



The Sustainable Shipping Initiative (SSI) brings together leading companies from across the industry and around the world with two leading NGOs, Forum for the Future and WWF, to plan how shipping can contribute to – and thrive in – a sustainable future.

Forum for the Future is a non-profit organisation working globally with business and government to create a sustainable future. We aim to transform the critical systems that we all depend on, such as food, energy and finance, to make them fit for the challenges of the 21st century. We have 15 years' experience inspiring new thinking, building creative partnerships and developing practical innovations to change our world.

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This report was written and produced by Forum for the Future on behalf of the Sustainable Shipping Initiative leaders group.

The authors would like to thank the SSI Steering Group members for their leadership, ideas, input and support in making this project happen. For more information on the SSI member organisations please visit: www.forumforthefuture.org/projects/sustainable-shipping-initiative/members

Thanks to all those who contributed to project interviews for their helpful ideas and feedback:

Ian Adams, IBIA; David Balston, The Chamber of Shipping; Natalie Bruckner-Menchelli, SustainableShipping.com; Rob Day, BP; Angie Farrag, BSR Paris; Alistair Fischbacher, Rio Tinto; Diane Gilpin, B9 Shipping; Alf Henrik Gistren, Fibria; The Rt Hon. John Gummer, Lord Deben, Sancroft International; Peter Hinchliffe, International Chamber of Shipping; Mr Tatsuaki Hori, Oshima Shipbuilding Co Ltd; Helén Jansson, Royal Sun Alliance; Kristian Jebesen, Gearbulk; Paola Lancellotti, EMEC The European Marine Equipment Council; David Menachof, Hull University Business School; Warwick Norman, RightShip; Katharine Palmer, BP; Jonathon Porritt, Forum for the Future; Del Redvers, BMT; Tristan Scott, University College London; Godfrey Souter, UK Department of Transport; Jacob Sterling, Maersk Line; Per Tunell, Wallenius Marine AB; Richard Turner, Royal Sun Alliance; Simon Walmsley, WWF; Martin Watson, Watson Farley and Williams; Steve Waygood, Aviva Investors; Paul Wrobel, University College London; Makoto Yamaguchi, Mitsui OSK Line.

Forum for the Future authors:

Sam Kimmins, Rupert Fausset, Stephanie Draper.

Forum for the Future support:

Louise Armstrong, James Goodman, Joy Green, Martin Martinoff, David Mason, Laura Murphy, Chris Sedgwick, Ulrike Stein, Sion Williams.

Special thanks to Polly Simpson for her help with our research and interviews.

Registered office:

Overseas House
19–23 Ironmonger Row
London, EC1V 3QN
United Kingdom

Registered charity number: 1040519
Company limited by guarantee: 2959712

Date of publication:

May 2011

Contacts:

ssi@forumforthefuture.org
s.kimmins@forumforthefuture.org
Twitter: [@sustshipping](https://twitter.com/sustshipping)

Design by:

www.thomasmatthews.com

Find out more:
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projects/sustainable-
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**For more information
on the report or the
Initiative please contact us:**
ssi@forumforthefuture.org

executive summary

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The Sustainable Shipping Initiative (SSI) brings together leading companies from across the industry and around the world with two leading NGOs, Forum for the Future and WWF, to plan how shipping can contribute to – and thrive in – a sustainable future.

Our goal is to transform the global shipping industry and the wider maritime sector, establishing a new, sustainable approach as the norm. We want to help industry leaders to look beyond their immediate concerns by understanding the long-term challenges and opportunities that face them. We hope our initiative will energise and inspire members and non-members alike.

The world faces great challenges: recent decades have seen a huge growth in economic activity coupled with a massive rise in population. These developments have put the Earth's finite resources under increasing strain. The UK Government's Chief Scientist, John Beddington, has warned of a 'perfect storm' of climate change, insufficient energy resources, food shortages and scarce water, causing major upheavals to the global economy within the next 30 years.¹

This analysis is a call to action for the worldwide shipping industry. We believe that, with far-sighted leadership, businesses can weather the storm and emerge stronger and more sustainable. And we believe that the industry has a vital role to play in helping create a sustainable, low-carbon economy.



the case for action

This Case for Action paper looks ahead to 2040. It is based on interviews with experts across the maritime sector, from business, legislative and regulatory bodies and academia as well as the experience of our 14 members. It does not attempt to predict the future but is intended to raise awareness of how the whole environment in which the industry operates could change. Our intention is also to start a debate on how to respond.

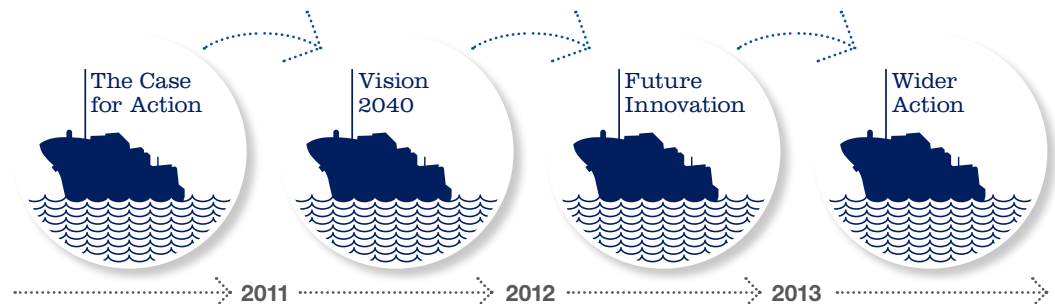
We identify the **global trends** – such as new patterns of trade, shifting global powers, rising fuel costs and changing customer demands – that will profoundly affect the maritime sector over the next 30 years. We examine how they interact to present **three key challenges** for the industry, and the risks and opportunities that these present. Finally, we explore how change happens in the shipping industry, and the role of industry leaders in driving future change. Throughout the Case for Action, we pose questions designed to stimulate thought and discussion on what action businesses might take on their own and across the industry.

The Case for Action sets the agenda for the second phase of the SSI, which will produce a vision for an industry in 2040 that is resilient, socially and environmentally responsible, and profitable. In the third phase, members will develop an action plan to future-proof the shipping industry, and guide a series of specific, practical innovation projects. This will set out what key players need to do to achieve this vision. It may include technical and engineering initiatives, regulatory and policy proposals, and new models of finance and business.



Globalisation, climate change, and escalating energy costs are a strategic nightmare for shipping companies and they all have one thing in common – fossil fuels.

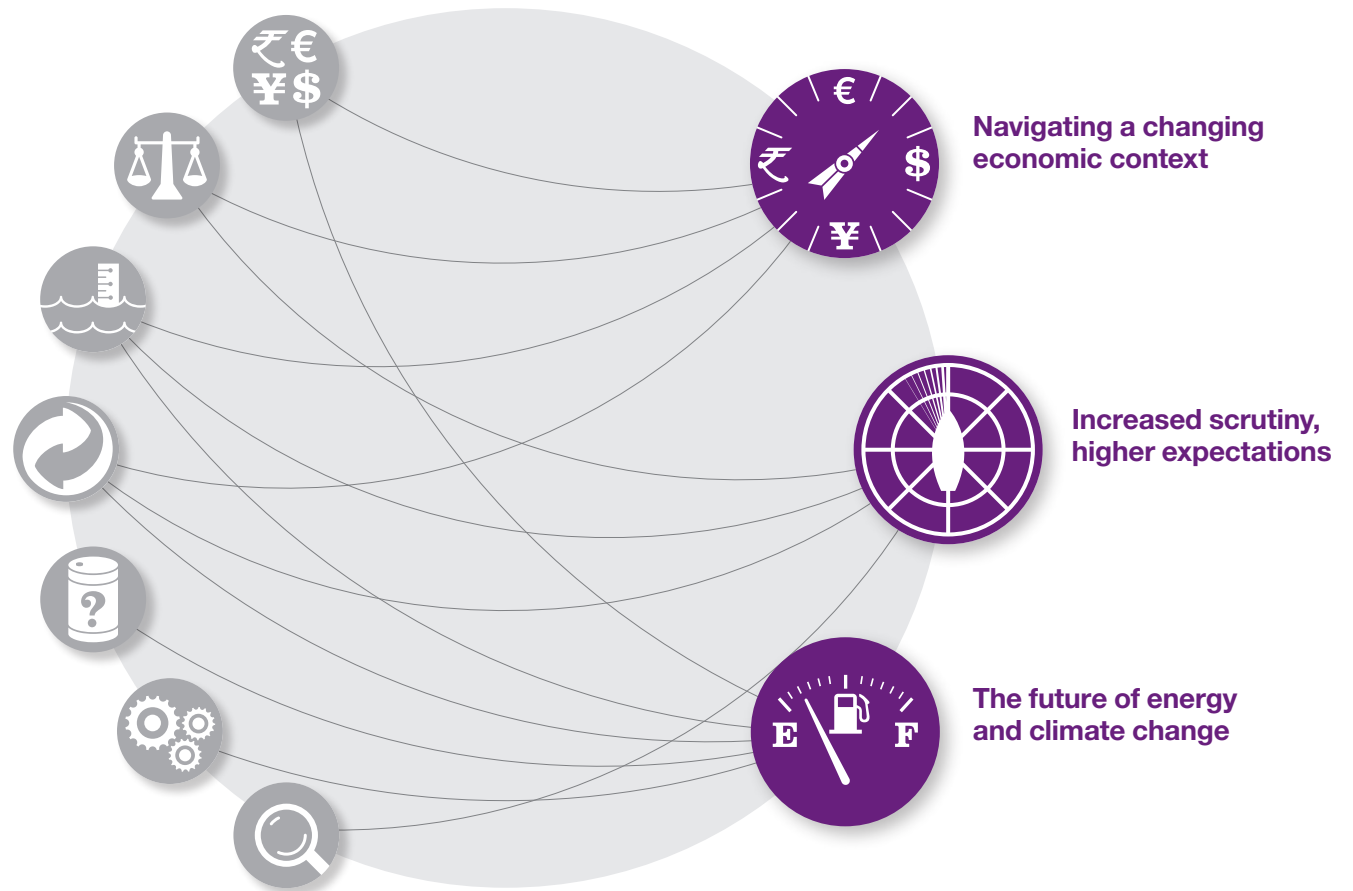
Martin Stopford, Clarksons



three key challenges

It is clear that the shipping industry's operating context will alter significantly over the next 30 years. Cargos and markets are changing, and there are new challenges in global ocean governance. Fuel costs are rising, although technological advances offer the potential for radical improvements in efficiency. And commercial customers, particularly the global brands, are incorporating sustainability into their core business and coming under increased pressure to address sustainability concerns throughout their supply chains.

The changing context in which shipping must operate is summarised in seven global trends that we believe will profoundly affect the industry over the next 30 years (see diagram). Each of these will have direct impacts, but at least as important will be how they combine and interact to create significant, game-changing challenges.



global trends



The global economy: emerging giants?

Developing nations are growing in influence and economic activity. New demands will alter patterns of trade, changing which goods are transported and where. Most people assume that the global economy and global trade will continue to grow. However, there are several reasons why trade might decline: the growth of 'closed-loop economies' where resources are reused; greater virtualisation of trade based on information technology (eg sales of CDs being displaced by downloads); and a critical resource crunch such as 'peak oil' leading to instability, protectionism and reduced demand for transporting goods.



Freedom vs level playing field: ocean governance

National and international management of the oceans has increased significantly in scope, rigour and complexity over the past 30 years. How it develops in future will be critical to the industry. A robust International Maritime Organization with rebalanced voting powers could create a level playing field for all. But weak global governance – overlain by an ever more complex patchwork of local regimes, industry codes of conduct and voluntary standards – could create confusion and inertia, perhaps even leading to a two-tier industry split between high and low performers.



No secrets: demand for transparency

Businesses throughout the supply chains outside the shipping industry are already setting stretching social and environmental targets to respond to demands for better performance. They are also having to navigate the fast-paced, transparent, internet-enabled world of social media. Technological advances make real-time monitoring feasible and affordable, even in the open oceans. Businesses will have opportunities to demonstrate leadership by giving customers, regulators and NGOs the opportunity to monitor their performance. This could lead to extremes of transparency by 2040.



Moving on from oil: the future of energy

The massive expansion in global trade of the past 20 years has been powered by easily available fossil fuels. Major oil institutions are now cautioning that the age of easy oil is over, predicting higher and more volatile pricing and a peak in oil production.² This, combined with concerns over energy security and climate change, may drive major changes in fuel types and efficiency. Will shipping respond to this threat with a planned transition, a last-minute scramble, or a disorderly decline?



Demanding higher standards: sustainability regulation

Increasing pressure on global resources is likely to lead to demands for higher sustainability standards. Shipping regulation has focused on 'traditional' issues such as emissions of sulphur and nitrogen oxides and ballast water. Expect a new focus on workers' rights and more sophisticated regulatory approaches such as those in China, which promote 'closed-loop' economies based on reuse and recycling.



Advancing technology: making it pay

New materials, alternative energy technologies and more fuel-efficient ship designs have the potential to deliver radical improvements in the sustainability of shipping. As noted above, technology also makes businesses, their customers and consumers more transparent and networked.



Adapting to a changing climate

Climate change is likely to increase the frequency and severity of storms, and has the potential to influence ocean currents. Ports and other coastal facilities could be threatened by sea-level rises over the next 30 years. The wider impacts of climate change on food production and flooding of major population centres could have huge implications for global trade and shipping. There is a compelling case to take action to prepare for the possible impacts of climate change, as well as to mitigate those impacts by reducing carbon emissions.



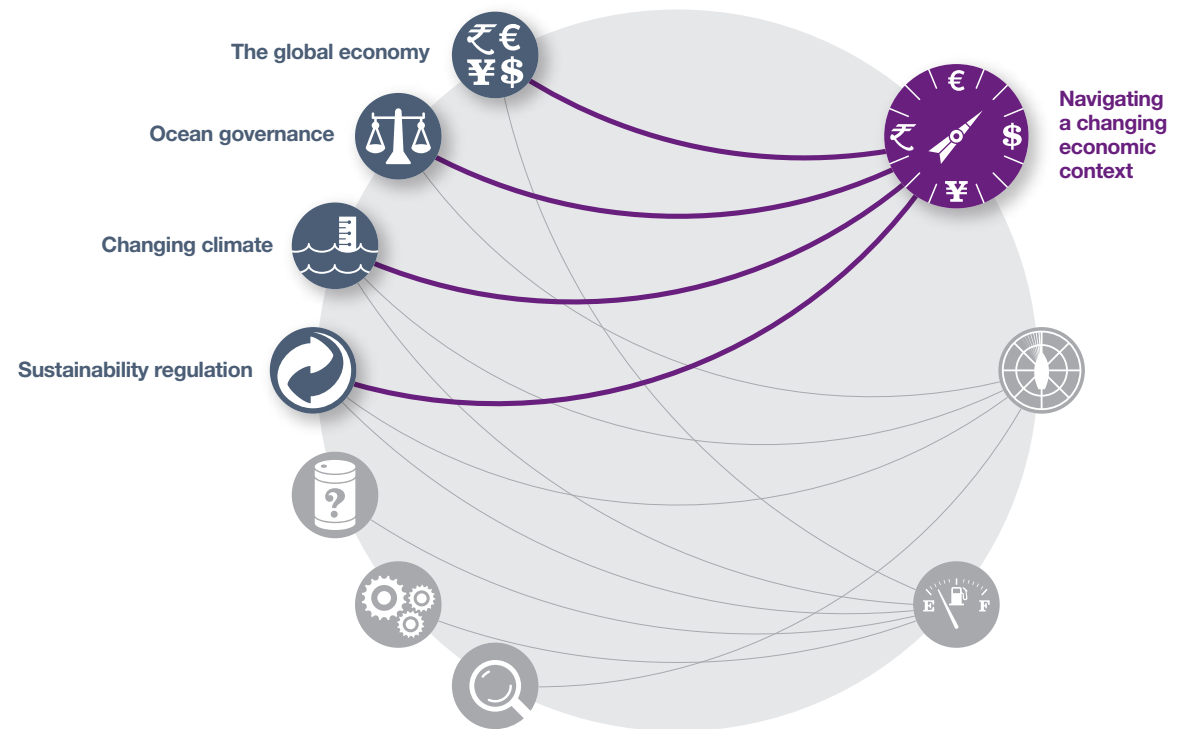
challenge 1: navigating a changing economic context

Over the next 30 years there is likely to be rapid and significant changes in the direction of trade and the type of goods transported. An industry that is highly mobile by its very nature should be well equipped to deal with this. But the key questions will be whether global trade grows or declines and how the industry is governed.

Continued growth of free trade, clarity on the aims and influence of rapidly growing economies such as China, within the context of a strong, more directive ocean and maritime governance regime would provide regulatory and economic certainty. This would enable industry leaders to invest for the long-term and prepare for the more disruptive possible futures identified in this report.

However, there are several reasons why trade might decline. Economic contraction, leading to ferocious competition for trade, would further squeeze already tight margins and magnify any competitive advantage – or disadvantage. Against a backdrop of weak international ocean and maritime governance, and a patchwork of local and regional legislation, it would become harder to plan and invest for the long-term. Although the shipping industry might recognise the need to evolve, it would lack clear direction and resources for investment.

In describing the risks and opportunities below, we acknowledge that risk for one part of the industry may well be an opportunity for another. For example, rising workers' expectations present an opportunity for organisations with good labour relations to secure skilled staff whose expectations cannot be met by less conscientious operators.



Risks

- Insufficient preparation for rapid change in routes and markets.
- A patchwork of regulation that makes shipping overly complex and reduces margins.
- A contraction of trade or a preference for national manufacturing/service operators that reduces the overall demand for shipping and cuts out less efficient and flexible ship operators.
- Workers' rising expectations in developing economies make it harder and more expensive to recruit.

Opportunities

- In a contracting market, competitive advantages could make the difference between success and failure. Fuel efficiency will lower operating costs, for example, so businesses that meet high standards could win preferential access to high-performing markets.
- A coordinated group of leaders could support the IMO to develop progressive new regulatory levers that anticipate future challenges.
- Shipping logistics could be at the centre of coordinating more closed-loop economies – either regionally or globally.
- The emergence of new routes and markets.



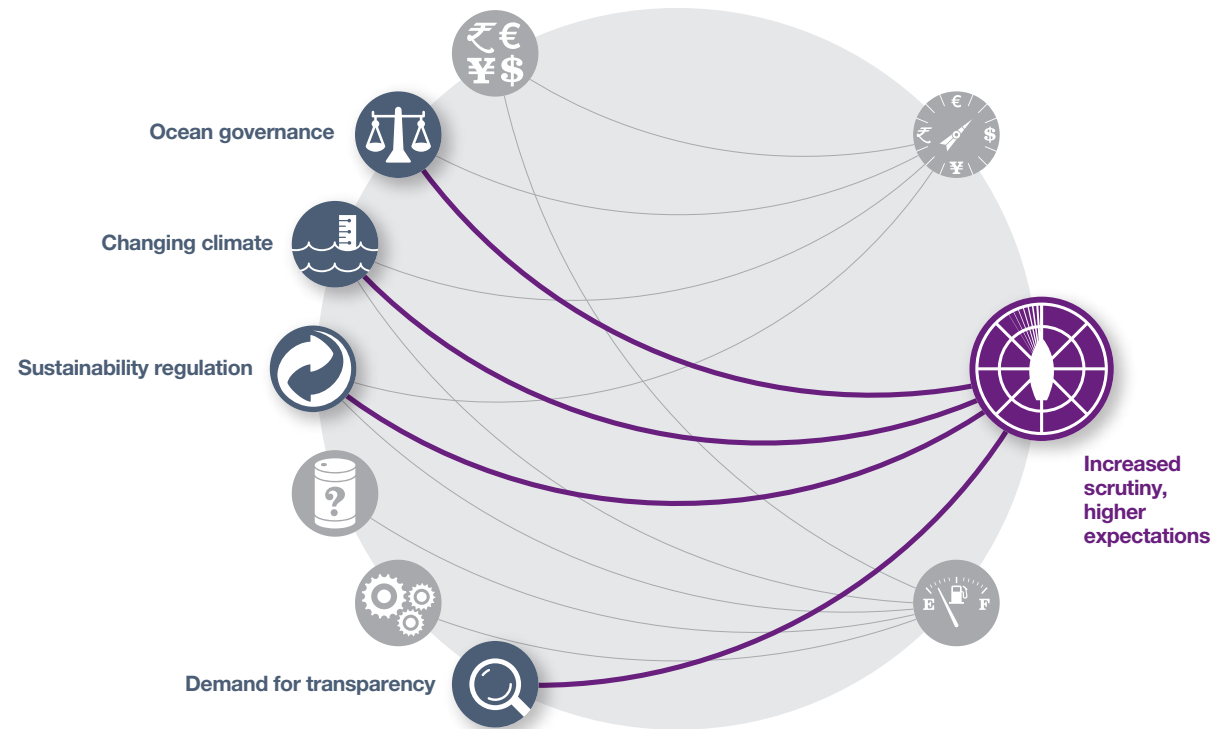
challenge 2: increased scrutiny, higher expectations

In a highly networked, social media-savvy world, the shipping industry is likely to come under increased scrutiny. Greater transparency will encourage customers and other stakeholders to favour strong performers.

Expect the shipping customer of the future to be interested in price, security and speed, but also in wider performance factors such as working conditions, vessel efficiency, emissions, biodiversity and environmental/labour rights prosecutions. This is a strong trend already seen in the land-side supply chain, with companies such as Walmart demanding that suppliers perform against a sustainability scorecard.

We anticipate rapid proliferation of voluntary standards and codes of conduct for shipping, together with raised expectations from ports, financiers, insurers and others. These demands are also likely to be accompanied by increasingly stringent international, national, regional and city-based regulations.

Sophisticated remote monitoring technology already enables unprecedented transparency, and we anticipate a huge expansion of its application within shipping.



Risks

- A complex patchwork of standards creates a compliance burden.
- Ad hoc social media campaigns focus on the infrequent abuses of workers' rights that tarnish the whole industry.
- Poor performers or those who fail to demonstrate improvements may be excluded from the more demanding markets.
- Technology enables a new ease of inspection and enforcement, forcing expensive, reactive improvements at the bottom of the market.
- Failure to work with parties developing standards can lead to poor standards that are overly expensive or bureaucratic.

Opportunities

- Leaders who embrace transparency to demonstrate good performance could gain preferential access to finance, insurance and markets.
- Improved transparency reduces opportunities for poor performers to undercut the market.
- Collaborating with other parts of the supply chain in the development of new standards offers the opportunity to shape them and respond ahead of the competition.



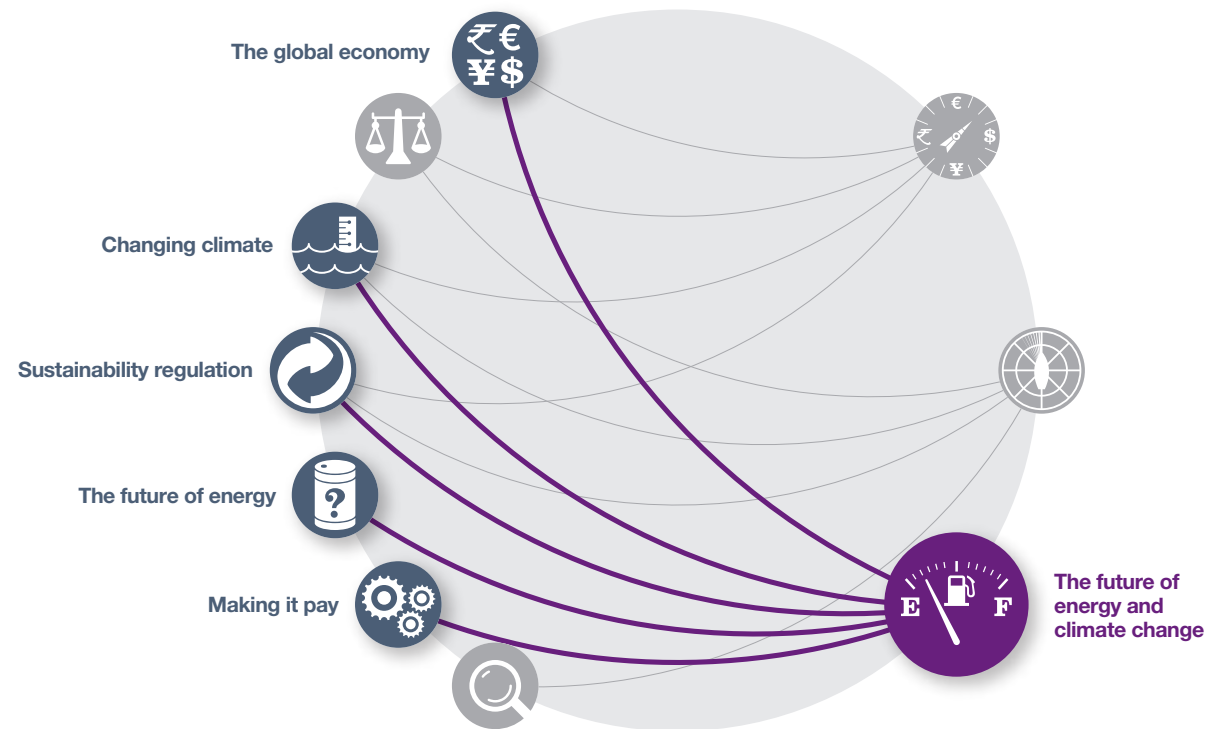
challenge 3: the future of energy and climate change

Leaders of the energy establishment are warning that the age of easy oil is over. Many believe we will reach 'peak oil' as early as 2020. Over the past two years we have already seen oil prices span almost the entire range that the US government projected for the next 15 years. Volatile prices and insecure supply are likely to present a significant challenge to shipping and the wider economy.

At the same time floods, heatwaves and other extreme weather events offer increasingly alarming evidence of global warming. This will increase pressure for shipping to be included in regional and global regimes to reduce greenhouse gas emissions.

Shipping companies and their partners recognise the need to invest in energy efficiency and in the transition to new fuels, exploring new financial models to enable this to happen. This is challenging but necessary: companies that fail to act will be vulnerable to competition in an increasingly uncertain market.

There is uncertainty, however, over how to invest. Short-term price fluctuations in different fuel types are a factor in this uncertainty, along with the need for coordinated action to develop supply infrastructure and the competing performance demands made by strictures such as the sulphur regulations. Strong leadership is required to prevent uncertainty resulting in inaction.



Risks

- Ships today could swiftly become obsolete because of significant changes in the price of fuels, in shipping regulation or in customer expectations.
- Oversupply of available vessels is already a concern. Future innovations could be stifled in a market flooded with obsolete designs sold at knock-down prices
- Investment in new technology is constrained by 'split incentives', which separate key decisions from their financial consequences, and by short investment horizons. This presents an opportunity for new entrants to shipping to out-manoeuvre incumbents.

Opportunities

- Shipping is the most efficient mode of transport, and rising oil prices could see it benefit from a shift away from competing transport providers.
- Rising oil prices could give a competitive advantage to operators who have already invested in energy efficiency.
- Shipyards may have an opportunity to retrofit the >100,000 commercial ships currently in operation.
- State support for adopting new technology at scale could create a paradigm shift in the market. Chinese ship builders already benefit from subsidised steel: what might happen if states subsidise highly efficient ships or a new fuel infrastructure, as parts of a wider energy security strategy?

key questions

Throughout the Case for Action we have presented questions designed to stimulate thought and debate on how the industry needs to change. Here are nine key questions:



- Most long-term planning is based on assumptions of continued growth. What key decisions would be different under an assumption of reduced growth and tighter competition?
- How can industry leaders coordinate action and speak with one voice that influences the future of global governance and policy in a progressive way?
- Uptake of new technology is slow. How do we future-proof today's new ships to prevent early obsolescence? How might we fund and deliver a massive programme to retrofit ships to achieve low emissions or even zero emissions?
- What are the commercial opportunities for shipping in supporting a closed-loop economy, in which materials are recycled and reused locally and regionally?
- What are the opportunities for competitive advantage if oil prices spiral upwards?
- How is the industry preparing for the combined impact of sulphur limits, oil shortages and climate regulation?
- What changes would the industry need to make if its emissions, pollution incidents, working conditions and other actions were completely open to scrutiny by customers, insurers, regulators and other stakeholders?
- Who would be the winners and losers?
- How can the industry ensure that training and working conditions keep pace with the changing social and technical needs of future employees in the shipping sector?
- How can the industry respond to the potential opportunities of climate change, such as the opening of the arctic, in a sustainable way?
- What are the risks of climate change, the economic implications of increased storm risk, rising sea level and a changing navigational environment?

Download the full report from:
www.forumforthefuture.org/

Precedents for change

Shipping is a dynamic, entrepreneurial industry. New business and financing models could mean that the industry looks very different in the coming years.

Containerisation, described in more detail in the full Case for Action, is a prime example of this. Early protagonists found it impossible to consolidate cargoes in large boxes, when ports and ships were designed for manual handling. It wasn't until McLean Trucking (later Sea-Land) looked beyond the ship and the port to the wider logistics system that a new business model was developed to overcome the barriers to containerisation. This broader view led to the highly successful container shipping industry we know today.

Consolidation in global shipping could challenge fundamental assumptions in a similar way. With the exception of a small number of industry giants, the shipping industry is made up of a number of small privately owned companies. All of these have a high degree of autonomy but are often limited in their ability to invest in change. McKinsey predicts that global mega-corporations will start to emerge over the next decade,³ with continuing consolidation over the next 25 years. Could mega-corporations, with better access to the finance required to invest in new technologies, assets and training, drive ambitious change through the industry?

Similarly, change could come from outside. A major change in land transport infrastructure or port practices could challenge fundamental assumptions.

Resisting change could leave incumbents vulnerable to competition from 'gatecrashers' in the same way that Google is entering the renewable energy market, and Tesco the banking sector. Just as Easyjet and other low-cost operators revolutionised the airline industry, so one of the most profound transformations of shipping in the 20th century – containerisation – was led by a trucking company.

next steps – a call to industry leaders

Our Case for Action looks at the global trends that will shape the future of the shipping industry. We also consider how the market and regulation force reactive change. But change can also come from within the industry, and there is a need for leaders to step forward and take the initiative in addressing the challenges it faces.

Leadership is not only about responding to the areas where there is a clear business case today but also anticipating and shaping the industry of tomorrow. Successful companies will be those that not only recognise the challenges and opportunities ahead but are also able to develop appropriate business models, practices and policies that will define the future operating environment.

The leaders who are signed up to the SSI understand this. They are pioneering new practice and creating a vision for the industry to work towards. This is because they understand the imperative for a sustainable industry and want to profit from it.

The second phase of the SSI will continue this process, producing a shared vision of an industry in 2040 that is resilient, socially and environmentally responsible, and profitable.

In responding to the Case for Action, we believe that industry leaders need to:

- Create a shared vision of how the industry should develop over the next 30 years.
- Develop innovative business models that encourage long-term investment, and take into account social and environmental obligations.
- Prepare for greater scrutiny and demands from customers and society with regard to social and environmental performance.
- Build and convert ships to the highest standards of energy efficiency in anticipation of high and volatile fuel prices and demands for low-carbon performance.
- Support the development of coordinated, progressive legislation that rewards sustainability.

For more information visit:
www.forumforthefuture.org

Winners and losers

Differing attitudes to sustainability have helped to produce some clear winners and losers, both within and outside the shipping industry:

- General Electric anticipated customers' demands for energy-efficient products, and developed more than 80 new products under the 'ecomagination' banner. These generated revenue of more than \$17 billion in 2008.
- Maersk initiated 'slow steaming' in 2007, yielding cost savings of £300 million and a 7% reduction in CO₂ emissions. The experience gained allowed the company to define a new generation of vessels (see case study page 27), with 50% lower costs than the industry average.
- The US auto industry, already encumbered by pension debt, came close to collapse in 2008 when sales of the large, inefficient vehicles it produced plummeted in response to rising oil prices. A government bailout of \$25 billion was approved on condition that the industry fast-tracked fuel economy standards of 35mpg.⁴
- In the 1990s, B&Q, part of the Kingfisher Group, went into partnership with WWF to deal with the emerging consumer concern over wood product sourcing. This led to B&Q becoming a founder member of the Forest Stewardship Council, which certifies sustainable timber. As an early mover, B&Q secured its reputation, protected its supply chain and helped define sustainable forestry.
- In 2008, airlines that had based their business model on historic fuel prices failed in large numbers. Companies went under at the rate of one a week in the US, and Europe lost premium services such as Silverjet and Maxjet. More established players were forced to merge, cut services and endure heavy losses. British Airways' CEO stated that profits would be wiped out if oil remained above \$120/barrel.

