




# Industry



**Our experience. Your growth.**



RINA is a leading force in digital transformation and energy transition, helping businesses develop resilient and sustainable models through innovative technology.

Our diverse team of experts delivers consulting services that allow our partners to devise optimized, compliant, and integrated solutions.

We guide our clients from goal setting to strategy implementation, providing access to advanced technologies to help them to develop their products and services aligned with their decarbonisation and sustainability goals.

Recognizing the link between energy transition and digital evolution, we have fortified our cyber security capabilities, ensuring the utmost protection in both physical and digital realms.

## Business lines

Aerospace & Defence



Cyber security



Materials technology  
& innovation







## **Aerospace & Defence**



**Hard to abate**  
(Steel, Cement, Chemicals,  
Ceramics, Glass)



**Energy**  
(Oil&Gas, Nuclear, Power  
Generation, Renewables,  
Utilities)



**Manufactures**

# Aerospace & Defence

RINA partners with organizations where safety and security are crucial and where digital technology drives innovation. We've integrated data science into our operations to help clients balance cost-effectiveness, sustainability, and operational performance.

Our customers appreciate the breadth and depth of our expertise, which spans service design and support, safety, training, human factors, cyber security, electromagnetic compatibility testing, legislative compliance, and data science.

Having a history of collaboration with government defence ministries, space agencies, and prime contractors, our capabilities support programs across all domains and throughout their entire lifecycle.



Optimising  
operations



Independent  
assurance



Research &  
development



Enabling  
new capabilities



Optimising  
existing capabilities



Engineering studies  
(EMC, ILS, RAM, Safety)



# Main projects

## **DISMOUNTED JOINT FIRES INTEGRATOR (D-JFI)**

**Client:** Elbit

**Location:** United Kingdom

RINA was selected by Elbit as technical capability, training and support partner for the £100M MOD DJFI programme. Elbit will provide the Fire Support Teams with advanced target acquisition, communications and networking technology, with RINA providing safety, environmental, human factors and EMC expertise support to the design and manufacturing phase, with the training and ILS teams forming a collaborative partnership with ESUK, to provide a sustainable and agile through-life support solution.

## **GALILEO (EU-GNSS) SECURITY ENGINEERING**

**Client:** Thales Alenia Space Italia

**Location:** Italy, The Netherlands

RINA provided security engineering support on behalf of Thales Alenia Space Italia to the European Space Agency and to the European Global Navigation Satellite Systems Agency for Galileo, Europe's global navigation satellite system. Our activities included technical, operational and management aspects impacting the security design, operation, maintenance and evolution of the entire system.

## **SUPPORTING SAFETY CULTURE**

**Client:** Animal Dynamics

**Location:** United Kingdom

Bringing our expertise in safety, training and verification, RINA is assisting in supporting the safety culture in the client's growing business which is based upon an exciting advanced portfolio of products and systems. As part of the agreement, we will deliver a training package to all employees covering safety management, together with a package on verification of unmanned air vehicles and a further package on software compliance with DO-178C.

# Cyber security

RINA's Cyber Security business line leverages deep domain knowledge in various industrial sectors, particularly in the marine sector.

This profound expertise positions us as the ideal partners to ensure the security of this strategic area. Our expertise and solutions find applications not only in marine but also range from the defense sector to space, and extend to the insurance industry, where our platform, HOLOS, is capable of quantifying the economic risks of a cyber attack.

The rapid evolution in cyber threats and regulations necessitates the development of advanced, adaptable solutions. Our bespoke solutions harmonise with existing client infrastructures, embodying a mix of our specialist skills, proprietary technology development, and continuous innovation. This blend of skills and technology enabled us to create HOLOS, a holistic decision-support framework.

Our team, boasting expertise in consulting, technical advisory, and system integration, translates analytical trends into practical, innovative solutions, providing an authentic representation of business phenomena by correlating and synthesising information.



Governance risk  
& compliance



Fraud  
management



Cyber security  
technology advisory



Industrial  
control systems



Offensive  
security



# Main projects

## **CYBER MATURITY LEVEL EVALUATION & CONTROL SYSTEM**

**Client:** Confidential

**Location:** Europe

RINA supported the measuring of the cyber security posture in relationship with various controls from frameworks including NIST, ISO/IEC 27001 to understand existing security measures that ensure the client's cyber security maturity level and to identify security gaps for estimating residual recommended measures to address financial investment in the weakest areas.

## **FRAUD PREVENTION AND MANAGEMENT**

**Client:** Confidential

**Location:** Italy

RINA followed all project phases from analysis to technological implementation and support. Close collaboration with the client's anti-fraud teams made it possible to investigate both aspects relating to fraudulent phenomenology, and procedural management of cases of suspected or obvious fraud. The experience gained on transaction monitoring systems and strong customer authentication technologies was subsequently enriched with device reputation and behavioural analysis.

## **RISK BASED VULNERABILITY MANAGEMENT**

**Client:** Confidential

**Location:** Italy

RINA implemented solutions for the vulnerability management process using enterprise technologies to continuously monitor the security posture of the company perimeter, and evaluate and track the impact of the remediation plan. Vulnerabilities were identified, assessed, resolved and verified on an ongoing basis with respect to the company-defined baseline.





# Materials, technology & innovation

Leveraging our extensive know-how in the field of materials, technologies and innovation, we create value for our clients throughout the entire lifecycle of projects, from R&D to asset management including technological transfer from research projects to the best innovative solutions for the industry. Thanks to our innovative thinking approach, we team up with our clients to face the technical and non-technical challenges of increasingly competitive markets.

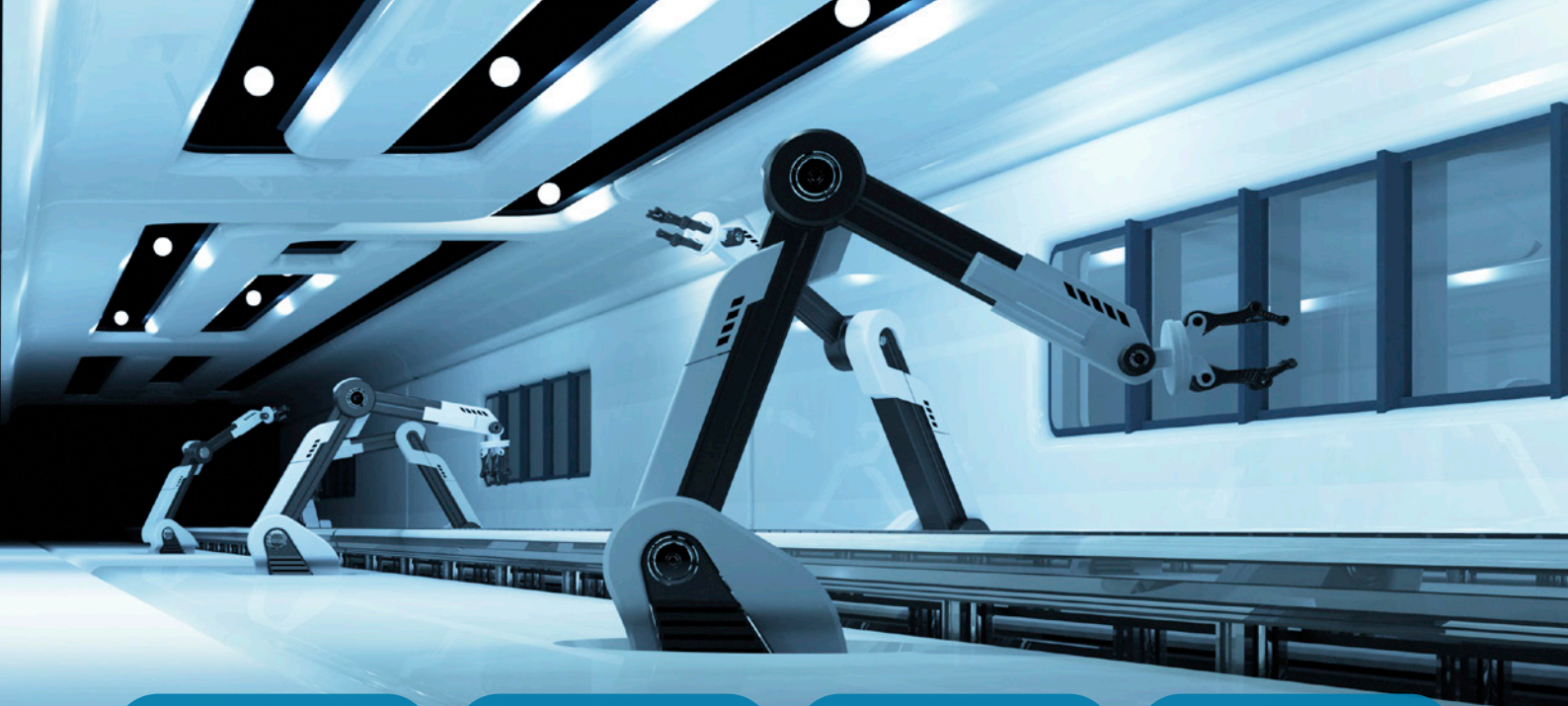
We support them in strengthening their technical know-how, giving them a vital competitive edge by improving the quality and sustainability of their products. We offer turnkey R&D projects and consulting services to support companies in process and product development, starting from the strategic evaluation of the technical scenario, to product design, process upscaling and market uptake, taking into consideration smart manufacturing technologies such as big data, analytics and additive manufacturing.

Thanks to multidisciplinary teams and a deep knowledge of applications across all sectors we create value by cross-fertilising ideas between different markets, unlocking engineering productivity and driving value across production and the supply chain, providing innovative solutions for energy efficiency, special waste treatment and valorisation.

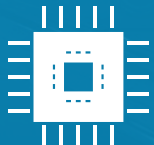
Moreover, to maximise the availability and safety of large, high-value assets, our clients know they must invest in asset design, integrity and reliability assessments at each stage of the asset's lifecycle. Thanks to the great experience gained over the years working for both material/component producers and end users we provide clients with a deep knowledge of typical in-service engineering requirements and how they can be affected by material and product performances.

State of the art testing capabilities at both laboratory and real scale level allow us to validate the proposed AIM solutions.





Strategy,  
innovation &  
sustainability



Advanced  
materials  
and coatings



Product & process  
development



Ecological  
transition advisory



Innovation &  
digitalisation



O&M engineering  
consultancy



Laboratory analysis  
& modelling



Product regulatory  
compliance



# Main projects

## **ENABLING A CIRCULAR ECONOMY ECOSYSTEM BY RECOVERY OF NICKEL FROM WASTE**

**Client:** European Commission, Thyssen Krupp, Acciai Speciali Terni

**Location:** Europe

During the production of austenitic steel, large amounts of waste acid and neutralisation sludge accumulate in the pickling process which contain dissolved or combined nickel extracted from the value-added chain in the waste disposal. Together with chromium, nickel is one of the most expensive and most important alloying elements in austenitic stainless-steel alloys. In this project, two processes for nickel recovery from waste acid and neutralisation sludge were successfully developed and their efficiency was investigated at pilot scale.

## **FAILURE INVESTIGATION OF DATA CENTRE**

**Client:** Confidential

**Location:** Europe

RINA carried out a failure investigation and root-cause analysis on server room switch-mode power supplies experiencing a higher-than-expected failure rate. We analysed multiple failed power supplies and compared the configuration, sub-assemblies and components with a working model. Through various stages of microscopy, including SEM with energy dispersive X-ray analysis, we identified the formation of metallic dendrites on the power supply PCBs, and corrosion of circuit board component terminals. The root-cause of the failures was accumulation of sodium rich contamination within the power supplies and recommendations for improvements were provided.

## **ANALYSIS AND IMPROVEMENT OF LIFECYCLE ASSESSMENT FRAMEWORK**

**Client:** European Space Agency

**Location:** Europe

The activities performed in the ESA project correspond to a wide review of the current framework (handbook, database, datasets and LCA software solutions) developed by ESA over the years to assess the environmental impact of the space sector with the aim of providing suggestions and recommendations for its improvement.

# Main projects

## **EU RoHS TECHNICAL SUPPORT**

**Client:** COCIR

**Location:** Europe

RINA provided technical support concerning EU RoHS directive exemption renewals to COCIR, the European trade association representing the medical imaging, radiotherapy, health ICT and electromedical industries, for their member companies. We have global leading experts in preparation of RoHS exemption renewal requests and use our in-depth knowledge of the RoHS directive and the process used to renew exemptions. This, coupled with a strong understanding of medical device technology and issues in the substitution process, identifies impacts of restrictions on R&D investment and access to healthcare for patients.

## **SITE-WIDE ASSET LIFE ASSESSMENT**

**Client:** Confidential

**Location:** Middle East and Europe

RINA has completed analyses of aged assets to provide a justifiable, risk-based prioritisation of the OPEX and CAPEX for critical assets. The studies have included many thousands of static, electrical, rotating, control and instrumentation, civil and safety assets in multiple sites in Saudi Arabia and Europe. The programme of work has provided our client with an optimum capital investment plan for the next 10-20 years, and a reduction in failures and unscheduled downtime.

## **GAS TURBINE CONDITION ASSESSMENT**

**Client:** Confidential

**Location:** Middle East

RINA carried out an analysis of the service-run components of a 100 MW gas turbine to review their condition and assess the potential for further safe and reliable operation of the machine. Our work included destructive examination of the blades, full stress analysis and fracture mechanics assessment. Using thermal analysis and analytical models, we assessed their condition and the effect of refurbishment and repairs on operating properties.





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**DISCOVER**  
our web page



RINA consists of the parent company RINA S.p.A., the holding which controls the main sub-holdings RINA Services S.p.A., RINA Consulting S.p.A. and RINA Prime Value Services S.p.A. In order to ensure compliance with the applicable recognition, authorization, notification and accreditation rules, including those relevant to the management of impartiality, RINA has adopted a governance and organizational model. According to this model, the sub-holdings are subject to direction and co-ordination by the holding in the finance, administration, strategic, organizational, managerial and business continuity fields, while technical and operational decisions remain under the exclusive responsibility of the sub-holdings and their controlled companies. The strict separation of duties in the governing bodies and the impartiality risk assessment, which identifies and manages the impartiality and conflict of interest threats coming from the company relations, ensure compliance with the applicable impartiality rules.