RINA provides a wide range of services across the Energy, Marine, Certification, Transport & Infrastructure and Industry sectors through a global network of 170 offices in 65 countries.

RINA is a member of key international organisations and an important contributor to the development of new legislative standards.
RINA is a key technical partner in the maritime defence sector. We work with safety critical systems across a range of industries and have a proven track record in supporting complex projects with: safety, training, project management, business analytics, asset integrity, electromagnetic compatibility and modelling solutions. Our team of UK based, security cleared consultants work closely with clients, and we pride ourselves on being proactive, flexible and agile in our approach. Our ability to react quickly to changing requirements provides sustainable and value-added solutions.

OVERVIEW

Understanding your challenges

Delivering complex defence programmes with extensive and varied requirement sets is challenging, and our international experience tells us that safety, reliability and availability are critical to underpin the delivery of safe and effective military capability. At the same time, we understand that organisations require efficient, transparent and cost effective performance of project, programme and portfolio development and delivery. Military equipment is increasingly embracing digital solutions through the use of integrated networks in ships and submarines through to the use of remotely piloted systems, such as unmanned air and sea systems, and finally in the provision of synthetic training comprising virtual, augmented and mixed reality solutions. Digital solutions are integral in both current and future development programmes but bring with them their own increasingly complex cyber security risks. With a lengthy history of working directly with government defence ministries, space agencies and prime contractors, we have an extensive range of capabilities to support programmes through their entire lifecycle. From defining specifications and conceptual design through to design, development, installation, integration and training, we provide the right skills set to deliver the programme.

We make a difference

With a track record as a trusted partner, we provide clients with independent and confidential advice and support through their entire project lifecycle. Our teams can react quickly to changing requirements and maintain an agile approach to project management.

Our people

Many of our team have worked directly in the defence and space sectors and our 1,700 talented professionals give us the depth of experience across engineering disciplines to support clients at each phase of their project - from initial concepts and design, through to operation, maintenance and decommissioning. We are committed to providing services that are of the highest quality for our clients, creating added value for their business through our technical advice and support - helping you to provide systems that are sustainable, optimised and that are “safe to operate” and “operated safely”.

Delivering across the supply chain

As a leading provider of engineering consultancy services including testing, inspection and certification, our capability is underpinned by a broad portfolio of international maritime classification and safety, meaning that we have extensive experience with manufacturers, suppliers and SME’s.
Classification and technical advisory services are a voluntary choice for all types of naval ships and fast patrol vessels, ranging from small RIBs up to aircraft carriers, passing through patrol vessels, corvettes, frigates, LPDs, fleet tankers and mine countermeasure vessels. We are proud to maintain a growing register in excess of 5,500 vessels.

The RINAMIL classification rules are tailored to the specific needs of navies and periodically updated in order to support them in demonstrating the quality and safety policies adopted for their ships and crews, from plan approvals in build across the through-life inspection plans.

RINA has developed two sets of ad hoc rules for the classification of military ships:

- Rules for the classification of naval ships (RINAMIL Rules), which are intended for the classification of steel ships, auxiliary and combatant, from corvettes upwards
- Rules for the classification of fast patrol vessels, which are intended for the classification of high speed ships up to 65 m and built in steel, aluminium alloy or composite materials.

With the development of more advanced maritime equipment and increasingly restrictive environmental legislation comes the need to evolve the ruleset of naval ship classification and we are proud to offer additional notations for:

- Military including damage and blast, shock, flying, weapons and Replenishment At Sea (RAS)
- Combat System Physical Integration (CSP)
- Comfort noise and vibration (for equipment and personnel)
- Environmental compliance.
KEY PROJECTS

MARITIME CLASSIFICATION
Client: Multiple
Location: Multiple
Scope of Work: 650 Classed Naval Units, 250 Classed Offshore Support Vessels, 35 m total GT of classed ships, 5,450+ Classed Ships, 700+ new-building, 1300 Classed Yachts, 250 New Yacht projects worldwide, N.1 Ranked for Ferries Classification, 116,000+ Units certification of new general purpose and offshore containers.

DIGITAL SHIP NOTATION
Client: Grandi Navi Veloci
Location: Italy
Scope of Work: Provision of the first digital class notation to certify and demonstrate the use of digital technologies to add value to a fleet of 11 ships. This notation is assigned to ships with a navigation and machinery collection system that enables data transmission ashore for analysis and development of recommendations.

TYPE APPROVAL CERTIFICATION
Client: HATECKE
Location: Germany
Scope of Work: Provision of Type Approval Certification for the PEL14 (largest and most space-optimised lifeboat ever built). Type Approval demonstrates conformance with regulatory, technical and safety requirements for design, drawing and testing. Approval was granted using the Alternative Design Assessment of SOLAS to allow functional requirements to be exceeded and to capture innovative features.
MODELLING AND SIMULATION

Our modelling & simulation methodologies support the development of systems through the imitation of final product functionalities, or interaction with scenarios which may be challenging or impossible to replicate in the physical environment. This serves the purpose of analysing and verifying system characteristics or behaviours based on specific needs in order to identify corrective actions required to the system design specification.

Usually, modelling a system is the first step in approaching system design in order to have a common understanding of what the system is or what it shall be. Modelling system component behaviours and interactions drives to system simulation, and helps to have a common understanding of how the integrated system will work and react to external stimulations.

RINA provides modelling & simulation engineering services and consulting for the development simulation environments covering the whole environment development in a wide range of contexts. Modelling & simulation applications developed by RINA include virtual 3D plant simulators for personnel training, metro 3D environment simulators for crisis management experimentations, RADAR, SONAR and IR sensors, electronic warfare system and combat management system simulators supporting the integration & acceptance phases and training of complex naval systems as well as missile and aerospace systems.

Services

- Concept and experimentation modelling
- Performance optimisation
- Safety engineering
- Testing and training
- Provision of simulation models including MIL, SWIL, HWIL and HIL
KEY PROJECTS

BLAST, FOREIGN OBJECT DAMAGE (FOD) AND EFFLUX MODELLING
Client: Fincantieri
Location: Italy / UAE
Scope of Work: Conducted blast analysis and modelling of several weapons systems to develop battle damage assessments. Provided FOD analysis on weapon system spent cases. Conducted analysis of the interaction of missile efflux and plume with ship superstructure and provided structural thermal analysis of superstructure in the vicinity of missile efflux.

COASTGUARD EM ANALYSIS AND SIMULATION STUDY
Client: Fincantieri
Location: Italy
Scope of Work: Provided EM modelling and analysis of: antennas, ships, EM emissions, EM interference and hazard analysis including HERF and HERE.

ANTI SUBMARINE WARFARE SIMULATION - FREMM FRIGATE
Client: Selex ES
Location: Italy
Scope of Work: Developed real time simulators supporting the CS integration and acceptance phase of FREMM frigates. Activity included: development of system interfaces, behaviour of GUI and the integrated sonar suite (including bow mounted sonar, variable depth sonar and underwater telephone, MILAS, ASW-DLS and TLS), interfaces with the scenario generator and animator and the ship combat management system.
SAFETY AND ENVIRONMENTAL CAPABILITY

RINA offers a complete safety and environmental service to clients. Our flexible, agile and deployable consultants have the valuable skills and experience to support, develop or audit an organisation’s safety management capability.

RINA strives to ensure safety management is at the forefront of projects and programmes by embedding a strong safety culture to improve the chances of the programme achieving its objectives.

We focus on generating quality and meaningful POSMS and POEMS compliant safety and environmental artefacts to support safety arguments, justifications and to support recommendations to regulators and surveillance authorities.

RINA applies its extensive maritime heritage and mature, IET compliant ISA processes to provide DSA02-DMR and JSP430 compliant assurance to the parties responsible for complex defence systems.

Services

- Safety and environmental artefact development
- Safety and environmental system assessment, advice and audit (ISEA)
- Vessel / Life modelling
- Safety modelling including bowtie, fault tree and event tree
- Hazard and risk management including identification, analysis and ALARP justification
- Environmental impact assessments
- Product and legislative compliance assessments
KEY PROJECTS

DREADNOUGHT LEGISLATION COMPLIANCE
Client: DREADNOUGHT Supply and Support Team
Location: MOD Abbey Wood
Scope of Work: The DSST tasked RINA to define the EU legislative conformance requirement for the import of equipment into the build programme. This saw RINA develop the team’s compliance management plan as well as undertaking the technical analysis, conformance activity and generation of technical documentation to achieve legislative compliance.

TOWED ARRAY HANDLING SYSTEM PRODUCT SAFETY
Client: Curtiss Wright
Location: Canada
Scope of Work: Design safety assessment & environmental impact, audit service to Successor Towed Array Handling System (STAHS).

TYPE 26 SAFETY MANAGEMENT
Client: Type 26 Programme Team
Location: UK
Scope of Work: Review and identify aviation hazards for T26 GCS, as well as Merlin, Wildcat & Chinook. Change management from T26 project technical authority (BAES) to customer (MoD) ownership.
ELECTROMAGNETIC COMPATIBILITY (EMC)

RINA is a trusted technical partner and has been pioneering EMC services and best practices for complex systems and installations for many years. We support clients across multiple industrial sectors, including:

- Maritime
- Transport
- Oil and gas
- Built environment
- Infrastructure
- Aerospace
- Defence
- Security markets
- Specialist industries
- Power
- Medical & scientific

With many years’ experience supporting clients in testing and assurance activities, RINA can give you access to a wide range of expertise that will reduce the vulnerability of systems and can implement bespoke optimum levels of protection. RINA’s experience in systems engineering and EMC analysis is built upon years of proactive support to major organisations across multiple industry sectors.

Services

- Management and control
- Design consultancy
- Test and measurement
- Risk analysis and mitigation
- Modelling and simulation
- Qualification and validation
KEY PROJECTS

**HMS WESTMINSTER AND RFA LARGS BAY**
Client: UK Ministry of Defence (MoD)
Location: UK

**EMC/EMI MANAGEMENT FOR THE NVC 395 POLAR RESEARCH VESSEL**
Client: Fincantieri S.p.A / Norwegian Institute of Marine Research
Location: UK
Scope of Work: RINA provided analytical and modelling support for the investment decision to transform RAF Brize Norton to support the UK’s future air mobility needs and identify potential savings of £1bn over the next ten years.

**ITALIAN COASTGUARD EM ANALYSIS AND SIMULATION STUDY**
Client: Fincantieri S.p.A
Location: Italy
Scope of Work: As part of the EMC / EMI control process of the vessel top side, design validation and final acceptance activities were undertaken including antenna placement optimisation.

**LOW FREQUENCY EM MEASUREMENT**
Client: Costa Crociere
Location: Italy
Scope of Work: Provided on board measurements for EMF exposure to assess the impact of a change to high voltage power cable routing.
BUSINESS ANALYTICS

RINA understands that decisions need to make a positive impact on the performance of an organisation or project, across the full CADMID cycle and especially through challenging transition phases. We pride ourselves on providing independence, rationale and robust analysis to underpin decisions using the latest innovative computational modelling and simulation methods to provide clear articulation of potential option costs, benefits and savings.

Our breadth of experience supporting defence teams and wider industry means that we are conversant with a wide range of policies including JSPs 507, 655 and 939 and the MOD gated procurement and investment process (HM Greenbook), as well as International Financial Standards. We support clients in the analysis of technical, commercial and financial options and trade-offs at strategic, operational and tactical levels to ensure they are fully informed.

Services

Strategic
- Techno-economic Modelling
- Balance of Investment
- Feasibility Study
- Strategy Lead Dashboards (balanced scorecards)

Operational
- Modelling Process Efficiency
- Challenging Cost Drivers
- Whole Life Cost (WLC) modelling, estimating and performance tracking

Cost Benefit Analysis
- Benefits Tracking and realisation management
- Optimisation and risk management assessment
- Value Management Trade-Off (VfM)
- Benchmarking

Tactical
- Silent Witness Assessment
- Simulation Modelling
- Scenario Testing
- Options Analysis and Trade-Offs
KEY PROJECTS

RAF BRIZE NORTON PROGRAMME GATEWAY
Client: Air Mobility Force
Location: UK
Scope of Work: An enhanced operating model provision of transformation analysis to address the acute resourcing and financial pressures, the role of single point for testing, evidencing and justifying initiatives prior to implementation. We provided recommendations to strategic decision making to support delivery of an enhanced operating model. Specific areas of analysis and modelling included: workforce, infrastructure, equipment, tasking, training, engineering, safety and governance. We developed the financial baseline, operational analysis, enterprise simulation, supply chain modelling, investment appraisal and cost estimation.

HYDROGEN FUEL CELLS
Client: ABSL Power Solutions Ltd
Location: UK
Scope of Work: We delivered a complete suite of ILS activities and Whole Life Costing activity to ABSL in the development of the Technology Development Programme for the Portable Power Solution for the MOD Dismounted Close Combat Trainer Project Team. We identified the range of potential in-service costs and provided a complete “one stop shop” for all reliability, ILS and safety matters and provided capability in supply chain, base support, battlefield support, transportation and disposal areas.

PROGRAMME: APACHE HELICOPTER
Client: DE&S MOD
Location: UK
Scope of Work: We exploited historic IOS financial information and bid data using a reapportionment technique to produce a fully auditable top down BoE which provided the Apache DT with an in-depth, robust and auditable benchmark for the ‘should cost’ of the next Integrated Operational Support (IOS) contract period. This provided the Apache DT with the necessary decision support information to make confident and informed decisions.
RINA’s consultants, engineers, laboratories and full scale test facilities provide a powerful capability to any organisation looking to develop new materials, embrace future technologies and failure investigation. We are proud to provide our asset management techniques to improve the performance of our clients’ assets in all environments, providing a rapid response to their needs and minimising downtime.

Over 30 years of pan-sector electro-mechanical engineering experience has enabled us to develop a deep understanding of industry-specific issues and life-limiting damage mechanisms which enables us to provide impartial, expert witness advice to clients across all sectors.

Our engineering critical assessments and material failure are compliant with BS7910, API579 and R6 allowing clients to attain cost savings and enhanced safety through an awareness of the effect of material and product imperfections.

**Services**

- Innovation and business strategy
- Fitness for service
- Performance assessment
- Product design and engineering
- Material selection and qualification
- Engineering critical assessment
- Material and product development and process innovation
- Condition assessment and forensics engineering
KEY PROJECTS

SUCCESSOR / DREADNOUGHT PROGRAMME
Client: BAE Systems Marine Ltd
Location: UK
Scope of Work: Cable qualification testing and assessment to Def Stan 02-527 for single core, multi-core and multipair cables for installation into Successor. Additional work related to this project included the design and development of a suitable cable splice and joint that would satisfy fire and other environmental specifications.

COMMERCIAL FLEET
Client: Raymarine UK Ltd
Location: UK
Scope of Work: Investigation into unusual capacitance behaviour in the conductive layers of a touch-screen display assembly. Investigation involved the destructive dismantling and analysis of areas and layers of the acrylic adhesive layer and ITO conductive layer directly beneath the outer cover glass.

LNG FLEET
Client: China LNG International Co Ltd
Location: China
Scope of Work: We provided third party supervision of the rewinding of the alternator stators and rotors to ensure long term integrity of the rotating machines. This included: visual inspection, witnessing and review of test data, dimensional checks and testing of the ‘cleaned’ cores. In addition we provided witness and reporting services to: crucial points during the assembly and testing, electrical testing of the rotor coils, final electrical testing of rotors and stators and dynamic rotor balancing.

CRUISE LINER FLEET
Client: Norwegian Cruise Line Holdings Ltd
Location: USA
Scope of Work: Failure investigation and root cause-analysis on an exciter winding from one of the cruise liner fleet.
SUPPORTABILITY AND INTEGRATED LOGISTICS SUPPORT (ILS)

ILS is recognised as the best way to optimise lifecycle costs. By influencing system engineering from the early design phases, the most suitable logistic support system can be developed to meet clients’ needs in terms of system operative life and upkeep budgets.

RINA provides government and industrial clients with ILS design and assessment activities to translate supportability requirements into quantitative parameters and forecast logistic needs and costs for the entire platform, system or equipment lifecycles. The ILS methodology includes the following activities.

**Services**

- Configuration management providing the means to uniquely identify and control equipment and components
- System reliability and maintainability including evaluation of durability and repairability of equipment
- Maintenance planning and Level of Repair Analysis (LoRA) identifying upkeep activities to be performed throughout the system’s life and defining a suitable maintenance strategy
- System availability and lifecycle cost analysing logistic support decisions in terms of reliability, maintainability and maintenance strategy for the whole operational lifecycle and analysing the ship’s capability of achieving its operational mission within budget
- Failure report analysis, corrective action system and back-fit RCM dealing with supportability issues arising during the ship’s operative life by evaluating failure events or changes to the ship’s mission
- ILS data management, maintenance management and monitoring system constitute a side-activity for the computerisation for supportability data management and maintenance planning allowing support system optimisation and fast lifecycle estimation
KEY PROJECTS

FREMM FRIGATE PROGRAMME
Client: Orizzonte Sistemi Navali / Italian Navy
Location: Italy
Scope of Work: Provision of support to ship design and acceptance for the ILS contractual provisions, availability, reliability and maintainability analysis validation, maintenance plan analysis and evaluation, spare parts and tools validation and provisioning support, Condition Based Monitoring (CBM) policy definition support and lifecycle cost modelling.

TYPE 45 DESTROYER ELECTRO-OPTICAL TARGETING SYSTEM ILSM PROVISION
Client: Ultra Electronics
Location: UK
Scope of Work: Whole Life Costing and modelling to capture direct and indirect costs through mobilisation, ramp-up and full capability delivery resulting in achievement of contracting for availability KPIs.

1007 / 1009 RADAR OBSOLESCENCE STUDY
Client: BAE Systems
Location: UK
Scope of Work: Whole Life Costing and modelling to capture direct and indirect costs through mobilisation, ramp-up and full capability delivery resulting in achievement of contracting for availability KPIs.

SUBMARINE COMMON COMBAT SYSTEM (ASTUTE & VANGUARD CLASSES)
Client: BAE Systems
Location: UK
Scope of Work: Provision of embedded ILS management and supportability engineering expertise into customer development and implementation programmes, delivering iterative ILS element assessments and reports reflecting the increasing maturity through development to in-service deployment.
SYSTEM ENGINEERING AND INTEGRATION

Complex engineering programmes require our systems and software engineering team to work collaboratively with client teams as well as other third parties. RINA has extensive, practical experience in system design, development and testing by participating in and managing multiple hardware, software and integration programmes. Our systems engineering approach is derived from ISO 154288, IEC 1220 and the INCOSE Systems Engineering handbook, and combined with a balanced and pragmatic approach to meet our clients’ requirements.

We provide our clients with support across the lifecycle, helping to define the users’ needs and required capability, researching and assessing candidate solutions and assuring delivery of the eventual capability. Model-based systems engineering tools and information systems such as the Dynamic Object-Oriented Requirements System (DOORS®) underpin our approach.

Services

- Enterprise architecture definition
- Capture, analysis and management of requirements
- Stakeholder identification and management
- Functional and physical integration management and support
- Integration engineering studies and test support
- Acceptance testing and evaluation
- Developing and implementing configuration
KEY PROJECTS

COMBAT SYSTEM PHYSICAL INTEGRATION (CSPI) DESIGN
Client: Fincantieri
Location: Italy
Scope of Work: CSPI design, services for the Turkish Coast Guard SAT vessel including combat system compartment arrangements, equipment list configuration management, electrical design, surveillance RADAR waveguide design, sub-systems interconnection diagrams and on board installation surveys.

INTEGRATION AND TEST SUPPORT
Client: Orizzonte Sistemi Navali
Location: Italy
Scope of work: Integration and Test support of FREMM frigate programme Surface Anti-Air Missile Extended Self Defence (SAAM-ESD) including harbour and sea acceptance trials.

CSPI DESIGN FOR LOGISTIC SUPPORT SHIP
Client: Fincantieri
Location: Italy
Scope of work: Provision of CSPI design into the “Legge Navale” Italian Navy Programme including design of combat system compartment arrangements and navigation and surveillance RADAR wave guides.

COMBAT SYSTEM INTEGRATION AND TEST SUPPORT
Client: Fincantieri
Location: Italy / UAE
Scope of work: Combat system delivery support including harbour and sea integration and acceptance trials for Abu Dhabi Falaj 2 class vessels. Provision of support to seagoing planning and cooperative asset management.
RINA specialises in the provision of end-to-end training and learning solutions in accordance with the Systems Approach to Training (SAT) and ADDIE training development methodologies. We have extensive experience in the delivery of JSP 822 compliant solutions to a range of Defence clients working in challenging environments where operational performance, risk and safety are dependent on having the right people, with the right skills, in the right place at the right time. Our training consultancy service specialises in the rigorous analysis of organisational training requirements and the development of bespoke and innovative training solutions for safety-critical environments. We use comprehensive and systematic analysis techniques, providing auditable and evidence-based recommendations for training and learning solutions.

Our approach provides clients with the tools to make sound investment decisions about training and to ensure that their employees have the correct competence to carry out their roles safely now, and in the future. We have a dedicated team of highly qualified and experienced training consultants, education specialists, instructional designers and, multimedia developers able to provide the full suite of training and learning services.

**Services**

- Training needs analysis
- Expertise in the application of DSAT / SAT and ADDIE methodologies
- Learning and development academic research studies
- Training design and development
- Human Factors Integration (HFI)
- Multimedia and digital learning solutions
- Training evaluation (Kirkpatrick level 4)
- Train-the-Trainer
- Competency management / Competency Management Systems (CMS)
KEY PROJECTS

MARITIME MULTI-LINK (MML) TRAINING NEEDS ANALYSIS (TNA)
Client: Defence Equipment & Support (DE&S)
Location: UK
Scope of Work: RINA is conducting a targeted TNA to support the development of steady state training for MML to deliver: Operate, Maintain, Diagnose and Repair (OMDR) of vital Tactical Data Links (TDL) systems. In order to improve interoperability between TDLs and improve dissemination of tactical data the MML programme aims to replace the existing Beyond Line of Sight (BLoS) Link 11 system with Link 22 in order to share tactical data in Near Real Time (NRT) and upgrade legacy systems in accordance with current NATO standards.

THE PROVISION OF TRAINING MANAGEMENT SUPPORT TO FOAP (T) RECOVERY
Client: Babcock
Location: UK
Scope of Work: Provision of onsite assistance to Babcock at HMS COLLINGWOOD in order to support in the delivery of high quality, flexible and cost-effective training solutions in line with the DSAT Quality Management System (QMS) process. This includes the provision of: assistance with the resolution of issues preventing the satisfactory completion of training documentation reviews, significant experience of RN training system methodologies and collaborative working to resolve issues, the production of DSAT-compliant training documentation and assistance with quality assurance / quality check of training design reviews.

ASTUTE CLASS COMMON COMBAT SYSTEM TRAINING ANALYSIS, DESIGN AND DELIVERY
Client: BAE Systems
Location: UK
Scope of Work: RINA was contracted to conduct a DSAT compliant TNA for the functions of the astute common combat system in accordance with the guidelines offered by JSP 822. Following completion of the TNA, we were contracted to design, develop and deliver DSAT-compliant operator and maintainer training. Three training courses were conducted for HMS Artful at BAE Systems, Barrow-in-Furness and a further three courses at BAE Systems Development Facility at Ash Vale.
Effective Human Factors Integration (HFI) planning, management and execution is critical for project success. RCDL understands the human-centred challenges of the military context (as identified in JSP 912) and the importance of effectively identifying and addressing human-related issues to ensure optimum system capability. We employ experienced, professionally qualified Human Factors (HF) consultants who have applied HFI planning, management and execution services across a variety of projects of different scope and from a range of domains.

Our HF consultants are qualified, as a minimum, to degree level in ergonomics and human factors; all are chartered, registered or graduate members of the Chartered Institute of Ergonomics and Human Factors (CIEHF). With a proven track record of providing HF capability across the project lifecycle phases, the HF team demonstrates multisector experience that adheres closely to best practice standards and guidance identified by defence, including Human Factors Integration Management System (HuFIMS), ISO 9241 Defence Standard 00-251.

Services

- Human Factors Integration (HFI)
- Manpower substitution
- Organisational “Total Safety”
KEY PROJECTS

CHINOOK SAFETY SYSTEMS
Client: Chinook Project Team
Location: UK
Scope of Work: Provision of independent safety advice to the Chinook PT, which, to date has included the audit of design organisation safety assessment reports, PT equipment safety assessments, as well as an audit of the ChPT’s safety management system.

INVENSYS RAIL THAMESLINK
Client: Invensys Rail
Location: Multiple
Scope of Work: Provision of ISA to the Thameslink programme including assessment of key project deliverables against Cenelec standards EN50126, EN50128, and EN50129, relevant Network Rail standards, RSSB (Railway Group standards), NR company standards and TSI’s for ETCS interoperability. The scope of the safety assessment is across the project lifecycle and has included planning, design, testing, integration, acceptance testing, trialling and delivery into service.

GWYNT-Y-MOR OFFSHORE WINDFARM
Client: Siemens
Location: UK
Scope of Work: Conduct of HAZID and SIL allocation for windfarms in order to support the demonstration of compliance with IEC 61508 and 61511. SIL allocation was undertaken using Layer of Protection Analysis (LOPA).