



ANNUAL REPORT



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Board of Directors	Ugo	SALERNO	CEO & Chairman
	Marco	CERRINA FERONI	Vice - Chairman
	Giorgio	DRAGO	Vice - Chairman
	Nazareno	CERNI	Director
	Emanuele	GRIMALDI	Director
Audit Board	Donatella	GAVIOLI	Director
	Paolo	PIERANTONI	Director
	Francesco	ILLUZZI	Chairman
	Giovanni	GRAZZINI	Auditor
	Antonio	GUASTONI	Auditor
Independent Auditor	PRICEWATERHOUSECOOPERS		
Direction & Co-ordination Committee	Francesca	BOGNIN	Member
	Roberto	CARPANETO	Member
	Roberto	CAVANNA	Member
	Claudia	FILIPPONE	Member
	Michele	MORSELETTA	Member
	Ugo	SALERNO	Member
	Paolo	SALZA	Member
	Stefano	SOCCHI	Member
	Fortunato	SULFARO	Member
	Giosuè	VEZZUTO	Member
Risk Management & Audit Committee	Nazareno	CERNI	Chairman
	Roberto	CAVANNA	Permanent Member
	Roberto	CAZZULO	Permanent Member
	Giovanni	GRAZZINI	Permanent Member
	Antonio	GUASTONI	Permanent Member
	Francesco	ILLUZZI	Permanent Member
	Roberto	CARPANETO	Ex-officio Member
	Ugo	SALERNO	Ex-officio Member
	Fortunato	SULFARO	Ex-officio Member
	Paolo	SALZA	Co-ordinator
Supervisory Board	Roberto	CAZZULO	Chairman
	Alberto	ALBERTI	Member
	Ugo	LECIS	Member
	Paolo	SALZA	Member
Corporate Compliance Board	Roberto	CARPANETO	Member
	Roberto	CAVANNA	Member
	Michele	MORSELETTA	Member
	Cesare	MURGIA	Member
	Paolo	SALZA	Member
	Fortunato	SULFARO	Member

Chairman & CEO Report

In 2018, I believe we achieved our vision of “one RINA”: a flexible and global partner delivering consistently excellent service to clients across the Energy, Marine, Certification, Transport & Infrastructure and Industry sectors.

Our efforts to enhance integration and knowledge-sharing, combined with the sharper market focus has brought dramatic benefits to our clients, partners and people. Today, any client, of any size and in any field can connect with an office in our global network and feel immediately that they are working together with RINA. Colleagues in different countries with different skill sets are innovating, taking advantage of synergies and developing services that are customised to the needs of clients and fast-changing markets.

As a key element in our four-year strategic plan to drive innovation throughout our business processes and models, the reorganisation has already generated positive results and created a strong platform for sustainable growth. Despite some challenging market conditions in 2018, RINA achieved stable revenue of €440 million and an EBITDA of €51 million. Newly harmonised systems and creative efficiency measures, such as a “smart working” initiative rolled out in 2018, have led to a 9 percent increase in contribution margin to just under 20 percent. Our main driver is not to cut costs for short-term profit, but rather facilitate collaboration and innovation, and ultimately deliver a better service to clients.

By the end of 2018, we saw a growing portfolio across the board and a particularly strong order book in the Energy business, which managed to achieve solid and consistent performance throughout the year in spite of continued market pressure and delayed recovery of capital investment. The consolidated Energy business unit now encompasses the full sweep of energy systems, operations and sustainability services, and is a leading player in the fields of renewable energy, LNG and innovative asset integrity solutions. A notable growth in framework agreements and single-source provider contracts demonstrates strong client trust in RINA's ability to provide a comprehensive, long-term solution for complex energy projects.

We saw exceptional results from our Marine business in 2018, with 10 percent growth in both the RINA-classed fleet and in demand for our unique value-added advisory services for shipowners and shipyards. New technical and commercial centres in the key shipping markets of Greece and Malaysia, as well as a strengthening presence in China, bring our experts closer to clients and enabling them to offer a more consistent service worldwide. The

results so far have been very positive. In addition, RINA's leadership in the emerging field of LNG as a fuel for passenger ships, but not only, illustrates our innovative and multidisciplinary approach.

Our Transport & Infrastructure teams, covering Certification as well as Consulting & Design, have now developed to the point that we are competing with much larger players on major transport and infrastructure projects worldwide, in particular in the rail sector. The teams are ahead of the field in exploiting new digital technologies such as drone inspections, hybrid sensors, advanced automation and smart dashboards to streamline complex engineering projects, assessments and operations & maintenance procedures. Impressive early results from innovative new certification services for the real estate and construction sectors bode well for the future.

In our main Certification business unit, too, we have seen the benefits of a strong focus on innovation and proximity to clients: the team achieved excellent growth of 9 percent in 2018 and a 20 percent jump in margins. This success reflects RINA's ability to quickly develop market-oriented services such as, in 2018, a suite of standard and customised certification services for data protection, anti-bribery systems and sustainably produced food, wine, biofuels and clothing. We are looking to build on our leading position in Italy as we expand in 2019 into strategic countries that have shown great initial promise this year, such as Spain, the UK, Romania, China and Brazil.

The teams in our Industry business unit have combined their high-tech laboratory facilities and specialist skills sets – which cover Materials, Technology & Innovation and Space & Defence – to support clients in complex projects around the world. The transition to Industry 4.0 drives increasing synergies, with our smart manufacturing services, for example, taking advantage of expertise in advanced materials, innovation processes, digital technologies, cybersecurity, training and integrated security. A similarly creative and multidisciplinary approach is leading to exciting results in the European Space Agency technology transfer programme, where we are helping earth-based industries to benefit from technologies developed for space.

Cutting across all of RINA's areas of expertise is a focus on digital innovation. Our RINACube digital platform now hosts a growing suite of innovative applications designed to streamline processes for clients. In the marine sector, for example, the OPTIMUM system provides shipowners with the real-time data and analysis they need to optimise fleet performance.

An aerial photograph of a soccer game in progress on a lush green field. Several players in red and white uniforms are visible, some in motion, with a few soccer balls scattered on the grass. Long shadows are cast across the field, suggesting late afternoon or early morning light.

“ Driving our progress in 2019 and beyond will be a passion for innovation and for being the excellence... behind the excellence of our clients.

Our Energy team's newly developed E-MARDI app to manage smart inspection reports will soon be integrated into our upgraded Opus Inspector & Expeditor app, which allows clients to receive flash reports in real time directly from the inspector at the supplier site. Real-time reporting via smart sensors connected to RINACube is a new feature now available for some testing services at our state-of-the-art Centro Sviluppo Materiali laboratory, one of 20 RINA laboratories across the world.

Digital technologies that facilitate collaboration and communication are supporting RINA's expansion into new markets and regions and allowing us to offer a more comprehensive and consistent service. In parallel with this harmonised expansion of technical expertise, we have launched a new Corporate Marketing & Sales Strategy team. Our aim is to better support our most high-potential clients, including multinational companies with existing and new bases around the world, through increased efficiency, trust and knowledge of the full range of RINA services.

Innovation is driving RINA's growing success across all sectors. This is not only the innovation projects coordinated by our dynamic R&D team – as important as they are. In fact, 2018 was a record year for project submissions under the EU Horizon 2020 Research and Innovation programme, with RINA launching new projects to decarbonise heating and cooling systems, reduce energy loss in power grids and maximise local energy independence. Our “open” approach to innovation allows projects to benefit from the expertise of partners who share our vision of excellence and our desire to find practical market solutions to real problems faced by people and the planet. This approach is now clearly visible across the whole of RINA, from partnerships to develop advanced grades of steel or conduct 360-degree real estate assessments to multi-stakeholder initiatives to build new cruise port facilities.

In sum, 2018 was a year in which we laid strong foundations to resume sustainable growth in both existing and new markets. We will continue to seek ways to maximise the individual and collective potential of our people – our key assets – through smarter ways of working and smoother exchange of knowledge across our 70+ locations worldwide. Driving our progress in 2019 and beyond will be a passion for innovation and for being the excellence... behind the excellence of our clients.

Vito Sclavo



countries

70

Turnover €
440M



Ebitda €
51M

02 Finance

2018 was a year of stability and consolidation for RINA, with improved margins across the board and steady revenue despite challenging markets. An upswing in the last quarter indicates a positive outlook for 2019.

Overall revenue remained stable year-on-year, with strong results in the marine and certification business areas offsetting the effects on other sectors of weak oil and gas prices and low CAPEX worldwide. Growth in the marine fleet exceeded expectations, reaching nearly 44 million GT compared to 40 million GT the previous year. Concerted commercial efforts in the automotive sector in particular, together with a September 2018 deadline for upgrading corporate management schemes in Europe, drove a strong increase in RINA's certification business.

Margins have improved significantly across all business areas, averaging 19.3 percent compared to 17.7 percent in 2017. EBITDA is confirmed at 10.5 percent. This healthy profitability, even in areas experiencing flat or lower revenues, is partly the result of a series of strategic efficiency measures. These include a reorganisation at the start of 2018 to focus on RINA's five core business lines (Energy, Marine, Transport & Infrastructure, Certification and Industry) and consolidate operational networks across the world.

2018 WAS A YEAR OF CONSOLIDATION WITH A POSITIVE OUTLOOK FOR 2019

Integrated in the recently developed Enterprise Resource Planning (ERP) system, these efficiency measures are focused on identifying structural improvements and leaner processes that will lead to sustained benefits for the company rather than cut costs in the short term. The measures are gradually being rolled out across RINA and its worldwide subsidiaries. They are expected to result in even stronger profitability and greater harmony in accounting and other administrative processes in 2019 and beyond.

Thanks to strategic diversification into more OPEX areas of business, undertaken in response to challenging market conditions for CAPEX projects in the last years, RINA is now more resilient and flexible in the face of market fluctuations in investment and demand. This shift is now firmly embedded in RINA's business strategy and has paid off in 2018, with 30 percent of oil and gas-related revenues coming from OPEX projects. A slight recovery in CAPEX projects is anticipated for 2019.

Acquisition of a majority stake in a 100-person engineering company in Tunisia, Comete Engineering, will provide a base for further expansion in North African markets over the next years, starting from exploiting synergies in sectors including large infrastructure, maritime, industry, oil and gas, and conventional as well as renewable energy.

The UK market showed signs of recovery towards the end of the year, with several contracts that were previously paused due to Brexit uncertainties being unblocked. RINA's exposure to further Brexit-related turbulence is relatively low due to its role as a high value-added service provider rather than a manufacturer. In the most important UK sectors for RINA, energy and defence, the order book is strengthening compared to last year. Expectations for 2019 are positive across the board.

In fact, the last quarter of 2018 shows a growing portfolio across almost all business areas, with a highlight in Italy being the award of the contract to coordinate and supervise the reconstruction of the collapsed Morandi bridge in Genoa. This upswing augurs well for 2019, which will see greater efforts to generate cash and the cumulative benefits of the continued rollout of the ERP and strategic business plan for 2017–2021.



03

Governance and Compliance

RINA S.p.A. and its main sub-holdings RINA Services S.p.A. and RINA Consulting S.p.A. have made strong progress in 2018 in consolidating, harmonising and continuously improving the company's existing governance, compliance and risk management mechanisms. This is done with the strong belief that stable good governance and risk management create a healthier business and a solid platform for further growth.

For this purpose, many ongoing initiatives were integrated within an Enterprise Risk Management (ERM) framework during 2018. The ERM covers strategic, financial, operational and compliance risks. It is based on information and forecast provided by independent and qualified sources and allows to react to expected future changes in the market and in the geopolitical situation. By taking a risk-based approach, the ERM enables RINA's management to make safer and more evidence-based decisions about when, where and how to carry out its activities.

GOOD GOVERNANCE AND RISK MANAGEMENT CREATE A HEALTHIER BUSINESS AND A SOLID PLATFORM FOR FURTHER GROWTH

Examples of successful pilot uses of the ERM include more thorough assessments of RINA's exposure to various risks in the countries in which it operates or is considering operating, as well as the development of a stronger risk-based approach to due diligence for third parties. In a related initiative, a new General Procedure for Supplier Qualification was issued in September 2018 to strengthen transparency and control over supply chain risks. The ERM is flexible by design and will evolve over the coming years in line with RINA's strategic business plan, changing global risk scenarios and the increasing availability of relevant data.

A structured Organisational, Management and Control Model has been designed not merely to comply with the relevant Italian law (Legislative Decree 231/2001) but to support efficient business practices and sustainable growth. Governance and compliance, as well as matters of finance, administration, strategy, IT and business continuity, are being unified across RINA companies and offices worldwide and adapted to each country's requirements by local managers. Technical and operational decisions remain the responsibility of the sub-holdings and their controlled companies.

A coherent system of bodies and controls within RINA, established in strict accordance with legal requirements related to business integrity, has the additional benefit of supporting efficient information flow between the Board of Directors and operating companies. In addition to the Corporate Compliance Board and the Risk and Control Committee, a Control Body has been established to oversee the effective implementation of the Organisational, Management and Control model. Nearly 30 internal audits were carried out during 2018 to evaluate the effectiveness of governance, risk management and management control, as well as the quality of reporting, the safeguarding of assets and compliance with applicable regulations. In the spirit of continuous improvement, an initiative was launched in 2018 to further strengthen financial reporting and communication.

585 new
colleagues in 2018



3,800+
employees



200+

offices



nationalities

90+



52,000 hrs
of person-to-person training



04 People

People are RINA's core asset and the key to our success. Why? Because the nature of our business and the competitive markets in which we operate demand high levels of technical and social competence, creativity and collaboration between disciplines. In 2018, RINA's human resources and digital leadership teams worked together to introduce systems and procedures that help our people be more responsive, flexible, agile and creative in addressing the needs of clients.

Efficiency is a major driver. In 2018, we introduced new enabling technologies to streamline routine tasks and facilitate communication and connections between colleagues in different business units, specialist fields and locations. Real time collaboration, work anywhere tools will be deployed to RINA people during 2019 granting greater harmonisation and knowledge-sharing across the company in the coming years.

In 2018, the new RINA National Collective Labour Agreement and the Company-Level Agreement were defined at the end of a process aimed at unifying RINA Italian employees under the same contractual conditions. The alignment process involves 1559 resources, representing over 40% of RINA Group's workforce.

PEOPLE ARE RINA'S CORE ASSET AND THE KEY TO OUR SUCCESS

WorkLifeBalance@RINA, our smart working initiative rolled out to all RINA people worldwide in 2018, demonstrates the value of such efforts to empower our people and develop a company-wide culture of responsibility. With the help of powerful digital collaboration tools and greater connectivity, the initiative enables employees to choose more flexible working hours and locations.

The results we have measured so far in terms of increased autonomy, well-being and motivation have been overwhelming, in addition to significant efficiency savings and the environmental benefits of saved commuting time and energy consumption.

Innovation benefits from RINA's expanding culture of responsibility and from the ever-closer contact between business areas and country offices, where diversity and culture are recognised and valorised. In addition to ongoing efforts to develop both social and technical competences in line with the fast-changing market and technological scenarios, we are also planning new initiatives to encourage people at all levels to have the courage to put forward their ideas.

Talent management has been identified as a top priority: in 2018 a new company-wide appraisal platform has been designed to empower our people while introducing a more harmonised and structured approach to career development. Employees set and evaluate goals and KPIs together with their managers, creating a profile of their experience, competences and ambitions that serve to shape their future career paths. The roll out of the new platform is underway, and will be completed in 2019.

As RINA transitions to a truly multinational company, we are focused on bringing HR functions into greater harmony with business needs, measuring the impact of our strategic initiatives and building a strong and proud base for future international growth.

70%

forecast of energy saving in Italy
through LED lights installation



100%
renewable energy
consumed in Italy



10 principles
of the UN Global Compact

Several initiatives during 2018 demonstrate the value of RINA's long-standing commitment to sustainable and ethical business practices, as articulated in its Corporate Social Responsibility (CSR) policy, Ethical Code and annual Sustainability Report.

Based on the 10 principles of the UN Global Compact and the four pillars of Governance, People, Planet and Innovation, the RINA approach has two prongs, internal and external. The first covers company-wide initiatives to implement sustainable solutions as part of a structured approach to business growth. The second looks out to the wider world, promoting the development of innovative services that generate positive impacts for customers, stakeholders and society.

SUSTAINABILITY BRINGS MULTIPLE AND TANGIBLE BENEFITS WHILE SUPPORTING BUSINESS OBJECTIVES

This approach favours initiatives that provide multiple, tangible benefits for people and the planet while supporting business objectives. A standout example is the internal "smart working" project to enable more flexible hours and remote working, which was consolidated and extended to 1,300 employees in 2018 after a successful pilot phase. Significant reductions in commuting time and energy consumption have already been recorded, along with greater work-life balance for employees and stronger productivity, creativity and motivation. Other initiatives combining environmental and efficiency benefits include a programme, completed in 2018, to install low-energy LED lighting in all RINA facilities in Italy. This builds on the achievement in 2018 to draw all energy consumption in RINA's Italian offices entirely from certified renewable sources.

In preparation for the implementation of the General Data Protection Regulation (GDPR) in May 2018, RINA appointed a Data Protection Officer and introduced a new Privacy and Data Protection model. Developed according to a risk-based approach, systems to ensure compliance with the GDPR have been implemented globally across all offices, along with an awareness campaign to ensure their effectiveness.

RINA's forward-thinking approach to sustainability and corporate social responsibility benefits from its wide range of services in this area, developed and delivered for stakeholders operating in the Energy, Marine, Certification, Transport & Infrastructure and Industry sectors. Numerous projects in 2018 support the achievement of the Sustainable Development Goals (SDGs), ranging from environmental studies to technical innovations in the bio-economy, materials, manufacturing, construction, shipping and renewable energy industries.

RINA's strong commitment to these topics over the past years means that the focus is now on refinement and continuous improvement. In an effort to contribute to collective efforts to improve integrity and quality in the wider business environment, RINA participates actively in national and international networks including Fondazione Sodalitas, the Italian partner of CSR Europe, and Transparency International Italia with its Business Integrity Forum. The development of KPIs and more systematic methods to measure the impact of RINA's CSR and sustainability initiatives will support continued improvement in the coming years.



114 projects
ongoing

389 R&D&I
funded projects in the last 5 years



41 R&D projects
completed

+55 ★
successful proposals

+180 ↑
proposals submitted



48 new R&D
projects started

RINA's reputation for excellent coordination of innovation projects gained another boost in 2018, along with its portfolio of challenging and high-profile projects under the EU Horizon 2020 Research and Innovation programme.

2018 was a record year for success in project submissions, enabling us to focus on areas of strategic importance not just to RINA but to people and the planet. Our researchers seek practical solutions to real problems faced by society in the areas of energy efficiency, sustainability and climate resilience, security, digitalisation and the transformation of European industry.

In 2018, for example, we launched multi-year projects to decarbonise heating and cooling systems by combining solar energy and heat pumps (SUNHORIZON), to reduce energy losses in power distribution and light railway networks (E-LOBSTER) and to maximise local energy independence (MUSE-GRIDS).

2018 WAS A RECORD YEAR FOR SUCCESS IN PROJECT SUBMISSIONS

Successful research projects are those with real-world market applications. Our EVERYWH2ERE project, for example, looks to develop hydrogen gensets to provide sustainable temporary power at festivals, concerts and construction sites. Our BLUE GROWTH FARM project aims to help meet growing demand for sustainably produced seafood and renewable energy by creating environmentally friendly aquaculture and wind energy platforms in the open sea. Patents are increasingly arising from our research projects, including a patent in 2018 for a blast protection system in aeroplanes.

Our open innovation approach is key to this success, with each project benefiting from the expertise of 10 to 20 partners spanning academia, technology providers, end users, public authorities and clients. Thanks to this approach, our global network now extends to over 5,000 partners who share our vision of excellence and our market focus.

Internally, too, collaboration between R&D specialists and RINA's business units has increased. We regularly scout for new technologies for clients and colleagues, as well as opportunities to transfer technologies from one sector to another. The transfer of space technologies to industrial applications under the European Space Agency Technology Transfer Programme is a standout example of this.

Open innovation, increased collaboration and technology transfer will continue to be our keywords in 2019. Greater efforts to involve more colleagues from other business units and geographical areas, including Turkey, China, the US and North Africa, will bring fresh ideas and impetus as we look ahead to the EU's forthcoming Horizon Europe programme – and beyond.

37% OPERATING REVENUES

The performance of RINA's Energy business in 2018 was solid and consistent despite strong market pressure on price and costs and a delayed recovery of capital investment and general spend. We managed to strengthen our leading position in several sectors and successfully diversify our services, particularly in the strategic areas of sustainability and renewable energy. The consolidation in 2018 of environmental and social sustainability services, conventional and renewable power generation, power grid transmission and distribution, oil & gas and other supporting services into one Energy business unit has greatly enhanced communication and collaboration within the teams. Covering energy systems, operations and sustainability, the new-look Energy unit offers clients the benefits of greater efficiency and market focus, along with a powerful global network – in 2018, we worked in 40 countries around the world, with 70 percent of business located outside Italy and many projects having an international scope.

As the energy market evolves, this new organisation puts RINA in a strong position to support clients in all sectors faced by similar technical challenges as well as parallel issues of politics, local regulations, environmental laws and social pressures around sustainability. Similarly, our strategic diversification into operational areas of energy markets in the last years enables us to take full advantage of any upswing in CAPEX and resulting increase in OPEX projects.

Growth in single-source provider contracts for inspection and expediting activities in 2018 demonstrates strong client trust in RINA's ability to provide a comprehensive, one-stop outsourcing solution for complex projects. A similar trend is apparent in the growth in the number and size of framework contracts with major energy players worldwide.

Leveraging our multidisciplinary expertise, geographical coverage and independence is also allowing us to provide 360-degree support throughout the entire asset integrity management (AIM) process. Our teams completed over 200 asset integrity studies in 2018, combining expertise in engineering design, operation and maintenance, safety, inspections and certification, assistance with legal and permitting issues, and sustainability. Major AIM contracts are underway for ENI and Lukoil, and as asset integrity is still a major concern for energy operators, we expect business in this area to continue growing.

Digital transformation in the energy market is a key enabler to reduce costs, make faster and better

decisions and increase productivity. During 2018, we made breakthroughs in the use of new digital technologies to improve our existing engineering services for the benefit of clients, particularly in the areas of geo-hazards, modelling and analysis of structural behaviour. New digital and remote inspection technologies, such as smart helmets and permanently installed cameras, are facilitating vendor inspection and expediting services. We are also at the forefront of innovation around potential new services, techniques and tools enabled by advances in AI and IoT technologies, with new IoT-based solutions for asset integrity a major focus.

2018 has been a transition year for RINA's renewables business, with the successful delivery of Owner's Engineering services for major solar and wind projects globally. We have consolidated our position as renewables technical advisors in France, where we are the leading solar consultants, in Australia, where we have worked on two-thirds of all solar projects, and in South Africa, where we have worked on all solar projects in the country but one. In the field of LNG, RINA also leads the field with 22 new projects in 2018 and a total of more than 160 by the end of the year. As both demand and supply of natural gas are expected to grow in 2019, RINA is well placed to take advantage of the increased need for new import/export LNG terminals.

These achievements join strong growth and diversification in projects around the environment and sustainability, including environmental and social impact assessments, energy and resource efficiency studies and construction monitoring audits worldwide. RINA's reputation in conducting sustainability assessments and due diligence for international financial institutions such as the World Bank and European Bank for Reconstruction and Development (EBRD) resulted in several high-impact projects in 2018 combining expertise in power, renewables, economic analysis and sustainability.

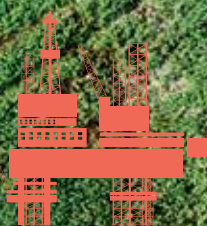
The greater collaboration and knowledge-sharing both within the Energy team and with other business units and specialisms within RINA has brought visible benefits in 2018, including faster access to high-level laboratory testing services in support of complex energy projects, higher margins and greater client satisfaction. We plan to continue along this promising path in 2019, which we predict will be an exciting year with plenty of opportunities in particular in vendor inspection and expediting services, renewable energy investments, environmental and sustainability projects, energy storage solutions and smart grids.

22 new LNG
projects developed



160+
in total up to
end 2018

20+
offshore oil & gas
platforms certified



1M+ hrs  of engineering and
of site supervision

1.5M+ hrs  of inspection



07 Energy Projects

E-MARDI APP FOR SMART INSPECTION REPORTS

► Launched in 2018, the E-MARDI app offers RINA's energy clients a powerful tool to generate and manage inspection reports (IRs). With applications for vendor inspection and expediting, pre-shipment, second- and third-party inspection, equipment (FAT) certification and container hub, the fully customisable online platform enables IRs to be generated in real time – even during the inspection. Photos can be added directly to the IR and the documents can be edited, viewed and downloaded at any time from a secure and user-friendly online interface, reducing paper waste to zero. Initially developed as part of a major third-party inspection and equipment certification contract with Halliburton in Brazil, E-MARDI will be made available worldwide in 2019 and integrated with RINA's recently upgraded Opus Inspector & Expeditor app. This allows inspectors to send Flash reports directly to the client from the supplier site, including photos and short videos, enabling the client to see issues or concerns in almost real time.

MONITORING THE EFFECTS OF EARTHQUAKES ON OFFSHORE PLATFORM

► Developed and piloted in 2018, RINA's Seismic app monitors the effects of earthquakes on structures, in particular offshore platforms. It collects key data on earthquakes published on the internet in near real-time, including the position, magnitude, hypocentral depth and focal mechanism, and uses empirical correlations to estimate the spectral acceleration at different epicentral distances. The app then applies these accelerations to the models of the platforms to continuously evaluate the effect and potential damage related to every single event. This greatly reduces the need for manual calculations and physical inspections.

DIGITAL TWIN FOR SMART DOCUMENT MANAGEMENT

► One of many potential uses of the digital twin concept is to facilitate document management for a plant. Based on a Building Information Modelling (BIM) file, the "3D database" allows users to navigate in the plant, select objects and components, and open and download relevant documents such as design files, procurement files and inspection reports. If the component is connected to a sensor, real-time readings are even possible.

DIGITAL MODEL FOR MONITORING OFFSHORE PLATFORMS

► An advanced digital model for monitoring the structural behaviour of offshore platforms has been developed and offered to key clients in 2018. Leveraging IoT technology, the model enables the continuous acquisition of data from sensors placed in the key structural points of the platforms, to understand dynamical behaviour and predict the platform's lifetime. This significantly reduces the need for large inspection campaigns.

OPTIMUM WIND PLATFORM FOR WIND ENERGY PERFORMANCE MONITORING

► Born out of a 2018 call for ideas and developed through close cooperation between RINA's Innovation team and colleagues in the UK and Italy, Optimum Wind is a powerful platform for performance monitoring of renewable plants. Initially applied to wind farms, it enables asset owners to compare actual performance parameters compared to those expected under the current weather conditions. The tool facilitates troubleshooting by highlighting the possible parameters that are causing low performance or downturns. An R&D proposal has been submitted to Innovate UK in order to further develop this tool and integrate financial performance indicators.

COMPREHENSIVE SERVICES TO MANAGE PERSISTENT ORGANIC POLLUTANTS

► In line with the Stockholm Convention on Persistent Organic Pollutants (POPs), all uses of equipment containing or contaminated with highly toxic Polychlorinated Biphenyls (PCBs) must cease by 2025. Customers in a wide range of industries – from electricity and waste processing to chemical, textile and metals manufacturing, including many in developing and transition countries – are seeking help with POP/PCB management. Developed by a team from RINA Turkey on the basis of a UN project to develop a national inventory and training programmes in this area, RINA has created a unique package of services related to the handling, maintenance, transportation, interim storage, treatment and disposal options, as well as the development of emergency plans and training on environmentally sound POP/PCB management. The customisable approach includes innovative solutions aimed at limiting environmental damage and waste by regenerating contaminated oil and treating and reusing equipment. The client base spans industrial companies, the military, NGOs and regulatory bodies globally.

DESIGNING FUTURE ENERGY SYSTEMS WITH ENERGY SYSTEMS CATAPULT

► RINA is supporting the UK energy sector centre of excellence, Energy Systems Catapult, in its efforts to accelerate the UK's transition to a low-carbon future. In two projects completed in 2018 as part of a longer-term framework contract, RINA contributed to designing the architecture of future power systems that are capable of accommodating new technologies and trends. These include anticipated growth in electricity demand for space heating and e-vehicle charging.

TECHNO-ECONOMIC STUDY FOR EBRD PROJECT FINANCING

► The European Bank for Reconstruction and Development (EBRD) is considering lending Lebanese electricity provider Electricité du Liban (EdL) finance for a project to upgrade and reinforce the grid network in northern Beirut with four additional substations and three sections of underground cables. The EBRD engaged RINA to evaluate the project projections and plans, including measures to minimise outages, reduce grid losses and prepare the grid network for additional capacity, notably from renewable sources.

NACALA CORRIDOR PROJECT IN MOZAMBIQUE AND MALAWI

► The Nacala rail corridor will connect the mineral- and coal-rich Tete region in northwest Mozambique to Nacala port through Malawi. Led by Brazilian mining company Vale, the project includes the construction of 230 km of greenfield single narrow-gauge rail track, the rehabilitation of 682 km of existing narrow-gauge rail track and the construction of a new coal handling terminal at Nacala-a-Velha. The aim is to enable the transportation of up to 22 million tonnes per year of coal, minerals (mainly iron ore), freight and passengers along the corridor. After concluding the Environmental and Social Due Diligence phase, RINA was appointed as the Lenders' Environmental and Social Consultant to conduct periodical external monitoring to evaluate project compliance with environmental, social, health and safety requirements. It is a key role for a world-scale mining project in a developing country, consolidating RINA's positioning in this sector.

SINGLE-SOURCE CONTRACT FOR TRANS MOUNTAIN PIPELINE IN CANADA



SUPPORT FOR FRANCE'S LARGEST RENEWABLES REFINANCING PROJECT

► The RINA team in Paris has strengthened its position as the leading transaction technical advisor on solar PV in France by supporting the country's largest renewables refinancing project to date. Launched by renewable energy company Tenergie, the Phoenix V project covered 169 solar sites in France and two wind sites with a total installed power of 262 MW. As part of the objective to refinance €750 million of debt, RINA carried out 35 site visits, performed yield analysis based on operational data and conducted thorough reviews of the technological, contractual, structural and financial model aspects.

CONNECTING OFFSHORE WIND FARMS WITH MARINE CABLES

► As part of strategic efforts to facilitate renewable energy generation through offshore wind farms, RINA is performing a detailed geophysical and geotechnical survey in the North Sea, off the coast of the Netherlands. Commissioned by Dutch electricity transmission system operator TenneT, the survey aims to collect data needed for the design and installation of marine cables linking the onshore electricity network to the offshore wind platforms. The project leverages RINA's multidisciplinary engineering capabilities, including high-level laboratory testing as well as the use of high-tech vessels and data-collection equipment.

ENVIRONMENTAL AND SOCIAL STUDIES FOR RENEWABLES PROJECTS

► RINA is seeing increasing demand from lenders to perform Environmental and Social Due Diligence studies, along with related analyses and action plans, for large renewable energy projects in order to inform financing agreements and comply with all applicable regulations and standards. Projects in 2018 include the ever biomass power plant in Turkey – the innovative Arıkçayırı BPP project, which aims to generate 200+ GWh of electricity per year through the combustion of 240,000 tonnes of poultry litter – and the extension of an existing Turkish wind power plant to reach a total capacity to 265 MW. In the Central African Republic, RINA is supporting the World Bank with the Environmental and Social Impact Assessment and Resettlement Action Plan for the planned Danzy Solar Power Plant near the capital, Bangui.

07 Energy Projects

ENGINEERING SUPPORT FOR SOLAR PLANTS IN SOUTH AFRICA

► RINA is acting as Owner's Engineer in almost all current solar PV construction projects in South Africa. Projects awarded as part of Round 4 of the South African Government's Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) and launched in 2018 include the 86 MW Droogfontein 2 Solar PV Farm and the 102 MW, 34-turbine Copperton Wind Farm in the Northern Cape province. In addition to providing technical assistance with an on-site team and back-office support, RINA is helping to ensure smooth project development and maximise the benefits for local communities through a liaison office and outreach events.



ENVIRONMENTAL AND SOCIAL CONSULTANCY FOR THE NACALA CORRIDOR

MALTA-SICILY PIPELINE ENGINEERING AND ENVIRONMENTAL ASSESSMENT

► RINA is acting as Owner's Engineer for the FEED and EPC Tender Package Preparation of a pipeline connecting the Italian gas transport network in Sicily (near Gela) to the Delimara Power Station in Malta. A multidisciplinary RINA team, spanning process, offshore, geophysical, geotechnical, environmental and HSE expertise, is managing the interface between the FEED Contractor and Preliminary Marine Route Survey (PMRS) and Permitting Engineering Contractors. The scope also covers preparing the technical documents for the environmental impact assessment required for the Italian and Maltese permitting.

ENGINEERING EXPERTISE IN THE DEVELOPMENT OF LNG TERMINALS

► RINA is experiencing fast-growing worldwide demand for a wide range of third-party engineering services in the field of LNG. In Pakistan, RINA is conducting a third-party review of the design and FEED development study during the construction of a mid-size Floating Storage Regasification Unit (FSRU) for Pakistan Energy Gateway Limited, covering the structure of the 300m jetty, delivery capacity, dredging calculations, a 10km transport pipeline and the onshore/offshore facilities and gas distribution interfaces.

TARGETED TRAINING AND COMPETENCE MANAGEMENT FOR TAP

► Leveraging RINA's Competentis® competence management tool, innovative training methodology and operations and maintenance (O&M) expertise, RINA is evaluating the competences of TAP contractors, developing customised training material and delivering training across Switzerland, Greece, Albania and Italy. The application of a competence-based model enables targeted interventions that result in significant improvements in knowledge of TAP personnel on key technical, safety, environmental and managerial aspects.

COMPLETE VENDOR INSPECTION AND EXPEDITING SOLUTION FOR FPSOS IN GUYANA

► RINA is acting as single-source provider of vendor inspection and expediting services during the construction of SBM Offshore's second Floating Production, Storage and Offloading vessel (FPSO) for the Liza development in Guyana. The complete outsourcing solution provides the client with the full team of project managers, inspectors and expeditors to manage the project, with RINA's global network bringing significant cost efficiency and quick, easy scalability. The project started in 2017, with peak activity in 2018 and completion set for 2019. The success of the model has led to RINA being awarded with Liza 2 (Unity) and Liza 3 (Payara) 2019–2021. The same model is expected to be applied to the Mero 2 project out of SBM Malaysia.

EBRD/EU WESTERN BALKANS SMES COMPETITIVENESS SUPPORT PROGRAMME

► RINA is acting as Project Consultant for the Credit Line of an innovative EUR 250 million EBRD/EU initiative to support SMEs in Kosovo, Macedonia, Bosnia and Serbia. The aim is to help SMEs become more competitive in a sustainable way, aligning with EU directives and standards in key sectors such as the environment, energy efficiency, health and safety, product quality and safety. As Project Consultant, RINA is responsible for the successful implementation of the Credit Line, combining investment incentives and free-of-charge technical assistance for SMEs. This major project reinforces RINA's visibility in the Western Balkans and leverages several areas of expertise, including green technologies, resource efficiency and knowledge of EU directives.

THIRD-PARTY INSPECTION FOR JANGKRIK GAS PIPELINE

► RINA is providing third-party inspection services for ENI's Indonesian subsidiary, ENI Muara Bakau, for the Jangkrik gas field in the Makassar Strait. The field lies around 70 km off the coast of Kalimantan. A new 15 km pipeline is being installed to enable the field to deliver gas at full capacity. RINA's scope of work covers third-party inspection services for the line pipe pipemill, coating mill, onshore pipe installation, onshore plant and requirements, manufacturer and fabricator.

TRANS MOUNTAIN PIPELINE CONSTRUCTION

► RINA has been awarded a single-source contract for inspection, expediting, office coordination and site inspection for the Trans Mountain Pipeline project. This 1,500 km pipeline will run from Vancouver to Edmonton in Canada. Approximately 25 percent of the project was completed in 2018, with the completion date set for 2020.

PIPEMILL SURVEILLANCE AND PIPE-LAYING SUPERVISION IN INDIA

► RINA is providing third-party inspection services including quality surveillance of construction work and conformity assessment for key pipeline projects by GAIL India. The scope covers over 3,300 km of pipeline with a total capacity of 16 mscmd. Thanks to RINA's application of international best practices, GAIL can achieve better quality in areas related to pipeline construction, pipe manufacturing and pipe coating.

ADVISOR TO THE WORLD BANK IN ETHIOPIA



IMPROVING THE DAIRY VALUE CHAIN IN EGYPT

► RINA is helping to strengthen and increase the economic efficiency of the Egyptian dairy sector and improve small farmers' livelihoods by connecting them to the market, improving their productive capacity and achieving a sustainable development model. The dairy sector is a mainstay of economic activity in Egypt and the project – which combines expertise in agribusiness, veterinary, food safety and laboratory accreditation – is designed to directly contribute to the Sustainable Development Goals on poverty, hunger and gender equality.

FACILITATING THE IGI-POSEIDON PERMITTING PROCESS IN ITALY

► A multidisciplinary RINA team, including pipeline design experts, permitting experts and legal advisors, is contributing to the IGI Poseidon natural gas pipeline project connecting Turkey, Greece and Italy. RINA was appointed in 2018 to provide Owner's Engineering services covering the permitting project management and permitting planning coordination for the Italian section of the project. In addition, RINA is providing support to several environmental field surveys and monitoring activities (air quality, noise, soil quality, biodiversity, etc.) and supervising the field activities carried by third parties contracted by IGI Poseidon.

SUPPORTING PROJECT FINANCING FOR CRUISE LINE PRIVATE ISLAND

► Ocean Cay is a 96-acre man-made destination island resort currently under development by MSC Cruises in the Caribbean. Built on a former brownfield site, the resort will be transformed into a travel and leisure destination to accommodate day visits by large cruise ships such as MSC Seaview or MSC Meraviglia. RINA has been appointed to act as independent Environmental and Social Consultant for the project lenders and export credit agencies, as well as to perform environmental, social, health and safety monitoring during the construction and operational phases. The work will help MSC achieve compliance with the requirements and standards of the banks financing the project and adds to RINA's growing track record in utilising its environmental and social capabilities to support projects financed by private banks.

INTEGRATED APPROACH TO WIND IPP RISK ASSESSMENT

► RINA is acting as technical, environmental and social adviser to the World Bank and the Government of Ethiopia in their efforts to better exploit wind resources and identify sites for wind independent power producer (IPP) development. The initiative aims to debottleneck investment in wind IPP development through the early assessment of risks, primarily related to land acquisition and potential bird mortality. RINA's integrated approach to risk assessment identifies environmental and social risks alongside technical risks, enabling a more sustainable project design and enormous risk reduction in wind IPP development.

27% OPERATING REVENUES

2018 was an exceptional year for RINA's marine business, reflecting the success of our strategic focus on tailored, value-added advisory services, closer proximity to clients and projects involving a high level of innovation, creativity and multidisciplinary expertise.

Strong fleet growth of 10 percent well outperformed the market average of 2–3 percent for the fourth year running. Overall performance also remained comfortably above the market average and margins were excellent. Our leading position in niche markets – in particular the cruise, navy, ferry and yacht segments – was further consolidated in 2018, helping us to remain resilient against continued uncertainty in the shipbuilding market.

During 2018, we saw a 10 percent increase in our tailored advisory services for shipyards and shipowners, particularly in complex areas relating to sustainability, environmental regulations and digital technologies. These services now equal around 10 percent of revenue for the marine business and, thanks to increasing collaboration and knowledge-sharing within RINA, we expect demand to strengthen in 2019 and beyond.

RINA's multidisciplinary expertise and collaborative approach to solving new challenges has been fundamental in driving our leadership in the field of Liquefied Natural Gas (LNG) as a fuel for passenger ships. In 2018, we were involved in delivering the world's first LNG cruise ship, the first LNG ferry in the Mediterranean and the first LNG vessel built in Italy, as well as the first LNG ship conversion in Spain. These pioneering projects are starting to demonstrate the feasibility of LNG as a fuel for ships of all sizes and types. We expect to see demand increase as we work with policymakers, ports and shipowners to find synergies, build consensus and overcome some of the technical, logistical and political challenges involved.

LNG is part of the solution to the diverse environmental challenges facing the shipping industry, including IMO regulations to drastically reduce emissions of carbon dioxide, sulphur oxides and other pollutants of the sea and air. Our independence and deep knowledge of applicable standards and technologies allow us to help clients find the right solutions for their needs, from advanced battery technologies in hybrid ships to lengthening cargo ships to optimise capacity and reduce per-unit environmental impact.

Environmental and efficiency topics play into many of our innovations in the digital realm, including our OPTIMUM fleet performance management system developed during 2018. Now integrated into the RINACube digital platform, OPTIMUM is designed to be modular and flexible to meet

clients' specific needs. We are looking to enhance the range of digital services available on RINACube in 2019, including electronic logbooks, digital twins and data from earth observation satellites. We have also partnered fruitfully with clients during 2018 to assist in developing highly tailored solutions, such as an advanced Fleet Operating Centre for d'Amico Group.

Our strategy to enhance proximity to clients in key markets through local commercial and technical centres has produced highly positive results in 2018. With our new Piraeus centre in place, growth in the Greek fleet boomed by 28 percent in 2018; in Malaysia, the RINA-classed fleet has tripled. We have also welcomed several significant new clients and shipbuilding contracts as a result of the centres, which we plan to expand and adapt to other strategic markets in Northern Europe, China and Southeast Asia. With the help of new internal technologies to improve communication, monitoring and secure data processing, these centres will help us to provide consistently high-quality support all over the world for both local shipping companies and international companies operating in the area.

In Shanghai, such a centre will open in 2019 to consolidate our ongoing efforts to support Chinese shipbuilders in their drive to upgrade their competence and technology to build more complex ships. In line with our holistic and practical approach, we are providing not only traditional services such as class, design, production supervision and training, but also covering crucial operational and supply chain aspects, including vendor inspection and expediting services.

Looking ahead, we plan to consolidate our strong position in strategic shipping centres, continue growing our fleet with a target of 50 million GT, and take advantage of the expected recovery in passenger ship newbuilding by leveraging our strong presence in Europe and Asia. We also plan to continue supporting clients with added-value advisory services and innovations that drive technical improvements and clearer standards in the industry for the benefit of all.

Passenger ships

over 50%



of orderbook

Orderbook at

5.5 M



Delivered over

200

ships

totalling

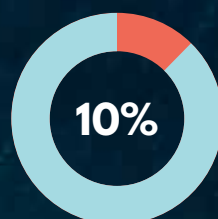
1 M GT



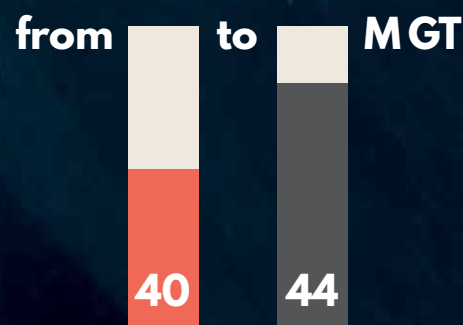
Flag authorisations



116 total



**fleet
growth**
(2018 vs 2017)



08

Marine Projects

OPTIMUM: A MODULAR DIGITAL PLATFORM TO IMPROVE FLEET PERFORMANCE

► Integrated into the RINACube digital platform in 2018, the new OPTIMUM fleet performance management system is designed to help shipowners transform the vast amount of data collected onboard ships into valuable input for decision-making. Several major shipping companies are piloting the solution, which covers continuous data acquisition from sensors and ship systems, processing, storage and combination with weather forecasts and information entered by the Master. Customisable dashboards enable both the crew and onshore support staff to quickly understand the data and identify measures to improve fuel consumption.

IMO DATA COLLECTION SYSTEM FOR FUEL CONSUMPTION AND EMISSIONS

► As part of wider efforts to tackle the environmental impact of shipping, ships above 5,000 GT undertaking international voyages are now required to monitor and report their fuel consumption and CO2 emissions. The IMO regulation came into force in 2018, with the first reporting period in 2019. Demand for pre-verification gap analysis was strong in 2018, along with training and advisory services to help companies find the best solution to achieve compliance. RINA is qualified to act as a Recognised Organisation for the required assessment and verification activities in 2019.



12 HIGH FUEL EFFICIENCY RO-RO SHIPS SUPERVISION

DELIVERY OF AIDANOVA, THE FIRST EVER LNG CRUISE SHIP

► Launched in November 2018 and built to RINA class, the AIDANOVA is the first LNG-fuelled cruise ship ever built and the largest cruise ship built in Germany. She is the first in a series of nine innovative ships built by Meyer Werft and Meyer Turku shipyards for various brands of Carnival Corporation. At 337m long and 42m wide, the AIDANOVA has capacity for 6,654 passengers and 1,546 crew members. She is powered by four Caterpillar dual-fuel hybrid engines designed to operate both in port and at sea using LNG, with the aim of reducing harmful emissions and complying with applicable regulations.



THE AIDANOVA IS THE 1ST LNG-FUELLED CRUISE SHIP EVER BUILT

CONSTRUCTION OF ADVANCED HYBRID CARGO SHIPS FOR GRIMALDI GROUP

► RINA is supervising construction of 12 highly fuel-efficient hybrid ro-ro ships for Grimaldi Group, with deliveries starting in 2020. With 7,800 lane metres and capacity to transport 500 trailers, the RINA-classed ships aim to halve the average fuel consumption per unit transported compared to Grimaldi's existing ships. The ships will be equipped with a state-of-the-art propulsion system, optimised hull form with a low-friction silicon coating and an air lubrication system under the keel to reduce hydrodynamic resistance. Powerful lithium batteries - the largest ever installed on a ship - will increase fuel efficiency during navigation through peak shaving and offer eight hours of zero-emissions power in port.

EXTENDING THE OPERATIONAL LIFE OF BRAZILIAN NAVY VESSELS

► RINA is helping the Brazilian Navy to evaluate the possibility of extending the operational life of four frigates and one corvette that have reached the limits of their estimated initial working life of 30–35 years. Through a structural integrity analysis and life cycle assessment, RINA can determine the conditions required to extend each ship's operational life for a further 15 years. A 3D database – or digital twin – will be created to store the inspection data, calculations and results. The end results are a detailed structural analysis of each ship, a plan of future inspections to monitor corrosion and structural integrity and a comprehensive tool to optimise maintenance and inspections. The complex skills and methods employed in this project can be applied to other Navy and cargo vessels, as well as the offshore sector.

TECHNICAL VERIFICATION AND ASSESSMENT FOR CARNIVAL CORPORATION

► As part of RINA's growing reputation as a supplier of high added-value services for the cruise industry, RINA began a project in 2018 for the periodical verification and assessment of loose gears on 26 cruise ships belonging to Carnival Corporation. The client will benefit from having all loose gears equipment properly catalogued, labelled with updated inspection details and ready for safe use.



110 MARITIME EQUIPMENT DIRECTIVE CERTIFICATES FOR CHINESE YACHT BUILDERS

DELIVERY OF M/V ELIO, FIRST LNG-FUELLED FERRY IN THE MEDITERRANEAN

► Delivered in October 2018, the RINA-classed M/V Elio is the first LNG-fuelled ro-pax vessel in the Mediterranean. The ferry, which carries the Gas Fuelled notation in compliance with the IGF Code, was built for Italian ferry operator Caronte & Tourist. The project took place in the framework of the European Union's GAINN4MOS initiative to develop innovative pilots and prototypes around Sustainable LNG Operations for Ports and Shipping. M/V Elio will operate across the Strait of Messina between mainland Italy and Sicily, using Wartsila dual-fuel engines fed by LNG in order to greatly reduce NOx and SOx emissions.

CONVERSION OF DIESEL ENGINES TO DUAL-FUEL LNG FOR BALEÀRIA

► In November 2018, RINA has launched a pioneering project to modify the existing conventional fuel system of the Spanish ro-ro passenger ship Naples to a dual-fuel propulsion system capable of running on either diesel or LNG. This is the first such conversion for RINA, as well as the first in Spain and the first in a fleet-wide conversion project undertaken by Mediterranean shipping group Baleària. The project required collaboration between RINA's Hamburg-based Plan Approval Centre, a Gas/LNG Safety Expert Marine Surveyor from the Rotterdam office and surveyors from RINA Iberia, who completed the on-site surveys in Gibraltar.

DELIVERY OF FIRST RINA-CLASSED NEWBUILDING IN BULGARIA

► The delivery of the oil tanker M/T TECNE in November 2018 from Dolphin Shipyard in Varna, Bulgaria, demonstrates the capacity of Bulgarian shipyards to build complex new ships. The ship is the first RINA-classed newbuilding completed in Bulgaria and boasts several additional class notations recognising advanced levels of automation, monitoring and environmental protection.

WIDE-RANGING SUPPORT FOR CHINA'S MARINE INDUSTRY

► In 2018, RINA oversaw the successful delivery of several ships from Chinese shipyards, including four pure car and truck carriers (PCTC) for Grimaldi Group and a 2,500 lane meter ro-ro cargo ship for Vinsentini, and signed several more class contracts. The orderbook at the end of 2018 stood at 46 ships. RINA also supervised the first conversion of a container ship to a livestock carrier in Chengxi Shipyard, the first conversion of a 92,500 DWT bulk carrier to a transhipper and the first conversion of a container ship to a suction dredger. RINA's wide-ranging support for China's shipping industry in 2018 included technical training, particular for ro-pax and cruise ships, and the award of around 110 Maritime Equipment Directive certificates for Chinese yacht builders. In collaboration with the Certification business unit, RINA also provided cruise products inspection and certification services for Chinese suppliers.

STATE-OF-THE-ART NAVY VESSELS FOR ITALY AND QATAR

► RINA continues to be a strong partner of the Italian Navy, with the launch and delivery in 2018 of several state-of-the-art vessels built by Italian shipyard Fincantieri. These include the multi-purpose frigates Martinengo and Marceglia, part of the FREMM series, as well as a high-speed multipurpose naval unit and a logistic support ship. Construction started at Fincantieri in 2018 on another offshore multipurpose patrol ship for the Italian Navy, as well as the first Doha Class corvette for the Qatari Navy.

10% OPERATING REVENUES

Steady organic growth of RINA's Transport & Infrastructure activities during 2018, covering Certification as well as Consulting & Design services, has built a solid foundation for future growth. Thanks to strategic diversification of activities and a stronger foothold in promising new markets, we are now competing on major transport and infrastructure projects in the global arena with much larger players. Complex projects conducted in 2018, requiring a wide range of multidisciplinary expertise and local knowledge, demonstrate the value of our flexible and global network of experts. Supported by RINA's internal reorganisation and improved knowledge-sharing mechanisms, this has enabled us to provide consistently high-quality services in countries including the UK, Israel, Kuwait, India, Australia and Tanzania, with many projects having an international dimension.

Smart monitoring and management techniques are proving increasingly essential to our engineering consultancy work, with many infrastructure projects taking advantage of IoT and AI technologies, hybrid sensors and advanced automation. We have been able to use real-time data collection to feed smart dashboards and enhance operations & maintenance procedures, as well as conduct end-of-life extension assessments. Innovation and agility are behind the positive performance of our Certification team in 2018. In construction and infrastructure certification projects, the team achieved strong financial results and was awarded around 100 tenders out of 200 submissions. Railway certification services represent another strong area for RINA, with 236 projects in 2018 around the world.

New certification services in 2018 are designed with a sharp focus on fast-evolving markets and client needs. Our integrated real estate asset evaluation service for banks and lenders was launched in October and saw an overwhelmingly positive response, doubling its target by the end of the year. The 360-degree service aims to optimise strategies and processes at every stage of the credit and investment process, from evaluation to due diligence, with a constant focus on compliance and risk management.

We saw strong demand from the infrastructure and building sectors for a new certification service incorporating advanced Building Information Modelling (BIM) validation, onsite inspections and specialised model-checking software for quality control during construction.

In fact, new technologies are also enhancing our certification activities: drone inspections for Gela Pier in Sicily, for example, covered 3,200 metres and 11,000 technical and structural components.

We were also encouraged by the positive market response to our tailor-made building compliance verification service aimed at asset property owners, covering both corporate governance and the technical conformity of buildings and using a smart dashboard for risk mapping.

Our engineering and design team has consolidated its track record in the metro and light rail sector, reaching a total of 66 projects in 19 countries with a combined value of over EUR 65 billion. In 2018, our experts worked on their 15th GoA 4 driverless line, making RINA a recognised leader in driverless metro systems with a global market share of 20 percent.

A new service to provide 360-degree assistance for public procurement was employed in 2018 to support a major procurement project in Bangladesh. As infrastructure such as railways, roads, ports and water distribution systems are the necessary backbone of development for any region, we expect growing demand for this comprehensive support service as our global technical and commercial network expands.

The focus of our consulting and design team in 2019 will be on railways and mass transit systems, marine facilities and civil infrastructure. We see promising opportunities in Africa, Southeast Asia, India and China, spanning both new construction projects and existing infrastructures that are reaching their near-end-of-life phase.

Positive market reactions to our new and existing services – along with the increased efficiency, market focus and responsiveness triggered by RINA's reorganisation – makes us optimistic about the future of our certification business as well. Here, we expect growth will be strongest in the Italian and wider European markets, with the strengthening of regulatory frameworks for infrastructure and construction projects increasing demand for third-party inspection bodies. The desire for innovation and digitalisation among real estate asset owners – smart inspections, BIM validation, building surveys and sustainability – will drive the continued success of our certification and verification services in this area. Lastly, we anticipate skyrocketing growth in worldwide demand for railway certification and independent safety assessments, particularly in China as the country aligns its regulatory frameworks to more closely resemble European standards.



33

countries with
active projects

236

railway projects



216,000+ hrs
of engineering

1,500 km
of metro/LRT projects

18 LEED and BREEAM
sustainable building projects



21,000 sqm
of sustainable buildings certified



09 T&I Projects

SMART MONITORING OF THE STRUCTURAL HEALTH OF A DANUBE BRIDGE

► RINA is designing and implementing a Structural Health Monitoring System (SHMS) for the new Brăila Bridge in Romania. When completed in 2022, the 1,900 m suspended bridge will be the country's highest bridge over the Danube River. RINA will implement a distributed network of hybrid sensors providing comprehensive real-time data on the behaviour of the structure. Advanced software will be used to analyse and transform the data into operationally critical information. This project follows the successful installation of a Structural Health Monitoring System for Osmangazi Bridge in Turkey, the fourth longest single-span bridge in the world, as well as the design of smart monitoring systems for other critical assets including viaducts, tunnels, offshore platforms and wind farms.

RAIL BALTICA INTEROPERABILITY VERIFICATION

► As part of the €5.8 billion Rail Baltica project, RINA is performing verification as the Notified Body for Railway Interoperability for the new double-track railway line in Riga International Airport, including the railway station, related infrastructure and overpass. Launched in 2010, Rail Baltica aims to connect the Baltic countries with Finland and Poland with a fast, double-track electrified and European standard railway line by 2026.

MARINE DRONE SURVEYS OF PIER INTEGRITY IN SICILY

► Innovative marine drones are helping RINA to survey the structural status of the main pier in Gela, Sicily. The data collected by the drones covers 3,200 meters and 11,000 technical and structural components of the pier. The data will help the structural experts to comprehensively map the current status and deterioration of the pier structure with pinpoint accuracy. As drone technology improves, RINA is finding this technique increasingly useful to gather data on elements that are not easily accessible.



66 METRO AND LIGHT RAIL PROJECTS

PIONEERING PPP PROJECT FOR LA SPEZIA CRUISE TERMINAL

► RINA is using its multidisciplinary skill base to develop a win-win initiative to promote the Italian port of La Spezia as one of the top cruise ports in the area. Royal Caribbean International, MSC Cruises and Costa Cruises jointly selected RINA to act as Lead Consultant for the project, which aims to achieve an exclusive cruise service concession through private investment of USD 46 million in an area that will be transferred from the port to the city. RINA has provided expert consultancy on technical, market, financial aspects and is set to provide design services and construction supervision for the new terminal building and other aspects of the project.

REAL ESTATE COMPLIANCE VERIFICATION

► Leveraging an innovative service developed in 2018, RINA is providing compliance verification for 200 buildings belonging to a multinational real estate asset management company. With the help of a dedicated dashboard mapping tool, RINA will evaluate the current status of the buildings in terms of administrative and technical compliance with the relevant regulations.

HANGZHOU METRO EQUIPMENT SAFETY ASSESSMENT

► RINA is performing an Independent Safety Assessment of the rolling stock and propulsion system supplied to the Hangzhou Metro. The two batches of 17 and 41 trains, intended for the new Line 5 of the Hangzhou Metro, will be assessed and certified during 2019 against applicable international standards, technical safety requirements in the tender specification and local legislation. Due to a need for more environmentally friendly transport in this city of 10 million people, there is a strong focus on operational efficiency of the rolling stock, the choice of power sources for railway traction and the potential for intermodality.

THIRD-PARTY INSPECTION FOR TURIN METRO

► The City of Turin in Italy has contracted RINA to provide third-party inspection services for the Metro Line 2 project. The planned new metro line will stretch 21 km, with 14 stations in Turin and 7 in the town of Orbassano. Consolidating RINA's leadership in Italian infrastructure projects, the project will help to increase public transport use within the city.

CONSTRUCTION MONITORING FOR LUXEMBOURG HEAD OFFICE

► RINA is responsible for project monitoring for the construction of the new Luxembourg headquarters of a major banking group. Multidisciplinary expertise will be required throughout the construction of the 16,000 sqm office building, with RINA providing core third-party services from design verification and tender owner assistance to supervision of the construction site and commissioning.

HOSPITAL CONSTRUCTION AND RENOVATION

► RINA's technical capabilities in hospital building are being leveraged in the construction of a new hospital in Fermo and the renovation of an existing hospital in Ancona, both in the Marche region of Italy. The third-party services include advanced BIM verification.

JAIPUR METRO SAFETY ASSESSMENT

► A team of RINA T&I experts from Italy and India is carrying out an Independent Safety Assessment of the signalling and train control system of the Jaipur Metro Line 1. Now in Phase B of the project, the metro will boost public transport and ease congestion for the 4 million inhabitants of Jaipur, capital of the Indian state of Rajasthan. RINA is the first international assessor selected to perform these services.

DESIGNING MARINE LEISURE FACILITIES IN SAUDI ARABIA

► RINA has conducted a detailed design of coastal and offshore island leisure facilities at Al Wajh in northwest Saudi Arabia. The project, part of a wider Red Sea tourism and hospitality project in the area, involves the construction of two breakwaters for sheltering berths, two slipways for launching speedboats, a jetty in the island marina and a beach. The design work was fast-tracked and carried out remotely, using state-of-the-art metocean, morphodynamic and harbour disturbance modelling and advanced BIM technologies.

DUE DILIGENCE STUDY FOR THE JERUSALEM LRT RED LINE

► RINA has conducted a thorough due diligence study on the infrastructure, systems, rolling stock and operations & maintenance status of the Jerusalem LRT Red Line. The study, which involved diverse engineering and environmental expertise, has provided comprehensive evidence for strategic decisions on the city's sustainable transport policies and asset modernisation projects.

IMPROVING COAL SUPPLY AND TRANSPORTATION IN BANGLADESH

► RINA is performing a feasibility study to identify strategies to transport bulk materials, including coal, to a major power station in Bangladesh with reduced investment costs and environmental impact. By implementing a transshipping method, the client can overcome water depth restrictions at the power station site and reduce the need for dredging and other works. RINA's expertise enables the creation of a complete supply chain of coal from the mines to the power plant.

AIRPORT RUNWAY DESIGN VERIFICATION IN BRAZIL

► The Brazilian Civil Aviation Agency has selected RINA to perform the design verification for a new €180 million runway for an international airport in Brazil. In addition to the new 2,750-metre runway, the project includes a taxiway viaduct above the main highway and the installation of electronic instrumentation and automated weather stations. This is the first project verification to be awarded in Brazil under the infrastructure project inspection accreditation scheme of INMETRO, the national accreditation body.

50 SUCCESS RATE IN
TENDER SUBMISSIONS
IN CERTIFICATION SERVICES



10 Certification

15% OPERATING REVENUES

RINA's certification business saw strong growth of 11 percent in 2018, along with a 20 percent jump in margins year-on-year. This excellent performance builds on the strong base established in 2017 and confirms RINA's continued leadership in certification in Italy, along with its growing footprint in other countries and regions.

RINA remains a market leader in Italy in a series of key areas, including management systems (with over 14 percent of the market), ISO37001 anti-bribery certification (over 65 percent) and SA 8000 social accountability management systems (22 percent).

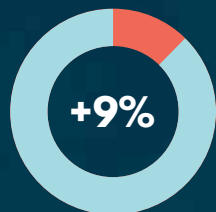
Building on this strong base of core certification services and the buoyant market, in 2018 we identified and developed interesting opportunities driven by new international regulations, such as European regulations on data privacy and management systems, and incentives such as the Italian tax benefits scheme for Industry 4.0 technologies. Globally, social pressures around conscious consumerism have driven an increase in demand for voluntary certification of anti-bribery systems, as well as sustainably produced wine, biofuels, clothing and organic food.

Being close to clients is key to our success. We have 25 offices around Italy, where 65 percent of certification revenue is currently generated, and now plan to focus our efforts on markets that already demonstrated high potential in 2018. These include Spain, where we saw exponential growth in just one year of operation, the UK, particularly for second-party audits and supply chain certification for fashion brands. Romania, China and Brazil are other fast-growing markets for RINA's certification services.

The keyword for our growth is focalisation rather than diversification. We are highly focused on building strong client relationships based on trust, a deep understanding of each client's needs and support in offering tailored as well as standard services. RINA's greater integration and knowledge-sharing between business areas in 2018 is helping with this strategy, supporting the expansion of certification services in strategic markets where RINA has an existing presence, reputation and relationships with clients.

The company-wide focus in 2018 on integration, communication and knowledge-sharing has brought clear benefits internally as well as commercially. New colleagues from other backgrounds have brought fresh ideas for innovative market-oriented services and business models, which we then test and develop using agile methodologies. Naturally, many of these innovations relate to the digital world, such as a three-month cybersecurity qualification for auditors and the wider use of drone inspections and automated data collection to boost safety, speed and cost-efficiency for the benefit of clients. In addition to these innovations, a new dedicated online platform developed in 2018 makes it easier for clients to find and apply for relevant certification services.

As word spreads internationally of RINA's strong client focus, innovative certification services and methods, and worldwide network of 500 experienced employees and 1,000 consultants, we expect this upward trend in certification business to strengthen further. Continued initiatives to upgrade technology and increase collaboration and communication within the company will support our ambitious growth targets of another 10 percent increase in revenue and margins next year.



revenues



60,000+
clients

+20%



contribution
margin

81,000
personnel certifications



Certification Projects

ENSURING SAFETY AND CONTINUOUS OPERATION OF PLANTS ACROSS ITALY

► Mandatory plant inspection services according to Italian health and safety regulations (in particular Art.71 of Legislative Decree 81/08) saw increased demand in 2018 due to a boost in the oil & gas sector. The services, covering periodic checks on pressure equipment and safety inspections of lifting and hoisting devices, align with best practices in Asset Integrity Management. They demonstrate one way in which RINA supports production companies across Italy by ensuring correct maintenance procedures and the continuous operation of plants.

400 ORGANIC FOOD AND FARMING CERTIFICATIONS

► Organic food certification, launched in 2017, was a major area of growth and development in 2018, with 400 certified operators. RINA anticipated the exponential growth of the global market for organic food products by investing in skills development for internal staff, as well as hiring expert consultants and collaborating with partners. RINA now offers certification of organic farming products from the field to the table, with a focus on traceability and ensuring the quality of the raw materials and the entire chain up to the finished product. Demand is strong from both traditional farmers who wish to introduce organic farming methods into their activities and those who already farm organically and would like to obtain the benefits of certification.



**65% OF THE
MARKET IN ISO 37001
ANTI - BRIBERY
CERTIFICATION**

HELPING MANUFACTURERS INVEST IN INDUSTRY 4.0 TECHNOLOGIES

► Thanks to a programme of government incentives aimed at transforming the Italian manufacturing sector, Italian companies have been able to take advantage of tax breaks for investments in advanced technologies. The "hyper-amortisation" incentives cover capital goods controlled by computerised systems or managed by appropriate sensors and drivers, as well as intangible assets such as software and systems. In addition to the financial benefits for companies, investment in these assets allows better interaction between personnel, processes and machinery, speeds up decision-making, improves productivity and quality and satisfies demand in a more targeted and cost-effective way. RINA is one of the certification bodies accredited to issue the attestation of conformity required to unlock the benefits of this incentives programme. A multidisciplinary team from the Certification and Industry business units has so far carried out hundreds of such verifications, contributing to the transition of Italian manufacturing to Industry 4.0.

CERTIFYING SUSTAINABLE BIOFUELS AND BIOLIQUIDS

► RINA's new certification services for the sustainability of biofuels and bioliquids are designed to help clients, including key players in the oil & gas sector, develop the potential of energy from renewable sources and contribute to achieving EU targets for cutting greenhouse gas emissions. Biofuels certified as sustainable unlock tax incentives and provide clients with a competitive advantage. Covering traceability, mass balance and a calculation of greenhouse gas emissions, the certification process verifies the information demonstrating compliance with sustainability criteria and the environmental and social information provided by players within the production chain. RINA's certification is in accordance with the Italian National Biofuels and Bioliquids Sustainability Certification System of 23 January 2012 and voluntary schemes including ISCC EU (a German initiative), 2BSvs (a French initiative managed by the 2BS Consortium) and KZR INiG (a Polish initiative).

PRESERVING ITALY'S TRADITIONAL FOOD PRODUCTS

► RINA's certification brand for the agricultural-food sector, supports the high quality and reliability of agri-food products and systems in Italy. Activities span the food, environmental, tourism, artistic and traditional crafts sectors, as well as the promotion of Made in Italy products. Certification of conformity of traditional local products is particularly important in Italy, which is famous for its wide variety of agri-food products, and in which the concept of quality is closely linked to the tradition and area of origin. The EU's DOP, IGP and STG logos – for which RINA issued around 60 certificates in 2018 – help to protect the quality and reputation of these products by guaranteeing specific production methods, traditional recipes and geographical location. During 2018 there was particularly strong growth in the olive oil sector, with two new denominations.

CERTIFYING THE SAFETY OF ELECTRICAL SYSTEMS

► RINA is the first certification body to obtain accreditation for the mandatory verification of electrical systems according to Italian decree DPR 462/01. The inspections are aimed at ensuring the health and safety of employees in the workplace, as well as monitoring the efficiency of systems, equipment and protective systems. By integrating this service, RINA is able to provide clients with a single partner for plant inspections able to act on all areas, including those at risk of a major accident or explosion and those supplied with a high voltage.



400 ORGANIC FOOD
AND FARMING CERTIFIED
OPERATORS

WINE PRODUCTION THAT PROTECTS HEALTH AND THE ENVIRONMENT

► Sustainable wine certification, launched in 2017 and rolled out in 2018, is another fast-growing sector for RINA. Voluntary SQNPI certification for the wine industry aims to improve sustainability, reduce environmental impact and protect the health of consumers. Only a year after the service was launched, RINA's market share for SQNPI wine certification is around 15 percent. The new certification joins existing services for the wine industry. In 2018, for example, RINA carried out 63 inspections and analytical controls along the wine supply chain for DOP and IGP-certified wines.



15%
MARKET SHARE FOR SQNPI
WINE CERTIFICATION

SUPPORTING COMPANIES IN DATA SECURITY AND GDPR COMPLIANCE

► Launched in 2018, RINA's IT security and General Data Protection Regulation (GDPR) services are aimed at a broad cross-market sector, with a focus on areas with high levels of management of sensitive data such as healthcare and public administration. The services help organisations comply with the new GDPR regulation that was introduced in Europe with worldwide impact. Clients benefit from an independent review of activities with a high level of IT and legal complexity. Services are tailored to the client's needs and include gap analysis related to the GDPR, certification of Data Protection Officers according to UNI 11697, training, and IT services certifications according to ISO 27001, ISO 20000 and ISO 22301.

11% OPERATING REVENUES

2018 was a solid year overall for the Industry business unit, which spans Materials, Technology & Innovation and Space & Defence capabilities. While there was some variability across the unit, together we achieved close to our revenue target and exceeded our target for margins.

The Industry business unit covers a wide variety of capabilities and market sectors yet is united by a shared approach to open innovation and one common goal: to provide 360-degree support for clients with industrial needs throughout a project's entire life cycle. Combining skill sets and exploiting synergies has enabled us to take on increasingly complex projects in 2018. In particular, we have seen strong demand for services related to Industry 4.0 and smart manufacturing. These require specialist expertise not only in advanced technologies and innovation processes but in training, integrated security and cybersecurity.

Our proactive support to the European Space Agency (ESA) technology transfer programme is a standout example of a project combining expertise in space technologies with knowledge of manufacturing processes, materials and needs, along with a creative and agile mindset.

The Space & Defence Business Unit underwent significant change during 2018 in order to ensure it had the appropriate structures in place for now and the future. This included changes in the management team, cost-centre structures and the reshaping of the UK Operational Support Team into a leaner, more effective and cost-efficient support function all of which was enhanced through significant investment in brand-awareness strengthening activities such as attendance as an exhibitor at the Farnborough International Air Show. All of these changes have been enabled through our key asset, our people, who positively engaged in the change management process that led to significant business winning successes in late 2018 and early 2019.

Our Centro Sviluppo Materiali laboratory near Rome, which joined RINA in 2014, demonstrated highly positive performance in 2018 and has for the first time exceeded its targets for gross margin. The centre's state-of-the-art creep laboratory has been fitted with sensors that relay real-time test results to the RINACube platform – one example of several initiatives designed to add value for clients. Overall, our laboratories performed over 800,000 hours of high-temperature stress tests on steel samples in 2018, along with over 250,000 hours of stress corrosion tests.

In the UK's Leatherhead laboratory, we have commissioned a new Scanning Electron Microscope with Field Emission Gun to enable clients to benefit from faster and more detailed analysis of component failures, development of new materials and asset life condition assessments. This cutting-edge equipment is in constant daily use supporting projects in both the UK and Italy with a total value of over EUR 2 million. We are one of only a handful of UKAS-accredited medium-voltage electrical testing facilities in Europe, and the new equipment allows us to better support clients across the energy, renewables, heavy industry, steel production, defence, marine, rail and infrastructure sectors, as well as many equipment and component manufacturers.

Increased cooperation and enhanced communication between Industry teams and colleagues in other business units is accelerating business development and enabling us to provide a more comprehensive and consistent service to clients all over the world.

Greater knowledge-sharing across the business unit and company will continue to support international expansion and the development of new cross-cutting services for industrial clients, as well as major players in the space and defence sectors outside our core bases in the UK and Italy. Strengthening brand awareness and cementing relationships with clients across our global network – particularly in support of multinational companies that are expanding geographically into new markets – are key priorities of 2019.

Specifically, in line with our strategic development plan, we anticipate gaining a stronger foothold in the steel industries of China, India and Japan, as well as contributing to infrastructure projects on the African continent. By continuously investing in our skills and ensuring the equipment in our 20 laboratories and pilot plants remains state-of-the-art, we are in a solid position to take advantage of new untapped markets and potential ways to support our clients across a wide variety of industries and countries in 2019 and beyond.

82% first time pass rate**for ASME Level 1
inspector training****92% pass rate****for range of API exam
preparation courses****700+ kg** **of metallic powders produced for
additive manufacturing applications****5,000+****man days on steel
plants worldwide****400+****failure investigations
on components****230,000 hrs****on space and defence activities****20,000 hrs****on space projects****140+** **man days of technical
consultancy in international
arbitration proceedings****33,000 hrs****on training and learning
solutions projects**

SMART MONITORING OF THE STRUCTURAL HEALTH OF A DANUBE BRIDGE

► RINA is designing and implementing a Structural Health Monitoring System (SHMS) for the new Brăila Bridge in Romania. When completed in 2022, the 1,900 m suspended bridge will be the country's highest bridge over the Danube River. RINA will implement a distributed network of hybrid sensors providing comprehensive real-time data on the behaviour of the structure. Advanced software will be used to analyse and transform the data into operationally critical information. This project follows the successful installation of a Structural Health Monitoring System for Osmangazi Bridge in Turkey, the fourth longest single-span bridge in the world, as well as the design of smart monitoring systems for other critical assets including viaducts, tunnels, offshore platforms and wind farms.

MATERIALS, TECHNOLOGY & INNOVATION STRATEGIC INTELLIGENCE PLATFORM FOR STREAMLINED BUSINESS INTELLIGENCE

► Launched in January 2018 and successfully piloted with a leading commodities company, RINA's Strategic Intelligence Platform (SIP) provides medium- and large-size companies with an interactive online tool to gain insights into key indicators for their business. These customisable indicators can include new technologies, patents, scientific production, activity of competitors, a cooperation map and a global heatmap of intensity of operations. All data come from a variety of current sources, including non-obvious data contained in public content, and are interlinked, tagged and searchable in order to give fast answers to specific questions. The tool was developed internally and deployed on the RINACube platform to provide executives, decision makers and investors with actionable data and recommendations enabling them to make better strategic decisions on topics such as new products to be launched, M&A activities and early investment in new trends or technologies.

PARTNERSHIP FOR INNOVATION IN ELECTRICAL STEEL PRODUCTION

► In partnership with NLMK Group, Russia's largest steelmaker, RINA is working on the development of new, high-quality grades of both grain oriented electrical steel and non-oriented electrical steel, as well as the related innovative production processes. The new steel grades will be used in the manufacture of advanced electrical machines including transformers, generators and engines.

ADVANCED METALLOGRAPHY FOR FITNESS-FOR-SERVICE AND RESIDUAL LIFE ASSESSMENTS

► RINA has used extractive replicas and transmission electron microscopy (TEM) to carry out several assessments of ageing tubular components of power plants for power generation and oil & gas clients. The extractive replicas are obtained on-site, directly on the component or in the welded areas, and treated in RINA laboratories to obtain a sample. TEM is then used to obtain highly accurate morphological, crystallographic and chemical information that is crucial to decision-making about whether to continue the service of the component or start the end-of-life process.

METALLURGICAL DESIGN TO DEVELOP PRODUCTS WITH SPECIFIC PROPERTIES

► RINA is using its long-standing competence in metallurgical design to help major steelmaking clients develop products with special properties tailored to specific market applications. In 2018, new products were developed with increased weldability, toughness, oxidation and creep resistance, among other properties.

INTEGRATED SECURITY FRAMEWORK FOR RISK MANAGEMENT AND BUSINESS CONTINUITY

► Launched in 2018, this is a comprehensive security offering to support our clients in the analysis and development of their security organisation, processes and systems. An Integrated Security Framework incorporating new competencies in cybersecurity helps clients achieve compliance with fast-evolving EU and worldwide security regulations and simultaneously reduce business risk deriving from security breaches and avoid administrative or penal sanctions. The service, which is targeted at the industrial and marine sectors, is grounded by RINA's 20 years of experience in security, which started in the defence sector and evolved to the industrial and critical infrastructures sector in the last decade. 2018 saw the expansion of a recruitment screening campaign designed to broaden the capability of the security competence centre and ensure consultants are up to date with the main security governance and cybersecurity techniques. A supplier qualification programme has been launched in 2018 to widen the network of RINA practitioners all over the world. Collaborations with specialist companies are envisaged in 2019 to strengthen and complete the security assurance offering.

CONDUCTING BURST TESTS FOR LINEPIPE RELIABILITY

► RINA has conducted a full-scale propagation test for a major Asian oil & gas client to demonstrate the fracture arrest capability of a 48-inch gas pipeline in real operating conditions. RINA is the world leader in conducting such tests in accordance with international standard API 5L3 / ISO 3183. Over 350 sensors were used to capture the complex phenomena involved, including environmental effects. The test is essential for guaranteeing the operating safety of the pipeline. In collaboration with the offshore testing laboratory at the University of Reggio Calabria, RINA also performed a unique offshore fracture propagation test on a pipeline operating with high-pressure carbon dioxide in order to understand environmental issues related to the release of carbon dioxide into the surroundings.

HIGH-PRESSURE TESTING FOR IMPROVED MATERIAL SELECTION FOR OIL WELLS

► RINA is helping oil & gas clients to take advantage of a more flexible and cost-efficient approach to material selection and qualification for specific oil fields. Due to pressure differences between the environment and the real conditions in wells, Sulfide Stress Corrosion (SSC) severity in the field can be less than that simulated in conventional low-pressure laboratory tests. RINA employed a diverse range of skills – safety, engineering design, material engineering, process engineering – to develop and implement assets and procedures to perform high-pressure SSC tests that simultaneously monitor pressure, temperature and gas behaviour. The tests have enabled the clients to select appropriate materials on the basis of the true well environments, leading to significant cost-savings in material procurement.

EXPANDING THE USE OF ENGINEERING CRITICAL ASSESSMENTS TO THE MARINE INDUSTRY

► During 2018, RINA reinforced its position as a leading reference point for Engineering Critical Assessments (ECA) and successfully broadened the use of this technique beyond the energy industry. RINA provided full guidance on ECA for the newbuilding of a cruise ship – one of the first times that ECA has been applied in the marine industry – taking advantage of competencies in both ship design and ECA fracture mechanics principles. RINA also performed ECA verification and validation for multinational oil & gas company ENI relating to the challenging Zohr field development project in Egypt.

MASTERCLASSES AND WORKSHOPS TO DRIVE ADVANCES IN STEELMAKING

► RINA organised and participated in several advanced workshops in steelmaking and additive manufacturing in 2018. Around 60 participants attended the 22nd edition of Steelmater, a two-week annual training course for all levels of the Italian steel industry, which was hosted in Genoa and Padua by RINA and Acciaierie Venete. The 11th edition of Eurosteelmater, aimed at the global steel industry, was hosted by the Ordine degli Ingegneri di Taranto and attended by more than 50 steel industry representatives. The 3rd edition of the Master Additive Manufacturing, organised by RINA in collaboration with the Politecnico di Milano Bovisa, looked at integrating this advanced technology into high-added-value manufacturing chains, with a focus on metals.

GROWING DEMAND FOR INTEGRATED LOGISTIC SUPPORT AND IN SERVICE SUPPORT

► Integrated Logistic Support (ILS) and In Service Support (ISS) services are fundamental to the design of sustainable systems and their maintenance, particularly in the defence and naval sectors but with significant applications in the marine, manufacturing and other industrial sectors. ILS and ISS are closely connected to digital technologies, like IoT and smart condition monitoring systems, that are the flagship of the RINACube platform. In 2018, we saw 40 percent growth in revenue from ILS activities, with important contracts in the UK, UAE and Italy. This is partly thanks to the integration of well-proven ILS methodologies with digital technologies such as 3D learning, data gathering and AI, which are helping to increase the efficiency of ILS and ISS processes. RINA's ability to offer these services anywhere in the world through its network of partners is another key driver of demand, in conjunction with its ability to integrate other system engineering services such as project management, electromagnetic compatibility, human factors, safety and security.

ASSESSING PRODUCTION CYCLES TO CREATE AN INDUSTRY 4.0 ROADMAP

► RINA experts have carried out several on-site surveys of production cycles at manufacturing plants, covering the available network architecture, existing sensors and factory automation systems. The detailed assessment reports contain a technological roadmap that enables clients to take evidence-based decisions about future steps towards an Industry 4.0 scenario.

ULTRA FILTRATION PROCESSES FOR INDUSTRIAL WATER

► RINA has supported Tenaris in evaluating the performance of an Ultra Filtration (UF) process for industrial water. The aim is to test the membrane's efficiency under different operating conditions and levels of input water quality. The evaluation covers the self-cleaning ability – which enables long-term high capacity and low maintenance – as well as fully automatic operations and energy consumption. The project is linked to the European Union Research Fund for Coal and Steel-funded project WHAM, which aims to optimise water consumption in steel manufacturing processes.

INNOVATION IN SUSTAINABLE PLASTIC RECYCLING

► Within the framework of the European Union's Horizon 2020 POLYNSPIRE project, RINA is using its competences in circular economy concepts to develop an injection system for the use of recycled plastic materials in electric arc furnace techniques for steelmaking. The aim is to reduce the consumption of coal as both carbon supply and a foaming agent, as well as valorise a significant quantity of plastic waste. The injection of plastics helps generate foaming gas that increases the energy and resource efficiency of the process.

OPTIMISING TURBINE BLADE DESIGN

► RINA engineers have succeeded in modifying the curved fillet of a gas turbine blade to reduce the stress concentration and increase the service life of the blade by limiting fatigue. The team used advanced finite element analysis software to accurately control the morphing process and identify the optimal blade design.

SUPPORTING TECHNOLOGY TRANSFER IN MAURITIUS

► RINA is supporting the Chamber of Commerce and Industry in Mauritius in enhancing the competitiveness of Mauritian industries through a new Accelerated Technology Transfer Platform. The aim of the project, which is funded by the European Commission's EuropeAid initiative, is to facilitate access to advanced technologies developed in Europe. An international RINA team is in charge of training, establishing international connections and defining the functionalities and responsibilities within the platform, as well as helping to initiate data gathering of technology needs and offerings from businesses on the island.

ARTIFICIAL VISION SYSTEMS FOR QUALITY CONTROL IN PASTA PRODUCTION

► In 2018, RINA implemented two automated inspection systems for major clients in the food processing industry based on a system developed with RAM Elettronica, supplier of machinery for market-leading pasta brands. RINA combined its in-line inspection and sensor capabilities with RAM Elettronica's expertise in food processing equipment to create a spaghetti production line fitted with advanced machine vision systems. The sensors acquire images during production, process

CONTRIBUTING TO ISO INNOVATION MANAGEMENT SYSTEMS STANDARDS

► As part of the ISO Technical Committee 279 and leveraging its competence in Total Innovation Management services, RINA is actively contributing to the development of the ISO 56000 set of standards on Innovation Management Systems. The first two standards, ISO 56003 "Innovation Management - Tools and Methods for Innovation Partnership – Guidance" and ISO/TR 56004 "Innovation Management Assessment – Guidance", were approved for publication at the end of 2018.

DEVELOPING HYBRID COATING MATERIALS WITH HIGH BALLISTIC RESISTANCE

► RINA has successfully completed its contribution to HYPERCOAT, a research project funded by the Italian Ministry of Defence with the aim of developing improved ballistic protection through multilayer coatings of polymer composites and low-cost steel. During the three-year project, RINA helped to develop an optimised solution taking into account cost, weight and reparability. Samples were fire-tested to demonstrate the results achieved.

ASSESSING TRAINING NEEDS AND REQUIREMENTS FOR NEW UK CYBER DEFENCE CELL

► RINA has conducted a comprehensive assessment of the roles and training needs of the UK Ministry of Defence's new Cyber Vulnerabilities Investigation Operations Cell in order to establish the most cost-effective approach to recruiting and training for each role. The training needs analysis was carried out by a combined team of training analysts, human factors specialists and cyber experts in accordance with Joint Service Publication (JSP) 822, strengthening RINA's track record in cyber-related projects.

JOINT STEAM TURBINE CONDITION ASSESSMENT

► A specialist team of RINA turbo-machinery consultants from the UK, in conjunction with colleagues from RINA's Centro Sviluppo Materiali laboratory in Italy, has conducted a condition assessment project to assess the suitability of repair welds in the diaphragms of a new steam turbine in a power station. The objective is to ensure problem-free operation of the turbine until its first opening after the expiry of the manufacturer's contractual guarantee period.

LONGEVITY OF ELECTRICAL SUPPLY IN AFRICA

► Following an initial condition assessment project in 2017, in late 2018 RINA secured two further orders from a client in Africa to support ongoing maintenance of 220 kV oil-filled cables and to deliver a cost-benefit analysis of upgrading the system to an XLPE cable system.

RINA ELECTRICAL AND ELECTRONIC EQUIPMENT AND THE ENVIRONMENT CONFERENCE

► The 20th edition of the RINA Electrical and Electronic Equipment and the Environment Conference was held in November 2018 in London, providing an opportunity to learn about the challenges of environmental compliance and legislation for hardware products. Led by RINA's Regulatory Compliance team, the conference attracted high-quality speakers who represent the most recent developments in environmental compliance and legislation. 2018 sessions covered Brexit, hazardous chemical regulations, sustainability and the circular economy as well as technical regulations and market surveillance.

DATA ANALYTICS TO SUPPORT FUEL MANAGEMENT STRATEGIES AT UK'S LARGEST ROYAL AIR FORCE STATION

► Following a strategic review of the operating model of RAF Brize Norton, the UK's largest Royal Air Force (RAF) station, RINA has been commissioned to provide technical support to the RAF in reducing expenditure on aviation fuel. The team has developed processes and tools, along with related templates and dashboards for automated reporting, for streamlined data collection, information management and financial cost-benefit analysis in order to inform decision-making. The financial benefits to the Ministry of Defence are estimated to equal GBP 20 million over three years.

RISK MANAGEMENT AND COMPLIANCE ASSISTANCE FOR THE SUBMARINE DELIVERY AGENCY

► RINA has been providing legislative compliance support to the Submarine Delivery Agency (SDA), the first importer of US equipment for the UK Ministry of Defence submarine programme. In order to comply with UK law and reduce the risk of delays in delivering the material into the build yard, the first importer must be able to provide technical files for audit by third-party monitoring organisations. RINA is assisting with the authoring, co-ordination, management and issue of technical files, the coordination of technical resources and the configuration and quality management of the documentation.

LOCAL ASSISTANCE FOR ADRIAN SYSTEM DEPLOYMENT IN SAUDI ARABIA

► Thanks to a global network of experts and local managers, RINA has been able to offer uniquely hands-on support to Elettronica in the design, development, integration and on-site manning of the ADRIAN (Anti-Drone Interception and Neutralisation) system in Saudi Arabia. The project involved the design and prototyping of defence components, the development and integration of a military command and control system, a high level of competence in electrical and networking engineering and a pool of local technicians for 24/7 manning of the demo system.

INNOVATIVE COMPETENCE MANAGEMENT SYSTEM FOR DOHA METRO AND LUSAIL TRAM

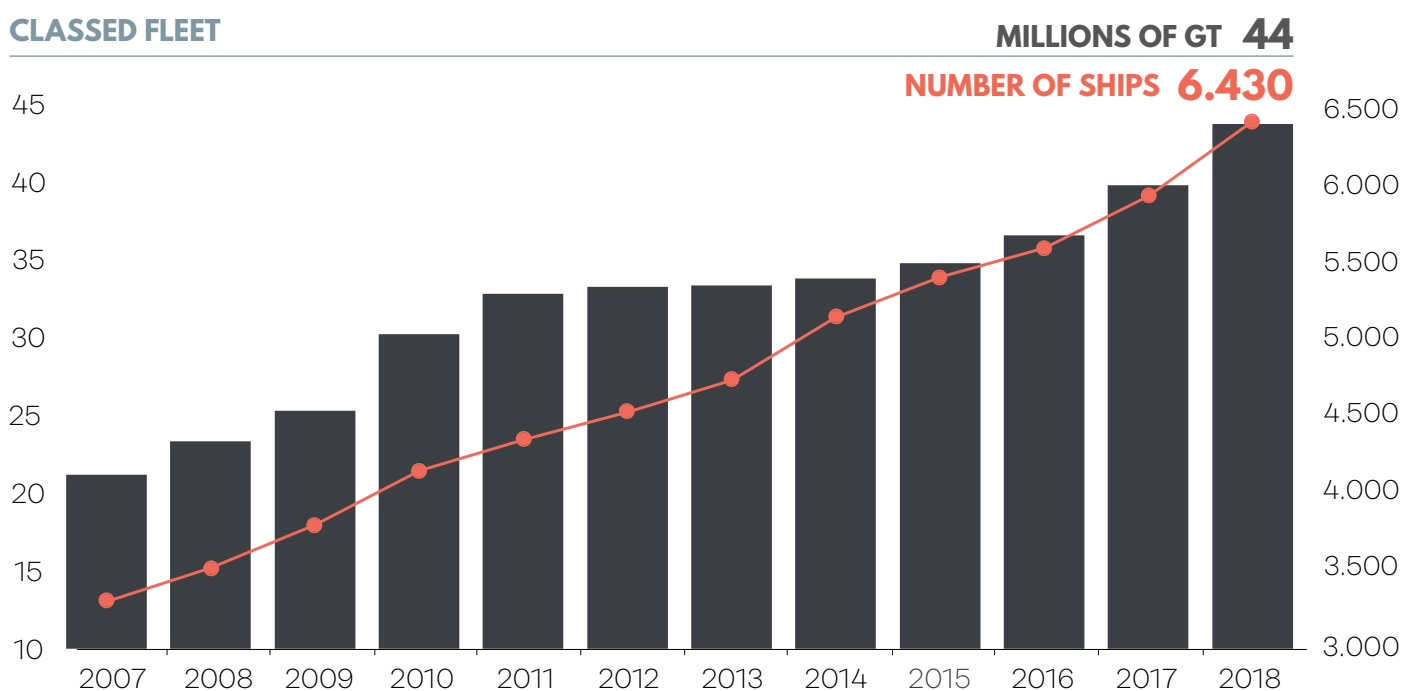
► RINA has assisted in the design, development and implementation of an advanced Competence Management System (CMS) for the Doha automated metro and Lusail light rail networks. The metro and tram franchises both went live in 2018 and the CMS – which uses RINA's innovative Competentis system – is pivotal to the training and competence assurance of the 1,500 international staff who manage and operate the systems.

ISTAR TRAINING NEEDS ANALYSIS FOR UK DEFENCE PERSONNEL

► RINA is conducting a comprehensive training needs analysis for UK Ministry of Defence personnel employed in roles that require Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) knowledge and capabilities. The study is the first to be awarded to RINA under the Analysis Support Construct framework and will support the provision of individual training on ISTAR processes, practices and their application.

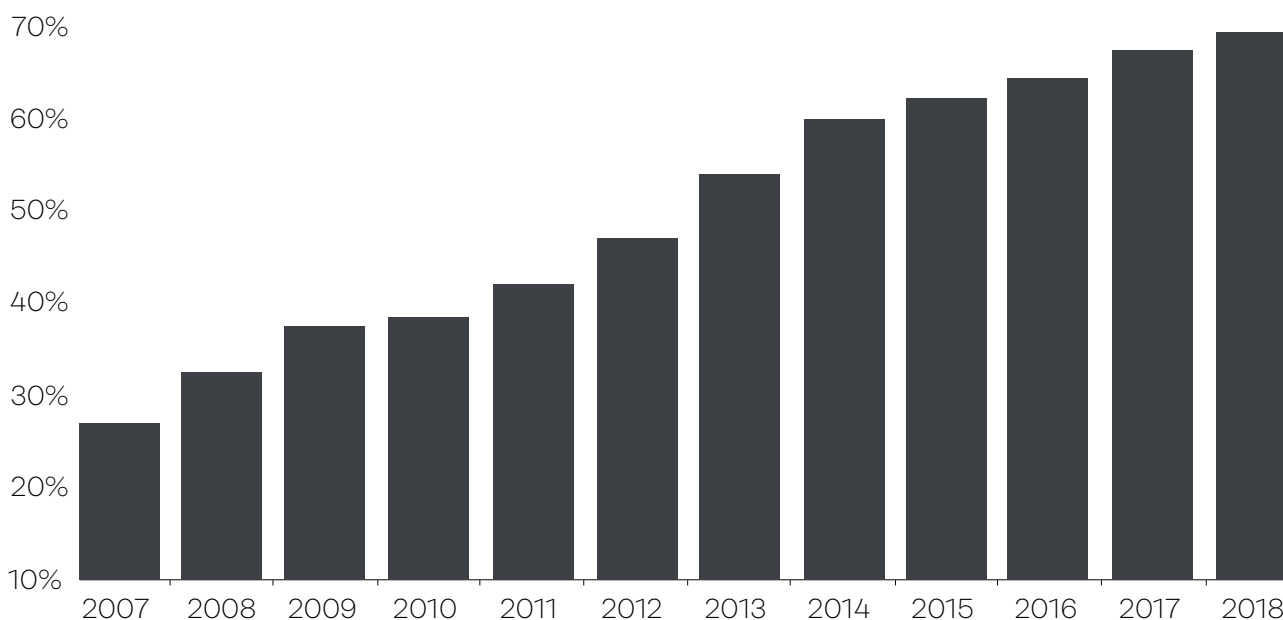
12 Highlights

CLASSED FLEET



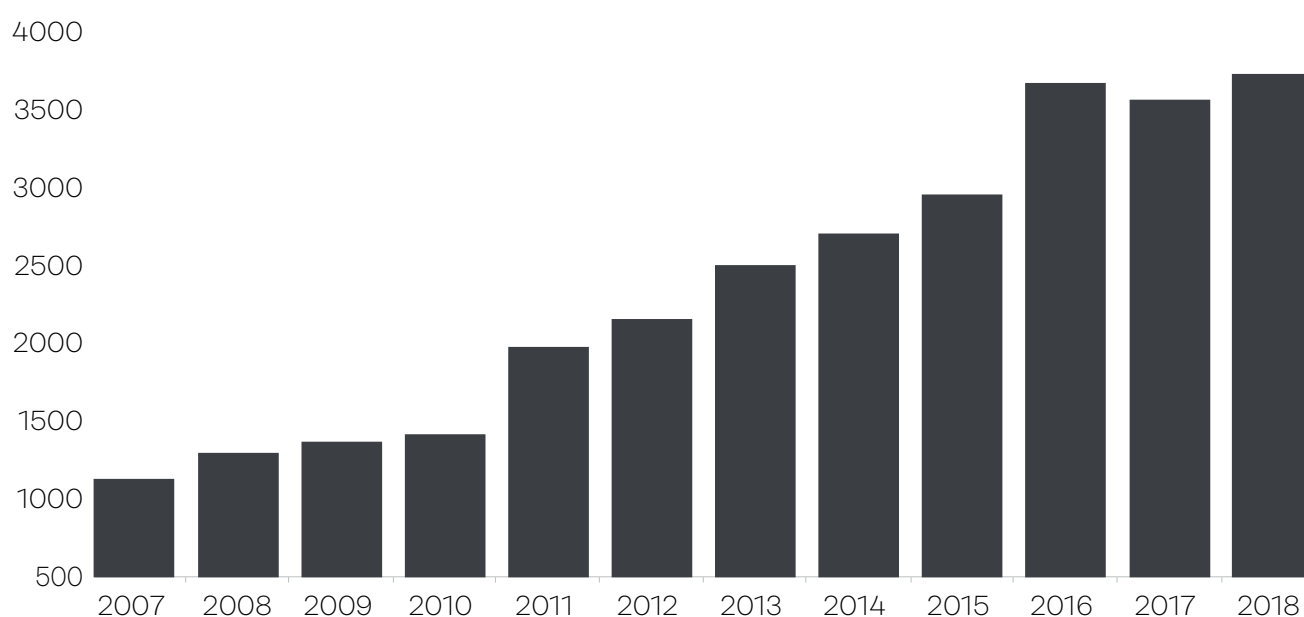
ENGINEERING OPERATIONS ABROAD (% OF PRODUCTION)

69%



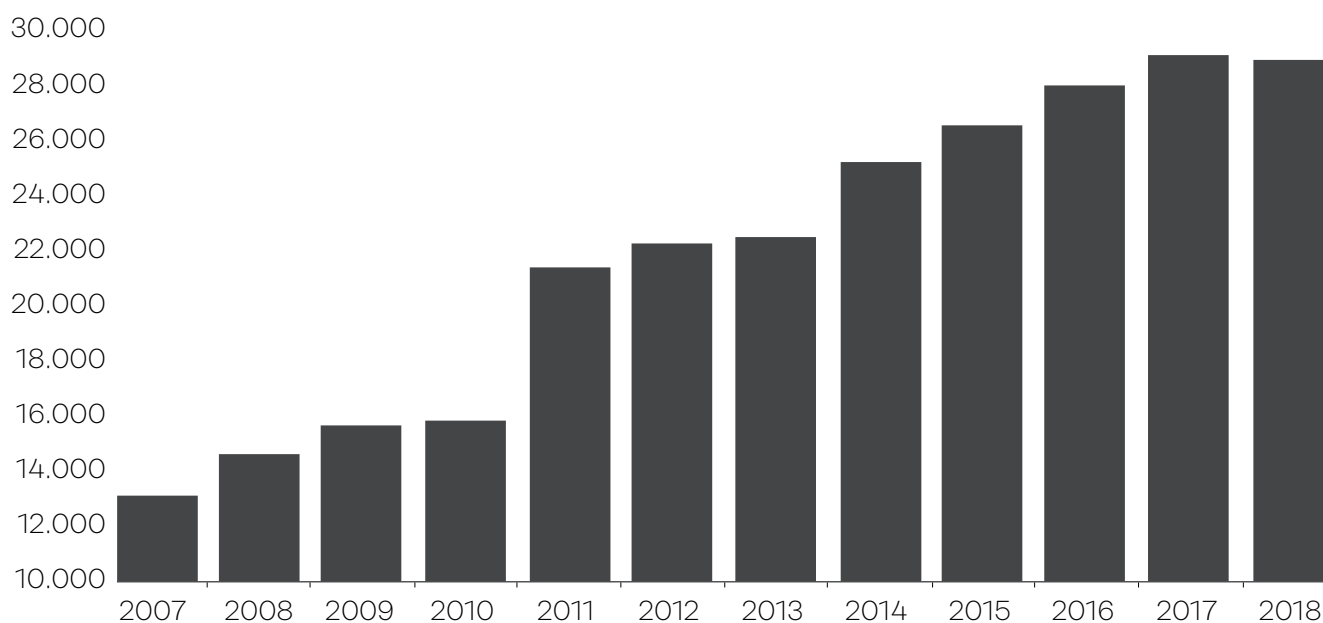
RINA WORLDWIDE STAFF

3.800



CERTIFIED COMPANIES

28.980

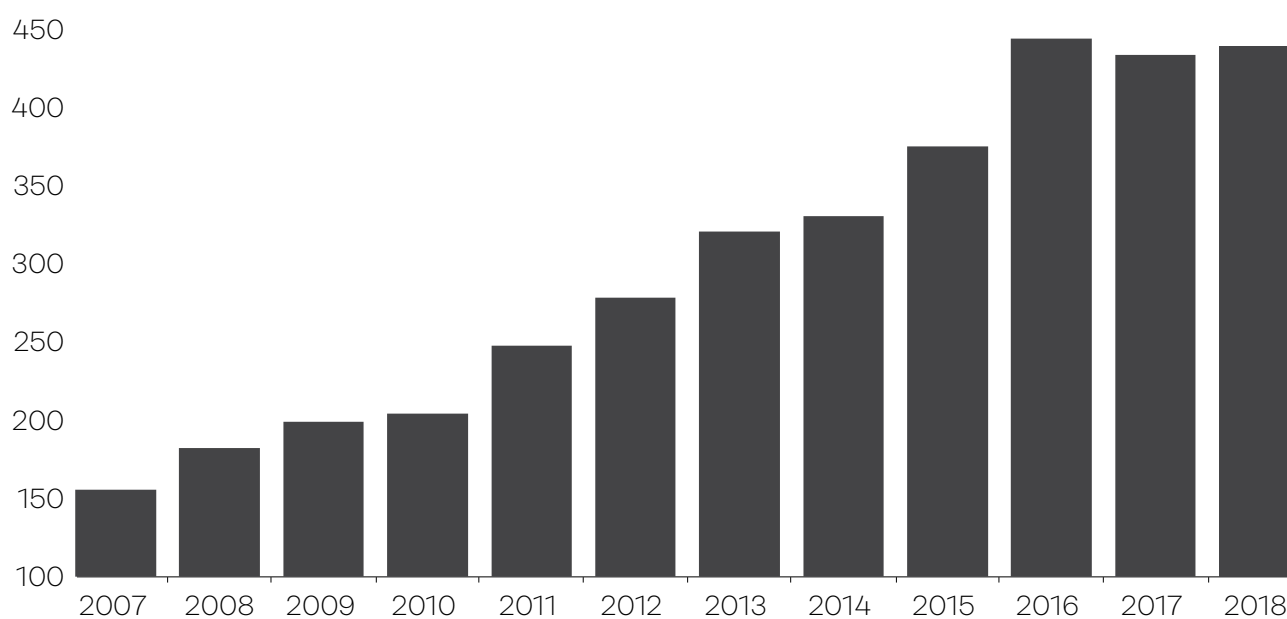


13

Financial Highlights

TURNOVER (MILLIONS OF €)

443



IN THOUSANDS OF EUR

	31. DEC 18	31. DEC 17
Total revenues	443.208	437.574
EBITDA (*)	37.441	40.056
Adjusted EBITDA(**)	51.115	51.779
Operating profit	15.623	14.362
Income/(loss) before tax	10.104	5.384
Profit for the year	3.194	1.548
Net invested capital	76.975	119.773
Total net equity	180.628	204.440
- of which: third party	1.569	2.965
Net financial position	131.063	124.158

(*) EBITDA means earnings before interest, tax, depreciation and amortisation, credit losses and results of associates during the year. EBITDA is used by Group management to monitor and assess our operating performance, and is not an IFRS indicator (non-GAAP measure).

(**) Adjusted EBITDA is EBITDA before non-recurrent income and expenses.

Consolidated statement of financial position

Euro thousand

ASSETS

NON CURRENT ASSETS

	31. DEC 18	31. DEC 17
Property, plant and equipment	41.943	43.402
Goodwill	159.983	154.201
Other intangible assets	55.142	59.943
Investments valued at equity method	12	1.371
Financial assets	763	1.527
Deferred tax assets	12.563	11.434
Other receivables and non-current assets	2.972	3.365
Non current Assets	273.378	275.243

CURRENTS ASSETS

Trade receivables	164.406	166.209
Financial assets	6.997	2.327
Other receivables and other current assets	27.958	32.684
Cash and cash equivalents	63.437	62.835
Current assets	262.798	264.055
Currents assets held for sale	4.038	3.543
ASSETS	540.214	542.841

Liabilities

EQUITY

	31. DEC 18	31. DEC 17
Issued share capital	49.518	49.518
Translation reserve	(5.785)	(3.790)
First time adoption reserve	1.407	1.407
Other reserves	91.093	91.535
Retained earnings	40.222	62.239
Net profit (loss) of the year	2.604	566
Net Equity of the group	179.059	201.475
Capital and reserve of third parties	979	1.983
Result of third parties	590	982
Third parties equity	1.569	2.965
Equity	180.628	204.440

NON CURRENT LIABILITIES

Payables due to banks and other lenders	168.731	126.506
Employee benefits	14.998	15.496
Provisions for risk and charges	6.603	9.090
Other payables and other non-current liabilities	6.071	4.379
Non Current Liabilities	196.403	155.470

CURRENT LIABILITIES

Payables due to banks and other lenders	33.080	63.291
Trade payables	62.500	57.277
Tax payables	4.792	4.109
Other payables and other current liabilities	56.360	52.220
Current liabilities	156.732	176.897
Liabilities held for sale	6.451	6.034

LIABILITIES

540.214 542.841

Consolidated statement of comprehensive income

Euro thousand

PROFIT AND LOSS	31. DEC 18	31. DEC 17
Revenues	433.020	427.335
Other revenues	10.188	10.199
Total revenues	443.208	437.534
Cost of raw materials	5.117	4.750
Costs of services	156.649	156.228
Personnel costs	221.730	210.664
Depreciation and amortization	19.089	16.391
Provisions and impairments	1.873	8.124
Other costs	23.127	27.015
Total costs	427.585	423.172
OPERATING INCOME	15.623	14.362
Financial revenues	13.063	5.381
Financial charges	18.582	14.359
Result before taxes	10.104	5.384
Income taxes for the year	6.910	3.836
Net income from ongoing assets	3.194	1.548
PROFIT AND LOSS FOR THE YEAR	3.194	1.548
Profit (loss) of third parties	590	982
PROFIT (LOSS) OF THE GROUP	2.604	566
Components of comprehensive income that will not subsequently be reclassified to the income statement		
Actuarial Gain/Loss on defined benefit plans	-	(174)
Total components of comprehensive income that will not subsequently be reclassified to the income statement	-	(174)
Components of comprehensive income that will subsequently be reclassified to the income statement		
Differences from currencies translation of financial statement on foreign currency	(1.995)	(5.998)
Derivatives	(774)	129
Tax Effect	216	11
Total components of comprehensive income that will subsequently be reclassified to the income statement	(2.553)	(5.858)
TOTAL ITEMS OF COMPREHENSIVE INCOME STATEMENT	641	(4.484)
Comprehensive net Income of the Group	51	(5.466)
Comprehensive net Income of third parties	590	982

Consolidated cash flow statement

Euro thousand

	31. DEC 18	31. DEC 17
Profit before taxes from continuing operations	10.104	5.384
Profit before taxes from assets held for sale	-	-
Profit before taxes (from continuing and held for sale operations)	10.104	5.384
<i>Adjustments to reconcile profit for the year to cash flows from operating activities</i>		
Amortization of tangible and intangible assets	19.076	16.391
Provisions and impairments	1.873	8.125
Net financial expenses/(incomes)	7.059	8.978
Income taxes paid	(9.040)	(10.287)
Other non-monetary changes	(2.594)	1.495
Cash flow from operating activities before changes in working capital	26.478	30.086
Net change in working capital:		
- Trade and other receivables	(9.796)	(4.174)
- Trade and other payables	1.369	(666)
- Employee benefits and provisions for charges	(4.929)	(1.659)
Cash flow related to operating activities (A)	13.122	23.588
Cash flow from investing activities		
Investments (net of disposals) of fixed assets:		
-Intangible	(3.667)	(5.634)
-Tangible	(3.485)	(4.678)
Comete acquisitions net of cash acquired	(5.923)	-
Cash flow related to investing activities (B)	(13.075)	(10.312)
Cash flow from financing activities		
Openings of new bank loans	290.428	29.623
Repayment of bank loans and finance leases	(269.979)	(31.781)
Changes in financial assets	(881)	(340)
Financial charges paid	(8.328)	(5.679)
Financial income collected	1.268	830
Dividends paid	(2.777)	(2.116)
Cash flow related to financing activities (C)	9.731	(9.463)
Net cash flow for the period (A) + (B) + (C)	9.777	3.812
of which change in cash and cash equivalents arising from assets and liabilities held for sale		
Net cash flow for the period (A) + (B) + (C) excluding change of cash and cash equivalents resulting from assets and liabilities held for sale	9.777	3.812
Cash at the beginning of the period, net of bank overdrafts	53.521	50.234
Exchange rate differences on cash and cash equivalents	(174)	(525)
Cash and cash equivalents at the end of the period, net of bank overdrafts	63.124	53.521
Reconciliation of cash and cash equivalents at the end of the period	2018	2017
Financial statements' cash and cash equivalents	63.437	62.835
Bank overdrafts	(312)	(9.314)
Cash and cash equivalents cash flow statement	63.125	53.521

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