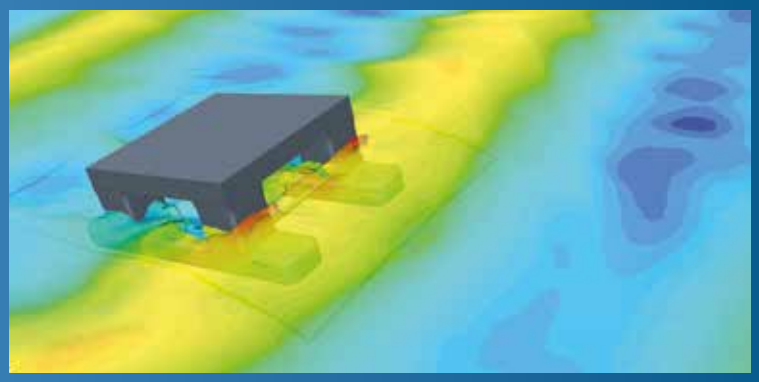
Lloyd's Register

















Shaping the future.
Delivering solutions today.

Marine and Offshore

SHAPING THE FUTURE

We're here to help, over 8,000 of us.

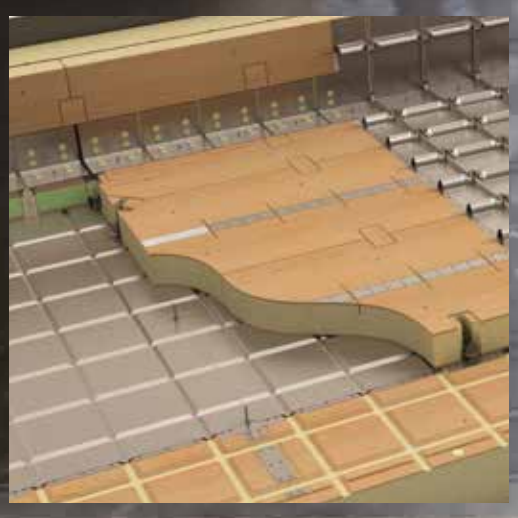
Lloyd's Register (LR) is a leading international provider of classification, compliance and consultancy services to the marine and offshore industry, helping our clients design, construct and operate their assets to the highest levels of safety and performance.

At LR, we're shaping the industry's future through the development of novel and innovative technology for the next generation of assets, while continuing to deliver solutions for our clients every day. Because, while we're proud of our history, it's creating tomorrow that drives us.

We'll help you make the right decisions for your business, based on the world's best technical knowledge and insight. Our services and capabilities are as broad as our reach, which extends across every ocean, major port and trading nation.

Whether you're a designer, builder, owner, operator or innovator, equipment manufacturer, insurer or financier, you can call on our 8,000-strong team of skilled technical personnel for advice. We're here for you today, and for the decades to come, just as we have been for over 250 years.





AT THE FOREFRONT OF CHANGE
Providing insight into the technology challenges that need to be addressed for the industry to meet forecast demand over the next 15 years.

APPROVING THE LATEST TECHNOLOGIES
GTT's groundbreaking Mark V gas containment system has approval in principle from LR.

DELIVERING SOLUTIONS TODAY

Here to help you reduce risk and improve efficiency.

We understand that a day's downtime could cost you a six-figure sum, and that marginal gains in efficiency can transform your bottom line. As one of the world's largest and most respected classification societies, we provide independent, third party assurance of safety, technical and environmental compliance. Our early involvement at every stage of the asset lifecycle can dramatically reduce risks, and improve efficiency, saving you time and money.

But in today's industry, cost-conscious compliance alone isn't enough to win, retain and reassure customers and stakeholders. Through our extensive consultancy services, supported by excellent project management and working relationships, we address challenges, achieve milestones, and help you maximise opportunities.



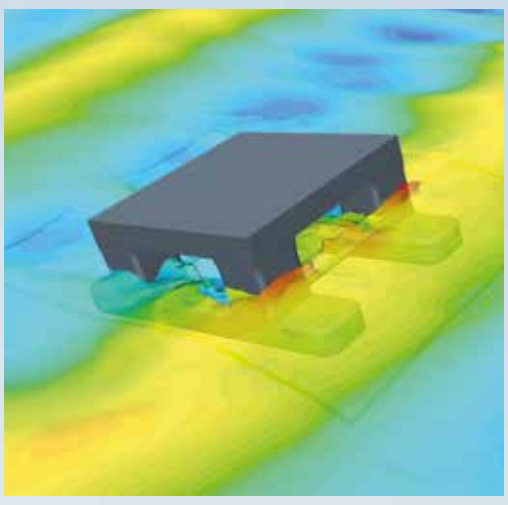
Over **1,600** surveyors.



POLAR EXPERTISE
We were chosen to class *Polaris*, a world-first, LNG-fuelled icebreaker with 'azipod' propulsion.



MARKET LEADERS
We are the number one provider of verification services to offshore operators in the UK.



SOFTWARE SPECIALISTS
We are collaborating with Keppel to enhance semi-submersible designs by using high-performance computing to predict their behaviour in waves.

SAFER SURVEYS
Embracing the latest technologies to do things more safely and efficiently.

We're in **78** countries.

INDEPENDENCE

A fresh set of eyes you can trust.

Our independence from shareholder and government control makes us unique in the industry. We provide genuinely impartial, informed advice you can trust, free from compromise and prejudice. We help you face the continued pressure for transparency, environmental stewardship, corporate responsibility, profitability and safe, sustainable operations, with intelligent, practical and expert advice. No one knows and understands your business better than you do. But sometimes, opportunities can be overlooked. We provide the objective technical and operational insights you need to make the right decisions.



Image credit: Misheye 2014



ASSURING SAFETY FOR NAVAL SHIPS
We provide operational safety assurance to 19 navies around the world, including the Royal Australian Navy.

A METHANOL-FUELLED FIRST
We have classed the world's first methanol-powered ferry, *Stena Germanica*.



CONSULTANCY
We work with you to enhance your ship or offshore asset's safety, environmental and operational performance to the most competitive standard.

RELATIONSHIPS

A vessel or offshore installation is a community.
One we're proud to be part of.

INSIGHT

No two ships or offshore installations are exactly the same. And we never forget it.

We approach every situation with an open mind. Adopting a multidisciplinary approach, we can solve whatever challenge you present us with, whether technical, regulatory or commercial, by drawing on specialist expertise from across our organisation.

You know what your asset needs to achieve better than anyone, so we'll work closely with you to provide clear answers and reach the best conclusions.

Your asset is one of a kind. We're confident you'll feel the same way about us.

LR classes **7,651*** vessels of all types and sizes.

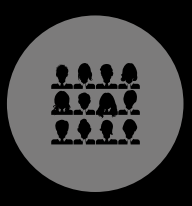




BREADTH OF KNOWLEDGE
From the biggest ship to the smallest detail, we can provide the appropriate advice for your project.

HYBRID TECHNOLOGY EXPERTISE
We are the market leaders for new tug construction, with 28.6%* of the global order book, and experts in implementing hybrid technologies.

* Source: IHS March 2016



Over **8,000** employees globally.

INNOVATION

Where will our industry be in a decade? We're working on it.

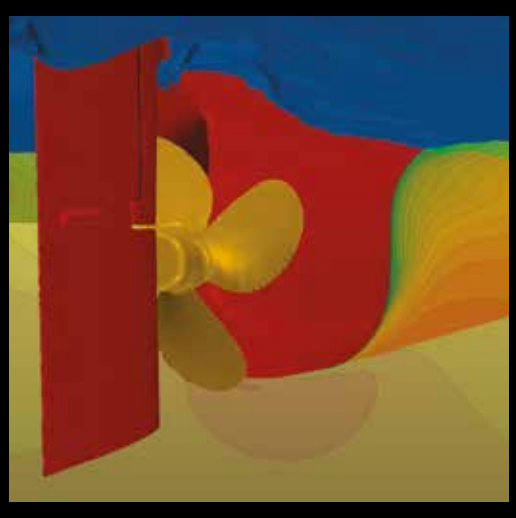
We believe the best way to ensure a secure, sustainable future for our clients, and our industry, is to take responsibility and shape it ourselves. Through our Global Technology Centres and joint industry projects, we're conducting world-class research and development into design, construction and operation for the next 20 years and beyond. Our industry is under huge regulatory and commercial pressures to become more efficient.

We're at the forefront of developing new technologies and thinking to balance these demanding ideals with commercial reality.

No matter how novel a technology is, we can qualify it and provide verification of its performance, giving innovators a seal of approval for their products, and help to attract investment.



ADDING VALUE
LR has been actively involved with the *Shell Prelude FLNG* project, ensuring it will operate safely and sustainably and applying our FLNG expertise via classification, equipment certification and validation against performance standards.



OPTIMISED DESIGN THROUGH CFD
Using advanced, full-scale CFD modelling, we are optimising designs for realistic sea states. The result will be safer and more efficient ships that are future-proofed for the global demands of low-carbon shipping.

TECHNOLOGY QUALIFICATION
If you're considering investing in new technology, we can help make sure it delivers the results you need, and help you understand what return on investment to expect.

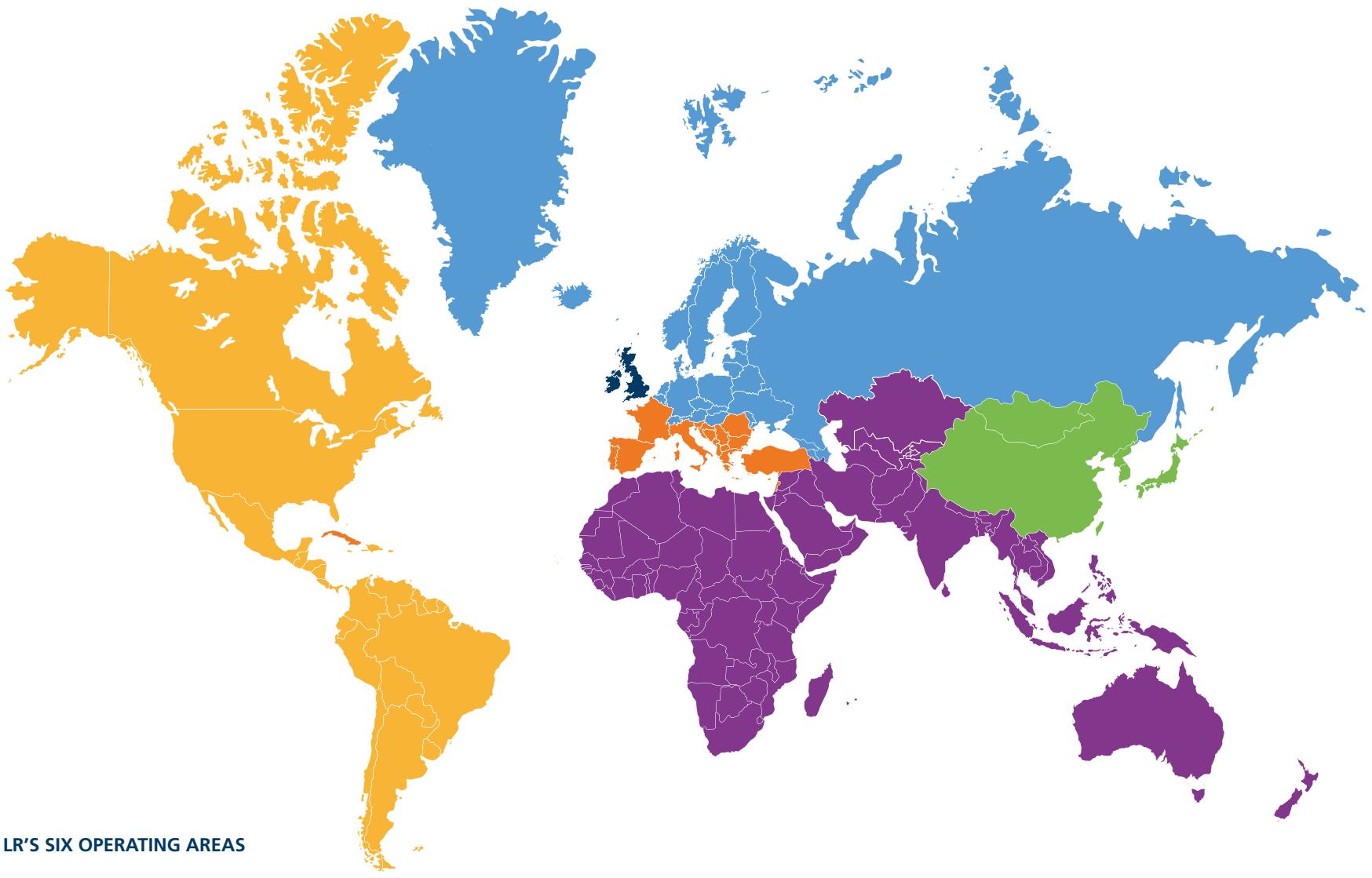


CAPABILITY

One constant, wherever and whenever you need us.

Our network of 300 national and regional offices, spread across six operating areas, puts our customers first around the world, giving you access to our advice and expert service delivery from Aalesund to Zhoushan.

And wherever you are, you can be confident that our entire team of over 8,000 specialists is never more than a phone call or email away.



LR'S SIX OPERATING AREAS

Lloyd's Register

Working together
for a safer world

www.lr.org

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Lloyd's Register

Delivering solutions today.
Marine consultancy services.



MARITIME ADVISORS

Adding value at every stage of an asset's life.

Lloyd's Register (LR) customers are those responsible for every aspect of the ships that drive the global economy. They come to us confident that they'll receive the very best independent technical advice to help them make the right decisions for their business. Just as the world's maritime professionals have done for over 250 years.

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CONDITION ASSESSMENT
We have developed a Condition Assessment Programme (CAP) to allow shipowners to demonstrate the integrity and reliability of their vessels' hull structure, machinery and cargo systems, regardless of age.

DESIGN OPTIMISATION
Using our computational fluid dynamics capability, we can minimise hull resistance and optimise propulsive efficiency to reduce through-life operational costs.

FUEL QUANTITY
We provide accurate and independent fuel quantity measurement to ensure that you get what you pay for.

UNDERSTANDING
Always putting your best interests first.

Whether you're financing a new construction, choosing your ballast water treatment system, or re-floating a grounded vessel, with LR, nothing is ever just 'your problem'. It's always ours, too, until it's solved in the most efficient, cost-effective way for your business.

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HULL RENOVATION
We offer a comprehensive hull assessment, renovation and certification service which allows shipowners to enhance the condition of their hulls.

CONTRACT SUPPORT
Our naval architects help shipowners make the right decisions before placing an order and ensure successful results for newbuild and retrofit projects.

SCOPE

The things we can do that you never imagined.

Whether you're operating one ship or a fleet of more than 100, you're subject to the same regulatory framework. On this level yet highly competitive playing field, compliance alone isn't enough to win business, and provide assurance for your various stakeholders. So while your class society tells you what you must do, as your maritime advisors, we'll show you what you could do.

We combine the art of the possible with our core business of minimising risk and increasing efficiency. From fuel testing, technical investigations and ship inspection and assessment to environmental, sustainability, risk and human factors consultancy, training and emergency response services, we can supply skills, experience and services far beyond compliance, and covering the entire lifecycle of your assets.

We're here to advise and support you before your project is even on the drawing board, right through its service life, and all the way to the recycling yard. All you have to do is ask.



RETURN
Giving you more through added value.

At LR, we believe transparency is vital to successful working relationships, so we never persuade you to take more from us than you truly need. At the same time, we'll always give you everything you require, and add value by identifying other services you might find beneficial.

That's because we firmly believe that consultancy should be seen as an

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Operational preparation

EMERGENCY RESPONSE
Our highly experienced teams of technical specialists provide you with rapid, 24/7, global support in the case of an unexpected incident, to help you reduce risk and cost.

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owners to
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SAFE NAVIGATION
We offer shipowners the confidence that they can navigate new waters safely. By assessing the navigational, structural and propulsion requirements along a proposed route we can verify the vessel's suitability.

UP-TO-DATE
The latest technology, methods and thinking.

Our customers find reassurance in our long track record. But we know that while past achievements help establish our credibility, it's what we can do for you today, and have in the pipeline for tomorrow, that really make the difference to your business and keep you competitive.

We work with flag states, industry bodies and other organisations to help shape our industry's operational and legislative framework. That means you can be confident we're ahead of the curve on all current, and upcoming, compliance and regulatory issues affecting the marine industry.

Plus, through our permanent Global Technology Centres in the UK and Singapore, and numerous joint industry projects worldwide, we're international leaders in technical maritime research. Our work in areas from energy efficiency, sustainability and zero-accident operations to cryogenics and cyber-shipping is laying foundations for the industry for the next 20 years and beyond.

So while we have a history to be proud of, we're a vital part of your present – and fundamental to your future.



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Safe cargo handling

EFFICIENCY

Helping you use your resources to the greatest advantage.

Shipping is already the world's most efficient means of transport. But the industry's sheer scale means it's under pressure to do even better. The positive effect is the emergence of a wealth of new technology and thinking. The challenge is deciding what's best for your business. That's what we're here for.

We'll work with you to develop safe, reliable efficiency strategies to help you achieve real reductions in fuel, emissions and operational costs, both for individual vessels and fleet-wide. On new constructions, we evaluate and iterate plans, and advise shipowners, designers and builders on all of the options available to give the best return on investment. And since a ship's efficiency ultimately depends on her people, we'll provide human factors assessments and training to give them all the skills, knowledge and protocols they need to operate safely and sustainably.



SYSTEM INTEGRATION
Whether a newbuild or a retrofit, we provide specialist naval architecture and marine engineering advice to ensure that realising your project is a smooth process, no matter how complex your chosen solution.

DEPENDABILITY

People and relationships you can always rely on.

In the maritime industry, nothing stays the same. Some events, like tides and currents and service intervals, are cyclical and predictable: others, like the weather, markets and oil prices, are volatile and beyond our control. Even ships and port infrastructure, which seem so permanent, are subtly yet continuously reshaped by external forces.

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FUEL QUALITY
We identify and protect your assets from poor quality fuel through fuel testing, analysis, reporting and advice.

FAILURE INVESTIGATION
We will attend your vessel firs
investigate and establish the r
of a component failure and de
the best course of action to g
and running again.

CONFIDENCE
Trust in our reputation and experience.

Around the world, maritime professionals put their trust in the LR name. Buyers, financiers and insurers know that our logo on an inspection report represents technical and safety assurance they can rely on. By working with us, owners, operators and charterers can be secure in the knowledge they're getting the very best technical advice, and spending their money in the right way. And when potential customers see we're advising and supporting your business, they can choose you knowing you'll help them meet their own safety, technical, sustainability and other objectives.

For our customers, we're a reassuring presence, both on land and at sea. It's a confidence born of our broad expertise and capabilities, and our global status as technical innovators and thought leaders. Most importantly, our clients understand that our advice has real weight and authority, in an industry we're leading today, and shaping for tomorrow.



GOING BEYOND COMPLIANCE
We don't just make sure that you comply with regulation, we work with you to minimise risk, reduce the impact on your operations and maximise return on investment.

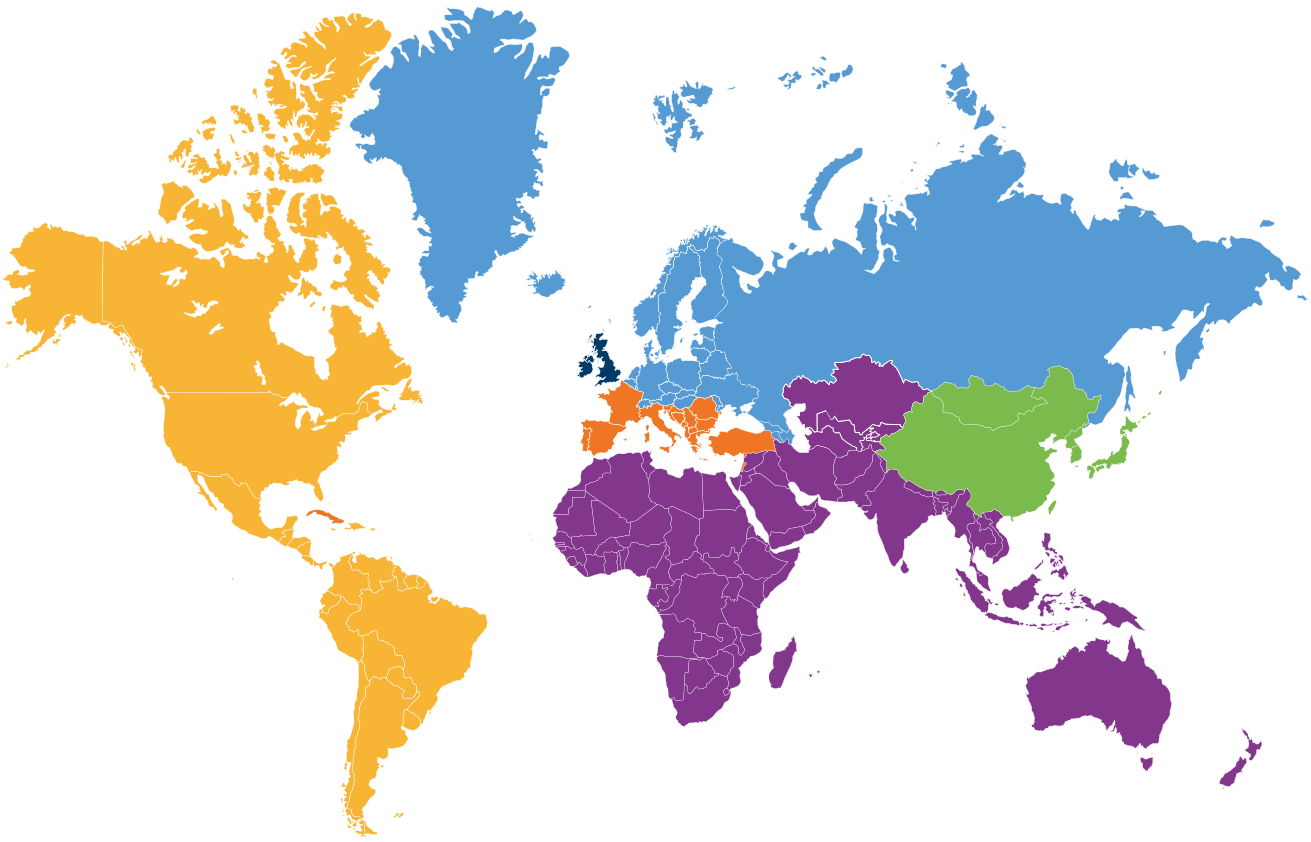
CAPABILITY

One constant, wherever and whenever you need it.

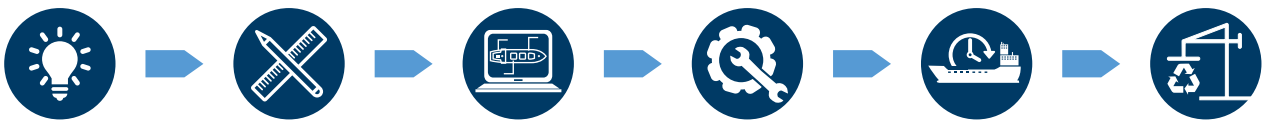
Our class, technical and consultancy services are available to you through Lloyd's Register offices worldwide. Whether you're dealing with a single vessel, a growing fleet or a global shipping empire, we provide flexible, effective, fully independent solutions to all your regulatory and technical challenges.

To discuss your precise requirements, please contact us.

Marine and offshore operational areas



Adding value at every stage



Part of a glob

The world's oceans cover 361 million square kilometres, bounded by a coastline stretching for over 356,000 kilometres. In terms of workplaces, ours is about as big as they come. Our network of 300 national and regional offices spans the world, giving you access to our advice and expertise from Aalesund to Zhoushan. And wherever you are, you can be confid 8,200 a phon

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LR classes
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statutory requirements. Send your questions to





Working together
for a safer world

www.lr.org

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Lloyd's Register

Specialised ships

Tailored expertise. Services as unique as your vessel.

Version 1.0, November 2017



DIVERSE BY DESIGN

Classification and consultancy services for vessels of every kind.

In the public mind, global shipping is all about the big vessels – oil tankers, bulk carriers, container ships, cruise liners, etc. What's less appreciated is the vast and diverse array of other specialised vessels involved, each with a specific, vital role in the supply chains that the marine, offshore and connected industries depend on.

These specialised vessels are the tugs, dredgers, bunker barges, fishing boats, high-speed ferries, offshore support and supply vessels, workboats, research vessels and numerous other types. Our approach is based on truly understanding your requirements and applying the tailored support you need. Focusing on vessel specialisation really is critical for these markets. It's this understanding, experience and flexibility that make us the right partner for you at every stage in your ship's lifecycle.

Supporting supply chains
These supporting vessels form the base for larger supply chains and include vessels developed for autonomous operation.



Domest

Supporting infrastructure
These vessels perform vital roles to support critical infrastructure around our coasts, ports and offshore installations.



Tu

Supplying transportation
Critical to the wider economy, these specialised vessels transport goods, people and personnel.



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THE BIG PICTURE

Classification and assurance for all specialised vessels.

We provide classification and risk management services for specialised vessels of all kinds that operate in the world's ports, oil and gas fields, wind farms and fish farms, all within international, domestic and inland waterways. As well as owners and operators, we work with port authorities, flag Administrations, designers and shipyards, providing advice and assurance at every stage in the asset lifecycle.

By their very nature, specialised vessels don't fit neatly into a conventional class regime. So we've developed flexible rules reflecting their unique design, equipment and operational parameters. We also understand that, unlike larger ships, many specialised vessels are not one-offs but are derived from evolved designs customised for dedicated markets and operations. Working with key designers and builders, we've developed a broad base of approved standard designs, using our experience to offer you significant efficiency gains and cost savings. In addition, where designs offer unique assurance and safety challenges, our subject matter experts are available to help you meet regulatory and statutory requirements.

FLEXIBLE RULES FOR SPECIALISED SERVICE CRAFT

Developed through industry engagement and consultation, our updated Specialised Service Craft Rules enable a less prescriptive and more flexible approach to design, allowing you to meet the challenges of structural efficiency.

"Strong relationships with many designers in the fast ferry market have meant that we can get direct feedback from you on our Rules and have been able to adapt them to suit the current market. I was part of the collaborative development of our new Aluminium Rules for Fast Catamarans and seeing how these were created for use on new vessels. The new Rules enable the creation of lighter, faster vessels, with much more scope for adaptation to each individual design. This really brings us up to date in the market and provides Rules that will be applicable for many years to come."



Jo Mycroft
Senior Specialist, South Asia Technical Support Office, Lloyd's Register (LR)

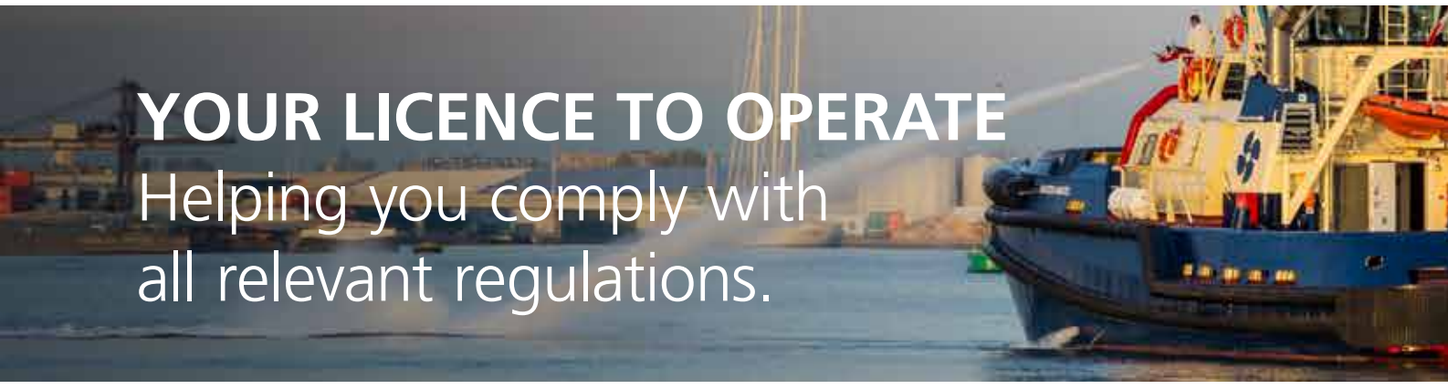
Learn more about our new Rules here.

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YOUR LICENCE TO OPERATE

Helping you comply with all relevant regulations.

Whichever sector or location you operate in, your top priority is most likely managing risk – to your ships, your people, your business, your reputation and the environment. As a leading class society, we help clients worldwide comply with international legislation. But we also understand that, as a specialised operator, your primary concern is likely to be with local regulations. We have surveyors and consultants in ports and countries across the globe, so you've always got someone on hand who knows and understands your specific circumstances.

Risk management is our core business. We can help you design and implement policies to safeguard your assets and operations. We can help you design, build, maintain and operate your ships so they remain compliant. And through our consultancy services, we'll advise on the right technologies for your business, whether you're upgrading or modifying an existing vessel, or embarking on a newbuild project.

QUICK-RESPONSE STABILITY CALCULATIONS FOR BOSKALIS DREDGERS

As part of our ongoing relationship with expert dredging and marine company Boskalis, we verified the stability arrangements of two tug vessels used as part of a temporary stern mooring system. By providing independent stability calculations within 48 hours, we enabled Boskalis to secure a multi-year contract for both vessels.

"We wish to thank LR for this very fast and professional review of our case, which was carried out at very short notice."

Maarten Meeuwisse
Senior Vice President,
Integrated Projects Transport & Marine Services,
Boskalis Westminster

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REALISING POTENTIAL

Advice and support to help your business grow.

Many sectors present real opportunities for specialised vessel operators. In Asia, for example, rising passenger numbers are driving demand for small ferries, while in India and Bangladesh we're seeing increased demand for inland waterway transport. Even in the challenging oil and gas sectors, relentless cost savings are finally making companies more competitive, allowing them to start investing again.

Knowing when to invest, and in which technologies, is crucial to exploiting new market openings. For example, the use of autonomous vessels in specialised roles is a significant potential growth area, and we're actively developing data analytics and cyber security services and protocols in response. But, while our insights and influence are industry-wide, we deliver our services on a highly localised basis. That means we can advise you based on direct experience and knowledge of your specific market. It also gives us the flexibility and agility to respond quickly, enabling you to move fast, and in the right direction, when new opportunities emerge.

SUPPORTING THE ADOPTION AND DELIVERY OF LNG AND HYBRID FERRIES



Since 2012, we have worked closely with Strategic Marine Vietnam (SMV). During this time, we have provided classification and certification services for three passenger ferries, 26 workboats and 10 wind farm supply vessels.

Presently, there are four passenger ferries being built at the shipyard – three of which are for European owners – including a vessel designed and equipped for LNG-fuelled propulsion.

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LEADING THE WAY

Technical support and assurance throughout the innovation cycle.

ASV Global's 'C-Worker 7' autonomous vessel

As pioneers of new technologies, specialised ships and their operators set examples for the rest of the global shipping industry to follow. Often, decisions are driven by the highly specific conditions in which they work. For example, many ports are tightening their environmental controls; as a result, tugs, dredgers and bunkering vessels have been among the earliest adopters of LNG and battery hybrid propulsion. We're also seeing rapid advances in aluminium hull design and technology through developments and experience in fast ferries. Composite technologies and the acceptance of their use in passenger vessels is another area in which we are currently supporting operators and designers.

We can help you identify and assess emerging technologies, and then apply them to meet current mandatory requirements and make your vessels safer and more efficient in the long term. We'll also provide technical support on systems specification, installation and operation, including training and risk management, as required. And, if you're developing new equipment, we can help you bring it to market with the technical, safety and commercial assurances that your potential customers will demand.

Learn more about innovation at LR.

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CYBER AND DIGITAL TRANSFORMATION

Cyber safety
We guide you through a non-prescriptive, fully integrated, risk-based approach to assur
safety of cyber-enabled ships from concept to operation. We've developed technical gu
and the first ShipRight procedure for autonomous ships and autonomy levels that allow
to adopt cyber technology safely.

Cyber security
From guidance and training to vulnerability and impact assessments, we can help you d
cyber security strategy that will work for your business now and in the future. We can h
keep your connected assets secure from cyber-attack and compliant with any forthcomi
regulation.

Cyber performance
We apply our knowledge and expertise to extract value for you from your data, enablin
make informed, actionable decisions to improve performance and efficiency.

We use your data to co-create digital twins of your systems or assets in operation. We use
digital models to optimise performance by identifying improvements through advanced a
artificial intelligence and machine learning.

NEW TECHNOLOGIES

Additive manufacturing
Additive manufacturing, also known as 3D printing, is set to revolutionise our approach
components. We have issued guidance on additive manufacturing and are working wit
to advance this technology and its applicability to the marine environment.

Blockchain technologies
Blockchain technologies can provide a secure, auditable record of activities across distril
networks. We are working with a range of partners to explore where such technologies
be used to address marine challenges.



CLOSER TO YOU

Local presence, global resources.

CLIENT SUPPORT REWARDED AS ESKJA TRANSFERS THEIR VESSEL *JON KJARTANSSON* TO LR.

Our services for specialised ships draw on experience and expertise from across the LR Group. By bringing together technical, operational and regulatory insights from our different business streams, we're able to create individually tailored services that meet your specific needs and requirements.

We have offices in over 80 countries worldwide, so you'll always have an LR surveyor within easy reach, wherever you are. That personal connection is what really sets us apart. Your consultant will have first-hand knowledge of your specific local conditions, so they can offer truly relevant and practical advice. They'll also speak your language, which makes everything quicker and easier.

In addition, they will have access to our technical and sector specialists in our national offices and global technology centres. Within this global network, we have the knowledge, skills and expertise to provide fast and reliable solutions to any engineering or operational issue you might face. And, as a leading class society, we're also fully up to date with all current and forthcoming regulations, so we can help you comply both now and in the future.

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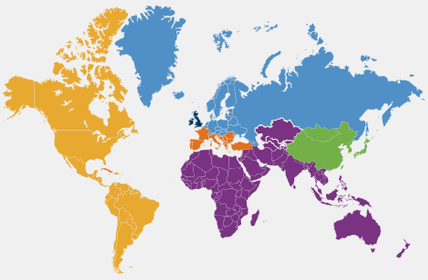
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OUR WIDER CAPABILITY

One constant, wherever and whenever you need us.

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And, wherever you are, you can be confident that our entire team of over 8,000 specialists is never more than a phone call or email away.



LR's six operating areas

ADDING VALUE AT EVERY STAGE



Innovation

We are conducting world-class research and development into design, construction and operation for the next 20 years and beyond. If you are developing novel technology, we can qualify its compliance and performance, helping you attract investment, prove your business case and find a route to market.



Design

At the design stage, our appraisal services and software give you confidence that your asset will comply with all class and statutory requirements. We can also work with you to optimise your design so it achieves the best possible performance and return on investment.



Build and commissionir

At the build and commissioning s help you ensure are delivered to contractual requ

We also help yo the right decisio investing in des technologies.

info.lr.org/specialisedships

November 2017

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Lloyd's Register

Marine training services

A portfolio of specialist maritime training from Lloyd's Register




www.lr.org
Lloyd's Register

CONTENTS

In this guide, you'll find an overview of our current courses, covering a wide range of disciplines and topics. All our courses are eligible for a Lloyd's Register (LR) certificate of completion and are held on various dates, either at your location or at our offices around the world.

For more details and to make a booking, please visit **info.lr.org/marine-training** or contact your local LR office. And if you can't find exactly what you're looking for, talk to us about our bespoke training packages, which are designed around you and your specific requirements.

Survey and inspection 06

- Classification and Statutory Surveys
- Introduction to Naval Safety Assurance
- Practical Approach to Port State Control
- Practical Approach to Ship Surveys
- Tanker Vetting and Inspection

Ship types, design and construction 08

- Introduction to Bulk Carriers
- LNG and LPG Ships
- RulesCalc Software
- Special Service Craft
- Ship New Construction

Risk managemen

- Risk Managem Incident Invest
- Ship Emergenc Service (SERS)

Operational efficiency 14

- Essential Dry-Docking
- Hull Inspection – Damage and Repair
- Machinery Damage and Repair
- Principles of Ship Energy Management
- Proactive Ship Energy and Maintenance Management
- Shaft Alignment

Safety and security 16

- ISPS Company and Ship Security Officer (CSO/SSO)
- ISM and the Designated Person Ashore (DPA)
- ISM Internal Auditor
- ISM/ISPS Internal Auditor
- ISM and the Lead Auditor
- ISPS Port Facility Security Officer (PFSO)

Understandir and regulatio

- Ballast Water M (BWM) Awarer
- ILO Maritime La Convention (M
- Introduction to and ISO 14001
- Introduction to
- ISO 14001 Envi Management S
- Naval Ship Cod
- Practical Applic MRV Regulatio



INTRODUCTION

At LR, we work with clients around the world to help make their operations safer, more efficient and more profitable. As one of the world's largest classification societies, with over 8,000 staff and offices in over 100 countries, we're meeting the challenges faced by shipowners, operators, designers, shipbuilders and flag and port authorities today – and, through our worldwide research and development (R&D) programme, shaping the future for the global marine industry.

Our training programmes can

- Keep up to date with new reg and changes in marine legislat
- Avoid vessel downtime due to or detentions, and
- Manage your costs by helping prepare in advance for surveys minimising associated inspecti repair costs.

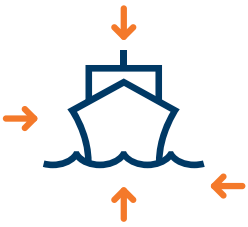


Collection of **classroom**, **online** and **blended** learning courses



Over **150 trainers** worldwide

All courses are **marine and offshore focused**





14 dedicated training centres around the world

W
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life

SURVEY AND INSPECTION

LR is one of the world's leading classification societies, providing a statutory approval service on behalf of over 120 flag administra
Our classification, statutory and inspection courses will give you the knowledge you need to manage your surveys efficiently, and
comply with the relevant rules and regulations at all times.

Classification and Statutory Surveys

Course duration:
Two or three days, depending on requirements

Suitable for new entrants and experienced marine personnel, this course explains exactly what a class society like LR does, as well as our relationship with the IMO. On a practical level, you'll learn how to ensure that your vessel meets the required standards for its regular class and statutory surveys, helping you achieve operational efficiency.

Introduction to Naval Safety Assurance

Course duration:
Two days

Naval classification provides a structured audit process for the design, construction and operation of naval vessels. This course is intended for naval procurement staff, contractors, consultants and other professionals at all levels of experience and seniority. It will give you a general understanding of the naval class process, and specific advice on applying LR's Rules for Naval Ships.

Practical Approach to Port State Control

Course duration:
One day

A Port State Control inspection verifies that the ship, its equipment, crew and operating procedures comply with international regulations. On this course, you'll learn how ships are selected for inspection, the PSC process, the issues that could lead to a detention and what to do if it happens. It's suitable for operations managers, technical managers, DPAs, superintendents and other senior crew members.

Practical Approach to Ship Surveys

Course duration:
Two days

This practical, highly inte
course is designed for
superintendents, ship of
and other marine perso
involved in preparing an
conducting ship surveys.
learn about scheduling a
carrying out surveys, dea
with questions, interpret
survey requirements, an
options and scope within
classification and statuto
regulations.

> "One of the best and most relevant courses I've ever been on. Many thanks."

Gari Jones, QinetiQ – (Hull Inspection – Damage and Repair course)



SHIP TYPES, DESIGN AND CONSTRUCTION

Class and statutory requirements inform every stage of the design and construction process. As the world's leading class society f and vessels in service, we're uniquely placed to advise on these and other specialist ship types. We're also a world leader in R&D, c thinking and technologies that are shaping the future of global shipping.

Led by experienced LR practitioners, these interactive courses will equip you for your role in designing, building, inspecting and op ships, enabling you to achieve compliance and maximise operational efficiency.

Introduction to Bulk Carriers

Course duration:
Two days

Whether you're at the start of your career or already serving as a superintendent, officer or engineer, this course will give you invaluable insights into how bulk carriers are constructed, operated and maintained. You'll cover a wide range of topics, including class and statutory requirements, inspections and operational procedures.

LNG and LPG Ships

Course duration:
Three days

The global liquefied gases sector is set to grow significantly over the next decade. On this course, you'll gain a broad understanding of the market, the IGC and other regulations, containment and propulsion systems, and gas carrier operations. Suitable for anyone with a basic knowledge of ships and marine engineering, it will be particularly useful to designers, owners, fleet managers, superintendents, consultants, flag state authorities and surveyors.

RulesCalc Software

Course duration:
Three days

RulesCalc is our unique interactive software that helps you integrate LR classification rules into your design process to ensure compliance and optimise your design against the required scantlings. During the course, you'll use RulesCalc to address practical design issues, including loading, global and local strength assessments, and machinery checks. The course is suitable for ship designers, marine consultants and plan approval surveyors, and a great learning opportunity for naval architecture students.

Special Service Craft

Course duration:
One day

LR's in-house Special Ser Craft software enables y verify rule compliance, p failures and modify desig high-speed, multi-hull ar displacement crafts, plus yachts, in steel, aluminiu alloys and composite ma Through demonstrations practical exercises, you'll how to create Special Se Craft models and perfor rule-required assessment more efficiently.



"LR's high quality of training was the most important factor for us during the selection process. Much of the support we offer vessels in the Y.CO Management fleet is based on the interactions we have with on-board staff. In order to provide an enhanced level of service to every client, it's essential that the team brings a higher level of knowledge and that we use our experience coherently and constructively. LR's training enables Y.CO to provide the best possible service at all times."

Russell Stockil, Director Yacht Compliance, Y.CO

RISK MANAGEMENT

Risk management has been at the heart of LR's mission and operations since we were founded over 250 years ago. Today, we wor
world, helping you to assess, identify, mitigate and manage risks to crews and passengers, your assets and businesses, the general
These interactive courses are designed to help you make risk management relevant and integral to both your day-to-day operation

Risk Management and Incident Investigation

Course duration:
Two or three days

Whatever your experience level, if you're involved in assessing and managing risk, or making decisions affecting day-to-day and long-term operations, this interactive course is for you. It covers all aspects of operational risk assessment and incident investigation, giving you the tools to manage your operational risks effectively, improving safety, efficiency and overall business performance.

Ship Emergency Response Service (SERS)

Course duration:
One day

When your ship is involved in a grounding, collision, explosion or other unexpected incident, you have to respond quickly and decisively to a whole range of technical issues. Through live exercises and scenarios, you'll learn how to work effectively using our LR Ship Emergency Response Service (SERS) to make the right decisions to reduce risks to your crew, passengers, cargo and the environment. This course is suitable for all ship- and shore-based personnel.

"Excellent co
the trainer

Phil Harwood,
Management



TECHNICAL EXCELLENCE

Ships and offshore installations are complex, high-value business assets, with lifespans that can extend over decades. As a shipow
maintenance and operation are vital in safeguarding your investment. At LR, we help clients manage their assets effectively throug
world-leading R&D. That unique knowledge and experience underpins our Technical Excellence training programme. Covering a ra
disciplines, these courses are designed to help you make good technical and commercial decisions, and ensure your assets run safe

Corrosion Protection (online course)

Course duration:
Three to six months

Ships and offshore structures are under constant attack from water and air. The coatings used to protect external surfaces and internal structures (like fresh water and ballast tanks) are highly specialised and subject to regulation by SOLAS, the IMO and other bodies. This online course is aimed at those wishing to extend their knowledge and understanding of corrosion control and marine coatings, including office staff, painters and inspectors. You'll receive a certificate of completion at the end of the course.

Electrical and Control Engineering

Course duration:
Three days

Modern ships depend on their electrical and control engineering systems, which are increasingly complex and computer-based. On this course, you'll build on your existing knowledge to gain skills in surveying new, existing and modified installations to identify and address compliance issues. Run by experienced LR surveyors, it's suitable for all experienced marine engineers working with electrical, control and software-based systems and equipment.

LNG as Fuel

Course duration:
Two days

Choosing LNG as a fuel for your vessel or fleet is a major technical, commercial and operational decision. Designed for superintendents, marine engineers and technical managers, this course will help you assess the pros and cons of LNG as fuel, whether as new-build or retrofit, evaluate the hazards and legislative requirements, and make the right choice for your business.

Materials, Welding NDE – The Basics

Course duration:
One day

When you're making rep
choosing the right mater
and ensuring the weldin
carried out correctly are
This course covers a wid
range of topics, includin
metallurgy, materials sel
welding technologies an
techniques, as well as ou
requirements for normal
strength steel. Suitable f
superintendent engineer
other marine staff, it will
you the practical skills yo
need to tackle marine re
with confidence.



"A good balance of
course material. Str
and interaction enc

Maritime & Coastguard Agency

John Thomson, Maritime
course)

OPERATIONAL EFFICIENCY

In today's marine industry, margins are tight and competition is fierce. With fuel representing half the cost of the voyage, even sm energy and propulsion efficiency can make a big difference to the bottom line. And when every hour alongside incurs significant c downtime through effective maintenance can result in massive savings.

On these highly practical courses, delivered by LR engineering specialists with decades of experience, you'll develop the skills and k your ship, fleet or offshore installation efficiently and profitably. These interactive courses will equip you for your role in designing, various kinds of ships, enabling you to achieve compliance and maximise operational efficiency.

Essential Dry-Docking

Course duration:
Three days

As a shipowner, your vessel's five-yearly dry-docking is likely to be your single biggest expense. Effective planning and management are therefore essential to minimise costs and time out of service. This course will equip you to prepare, plan and cost a dry-docking, make contingency plans for repairs and modifications, and assess your options within the class rules. It's suitable for superintendents, technical managers, fleet managers and senior ship staff, regardless of experience.

Hull Inspection – Damage and Repair

Course duration:
Three days

Identifying defects and damage to your ship's hull can be difficult, and it's not always obvious when repairs are required. On this course, you'll learn how to apply the inspection techniques used by LR surveyors to identify different types of damage and defects, understand their causes and decide the correct means of repair to prevent recurrence, and comply with class requirements.

Machinery Damage and Repair

Course duration:
Three modules; can be taken separately or concurrently

This series of workshops will enable you to make early and confident assessments of machinery damage, then make timely repairs that comply with class rules. As well as examining specific case studies of common defects and 'best practice' repair techniques for engines, bearings, shafts, pumps, thrusters and other machinery, you'll consider the commercial implications of technical decisions.

The courses are designed for superintendents, flag and port state surveyors and marine engineers responsible for ships' machinery.

Principles of Ship Energy Manageme

Course duration:
One day

The global shipping indu under huge regulatory a commercial pressure to r its energy consumption. this course, you'll find ou about the key regulatory requirements, including Energy Efficiency Design (EEDI), Ship Energy Effici Management Plan (SEEM Energy Efficiency Operat Indicator (EEOI) and MRV the tools and technologi available to help you ma and improve energy effic

It's particularly suitable f superintendents, technic operations managers, ar environmental specialists

Shaft Alignment

Course duration:
Two days

Correct propeller shaft alignment is crucial to ship safety and efficiency. Although alignment work is largely routine, there are many structural and mechanical variables that can present complex technical challenges – and mistakes can be costly in terms of damage and downtime. This course, designed for anyone involved with alignment inspections during new-build and repair, will give you an in-depth knowledge and understanding of alignment design, installation and measurement techniques, including the latest analytical methods.



SAFETY AND SECURITY

For shipowners and operators, the International Ship and Port Facility Security (ISPS) Code and International Safety Management (I legislation with far-reaching implications. The ISPS Code contains measures to enhance maritime security, while the ISM Code prov standard for safe ship management and operation, as well as pollution prevention.

Achieving compliance depends on effective management systems. Our Safety and Security training is designed to give people wor and in port facilities the skills and knowledge to implement, assess and improve security, safety management and pollution preven

ISPS CSO/SSO

Course duration:
Three days

The ISPS Code makes significant demands on company and ship security officers to maintain the ship's safety and security. This course will give you a greater understanding of your responsibilities as a CSO or SSO, and equip you to undertake security assessments, prepare and implement ship security plans, and act as the vital link between the ship's crew, company personnel and contracting governments.

ISM and the DPA

Course duration:
Two days

Designed for existing and aspiring DPAs, this course will enhance your skills in implementing and overseeing your ship's safety management and pollution prevention systems, ensuring you comply with ISM Code regulations. It's suitable for those with a good working knowledge of the ISM Code, and previous training and experience in auditing different management systems such as our ISM Internal Auditor course.

ISM Internal Auditor

Course duration:
Two days

This training is essential if you want to become an ISM internal auditor, and an extremely useful familiarisation course if your duties involve safety and pollution prevention under the ISM Code. It will give you a practical understanding of how to interpret and apply the Code and enable you to play your part fully in managing and operating your ship's safety management and pollution prevention systems.

ISM and ISPS Internal Auditor

Course duration:
Three days

This combined course co internal auditing for the and ISPS Codes for anyo involved in safety management, pollution prevention and internati maritime security. Suitab those with no previous knowledge, it will give y good grasp of the ISM a ISPS Codes, how to inter them and their underpin risk management princip and a solid grounding in current internal auditing practices.

ISPS PFSO

Course duration:
Three days

PFSOs have wide-ranging and important duties under the ISPS Code. This training, approved by the Department for Transport (DfT) in the UK, covers them all, from conducting initial security surveys of port facilities and developing a security plan to conducting inspections, increasing awareness and co-ordinating with security services. Practical and comprehensive, it will ensure you have the skills and knowledge you need to comply with international regulations.



UNDERSTANDING RULES AND REGULATION

There are more than 50,000 merchant ships in service today, operating between over 4,500 ports in almost 200 countries. In orde industry needs common rules and standards for everything from design and construction to energy efficiency, rather than myriad It has them – but at the cost of being one of the world's most heavily regulated industries, with shipowners and operators subject ever-changing compliance burden.

Our training courses, delivered by LR specialists with worldwide experience, are designed to help you understand and comply with newly introduced codes of practice and international regulations. We can also assist you with achieving ISO certifications that will efficiency and provide assurance to stakeholders.

Ballast Water Management (BWM) Awareness

Course duration:
One day

The IMO's BWM Convention imposes a number of stringent new requirements on shipowners and operators; BWM regulations are already in operation in US and Canadian waters. This interactive course is your unique opportunity to discuss the Convention's high-level requirements with LR experts, and gain the knowledge you need to draw up effective BWM plans and comply with the new regulations.

ILO MLC 2006

Course duration:
Two days

The ILO MLC provides comprehensive rights and protection at work for the world's seafarers, while securing the economic interests of shipowners in a competitive market. Over two days, you'll gain a thorough knowledge of the Convention's background, objectives, principles, content and impact, and how to draw up and implement policies to ensure your company complies with its requirements. This course is suitable for all roles and experience levels.

Introduction to ISM, ISO 9001 and ISO 14001

Course duration:
Two days

The international standards for quality management (ISO 9001), environmental management (ISO 14001) and risk management (ISM Code) are three of the most important systems affecting shipping operations. This two-day introduction is essential for anyone involved in quality, safety, pollution prevention and the audit process.

Introduction to ISO 50001

Course duration:
One day

Introduced in 2011, ISO 5 is the international stand energy management sys covering areas like efficie security, use and consum Crucially, its requirement include improving both t system and resulting ene performance. Aimed at f superintendents and tho responsible for implemen ISO 50001, this course fo on specific issues relating shipping operations, and commercial and environ benefits to your organisa

"Very interesting course – the trainer was extremely qualified and knowledgeable."

John Field, The Department of Agriculture and Water Resources

Naval Ship Code

Course duration:
One day

The Naval Ship Code is a goal-based safety assurance framework for naval ships originally conceived by NATO. We were central to its development, and have extensive experience of applying the process to naval ships in the UK and overseas. This specialist workshop is designed for naval procurement staff, safety management specialists, contractors and consultants looking to gain a broad understanding of the Naval Ship Code's principles and applications.

Practical Application of the EU MRV Regulations for Shipping

Course duration:
One day

The EU Monitoring, Reporting and Verification (MRV) Regulations came into force in July 2015. From 2018, ships over 5,000 Gt entering, departing or operating between EU ports will be required to submit their verified CO^2 emissions reports and other relevant information. This course, suitable for a wide range of ship and shore-based staff, covers the practical aspects of MRV and how to introduce the relevant processes into your organisation.



Yildiz Williams (centre), LR's Senior Envi
Specialist, with the Commonwealth of
Department of Agriculture and Water R

CASE STUDY:
AUSTRALIAN GOVER

In 2015, the Australian Government Departm Agriculture and Water approached LR, to sup the development of be training and support n to help biosecurity off verify and inspect balla treatment systems on ships entering Australi

This was in response t regulations, introduce 2015, which aimed to the risk of aquatic pes introduced to Australia environment.

LR prepared work inst and supporting materi biosecurity officers to inspections, and a tail

DEVELOPING PEOPLE

Operating safely and efficiently and complying with rules and regulations ultimately depends on people. In our competitive, highly and potentially hazardous industry, the skills and attitudes of leaders and managers are crucial to ensure teams are motivated, pos and thoroughly engaged, and that vital procedures are implemented correctly.

We offer a range of courses to help senior staff, both ship and shore-based, to develop the management and communication skill personal qualities and team ethos necessary to be truly effective, accountable and confident leaders.

Understanding the Human Element

Course duration:
Bespoke

At LR, we believe the human element needs to be designed into ships and their equipment from the very beginning. So, we run a range of courses on human-centred design and ergonomics, covering every aspect of the marine working environment from user interfaces and operating procedures to on-board signage.

We also offer bespoke training in human factors for regulators, shipyards and ship designers, equipment manufacturers, shipowners and operators. This tailor-made training will help you create and maintain a safer working environment, thereby increasing productivity, safety, welfare and staff retention.

Leading the Fleet

Course duration:
Two days

Designed for senior managers in shipping companies, this course will give you a real understanding of current management thinking and practice, and the leadership skills you need to motivate your teams on shore and aboard ship. It will also provide guidance on effective organisation, behavioural change and communication, and help you conform with OCIMF's Tanker Management Self-Assessment (TMSA) programme and other internationally recognised industry standards and guidelines.

Leading the Ship

Course duration:
Three days

Managing a ship and its crew is a complex, demanding job requiring a unique blend of technical know-how, leadership skills, resilience and character. This intensive course focuses on the key people management skills you need to motivate your team, ensure effective communication and guarantee that everyone on board is working together safely, efficiently and effectively.

Leading the Shore-Based Team

Course duration:
Two days

Safe, efficient operations depend heavily on the performance of the onsh team. This workshop, specifically designed for managers responsible fo operational, technical an other shore-based ship management functions, give you the leadership a management skills you n create motivated teams, develop effective communications and imp overall business perform

Superintendent Programme

Course duration:
Flexible (classroom/online)

As a ship's superintendent, you have an incredibly broad job description – and huge responsibilities. Our Superintendent Programme is designed to cover the many facets of your role, and give you the technical knowledge and practical skills you need to make confident, informed decisions and provide effective leadership. This 12-part course is a mix of e-learning and classroom modules, allowing you freedom and flexibility over when and where you study. You can gain awards at four levels – bronze, silver, gold and platinum – depending on how many modules you complete.



Captain Dian Iliev (centre) with Galin Tzanev and Andrian Petkov (LR)

CASE STUDY: SUPERINTENDENT PROGRAMME

Captain Dian Iliev was the first candidate to receive a certificate on our Superintendent Programme. Captain Iliev, of Navigation Maritime Bulgare, achieved a bronze-level award after completing the e-learning modules in his own time as part of a distance learning package, as well as five classroom-based courses covering a variety of subjects. He's now working towards his silver award. Navigation Maritime Bulgare, which has worked with LR over a number of years, is putting four of its staff through the programme in order to address knowledge gaps tht lead to increased costs of operation. Captain Iliev received his certificate from Galin Tzanev, Surveyor, and Andrian Petkov, Marine Business Manager, Bulgaria, at the company's offices in Varna, Bulgaria.

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colleagues
silver level.

Captain Dian



LEADING THE FLEET, SHIP AND SHORE-BASED TEAM

The three leadership courses focus on the key leadership and people management skills needed to provide managers with tools to develop motivated teams, ensure effective communication, and encourage behavioural change.

Approved Training Provider Scheme

If you're offering training to internal or external clients, you need to demonstrate that your courses will be delivered to a recognised standard and meet your delegates' needs. Our Approved Training Provider Scheme provides independent third-party certification for independent colleges, academies and other organisations delivering staff development and training within the marine industry.

Part one of the scheme assesses your ability to provide the required level of training to your customers. On successful completion, you'll receive a 'Lloyd's Register Approved Training Provider' certificate and wall plaque, plus an approval logo that you can use on printed and electronic promotional literature.

When you achieve part two, which assesses your individual courses against their stated learning objectives, you'll be awarded a 'Lloyd's Register Approved Training Course' certificate and approval logo.



LR Approved Training Provider

CASE STUDY: V.SHIPS

V.Ships' Ship Management Division UK approached LR to approve its internal Marine, Safety and Quality (MSQ) Superintendent e-learning course. Experts from our global offices monitored online modules on subjects including security, environmental management, lifeboat maintenance and risk management and incident investigation, giving feedback and suggesting improvements. This process ended with an office audit, which is repeated annually.

The company received a certificate to approve its training centre, plus others for each course module, as well as a wall plaque now on display in its Glasgow office. It was shortlisted for a 2013 Seatrade Award (Category IV – Investment in People) for this course.

"Achiev
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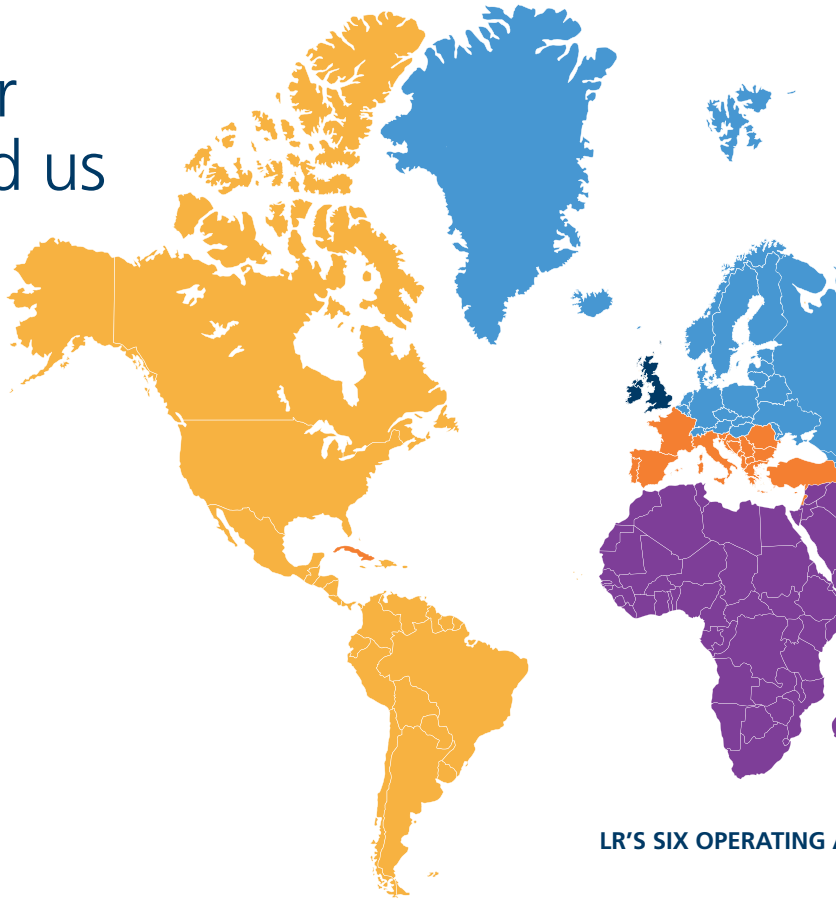
V.Ships

CAPABILITY

One constant, wherever and whenever you need us

Our network of 300 national and regional offices, spread across six operating areas, puts our customers first around the world, giving you access to our advice and expert service delivery from Aalesund to Zhoushan.

And wherever you are, you can be confident that our entire team of over 8,000 specialists is never more than a phone call or email away.



LR'S SIX OPERATING A

If you would like to speak to a member of our team to find out how we can help you, contact one of our training offices:

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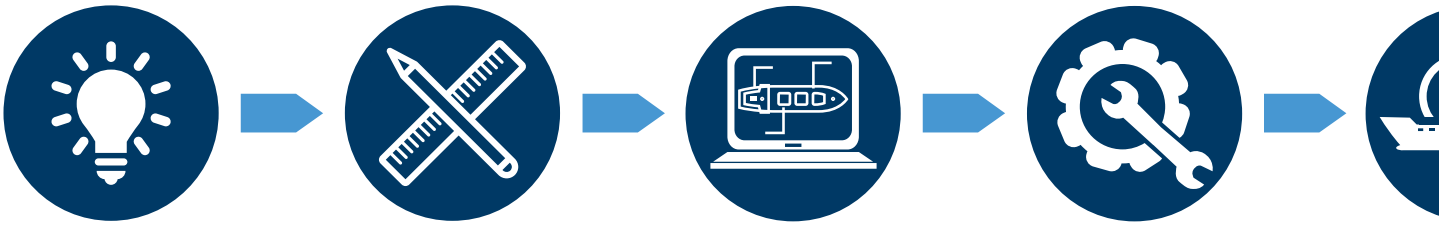
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Adding value at every stage.



Innovation

We are conducting world-class R&D into design, construction and operation for the next 20 years and beyond. If you are developing novel technology, we can qualify its compliance and performance, helping you attract investment, prove your business case and find a route to market.

Design

At the design stage, our appraisal services and software give you confidence that your asset will comply with all class and statutory requirements. And we can work with you to optimise your design so it achieves the best possible performance and return on investment.

Build and commissioning

At the build and commissioning stage, we help you ensure that assets are delivered to meet all contractual requirements.

And we help you make the right decisions when investing in designs and technologies.

Operation

In service, we help you keep your assets compliant, safe and performing reliably, helping you deliver business as usual and minimise downtime.

And we can help you implement the latest technologies, and understand what return on investment to expect, so that you can increase performance and be more competitive in the market.

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we prov
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In line w
needs, w
identify
or renov
required

With our advisors on your team, you have a solution for every challenge. To find your nearest office, visit **www.lr**
We also have a global network of training offices, which are there specifically to answer your questions on your tr
Send your questions to **marine-training@lr.org**.

Lloyd's Register

info.lr.org/marine-training

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