, as well as subsea equipment design and testing for ROV missions prior to field deployment. As a training tool, the simulator is a vital aid for equipment specific, mission specific or site specific ROV pilot training.

The simulator provides an opportunity for pilots and potential pilots, to gain ample 'stick time', without risking ROV systems, tying up expensive field equipment, or causing wear and tear to equipment that could otherwise be employed on jobs offshore.

The simulator is deployed on networked PCs, with distributed processing of simulated camera graphics, sonar data, controls interface, and the hydrodynamic modeling software component. The simulator supports multiple dynamic objects (including two ROV systems), large umbilical lengths (deep water operations) and fully interactive manipulators.