Is the shipping industry embracing the **digital age**?

Reed Smith Survey
2019

ReedSmith

Driving progress
through partnership

Contents

Foreword

The shipping industry is facing a period of great change. From an increasing focus on environmental issues, to fast-changing technology, the challenge is to keep up with the changes whilst managing spending.

We conducted a survey in 2018 asking industry participants: How prepared are you for the digital age?

In light of the responses to that survey, as we start 2019, we reflect on the challenges that we face as an industry in the coming years.

Meeting the IMO 2020 fuel emission requirements will clearly be a focus for many businesses over the next 12 months and beyond, as too will ongoing issues surrounding ballast water treatment.

Cyber-crime continues to be a major theme and a year on from the attacks on Maersk, it seems that companies are taking this seriously. This also links with the increased automation of processes and functions onboard, which is expected to be the most significant driver of efficiency in the next five years. An increase in automation potentially increases the likelihood of cyber-criminals seizing control of vessels through malicious programs. Increasingly, clients are implementing prevention training and other initiatives to educate their employees and contractors on how to avoid cyber-attacks.

There have been a number of moves towards further consolidation in recent years – from the Ocean Network Express joint venture between NYK Line, Mitsui, OSK and Kawasaki Kisen Kaisha to the merger between Hapag-Lloyd and United Arab Shipping Company.

One of the major challenges is the increasingly changeable macro-economic conditions. This includes flattening demand growth and the high volatility of financial results across the sector. There is also an increased trend in domestic protectionism with the growing number of sanctions and import tariffs and taxes. The next five years are likely to be a challenge for the industry, with significant expenditure needed to ensure compliance with new regulations while maintaining competitiveness.

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Methodology

The survey was conducted in the first half of 2018 and sought responses across the breadth of the shipping industry.

Areas of the market

- Tankers & Gas (27%)
- Dry Cargo (22%)
- P&I (17%)
- Ship Operation (11%)
- Finance (6%)
- Casualty (5%)
- Containers (5%)
- Ports & Logistics (5%)
- Offshore (2%)

Industry participants

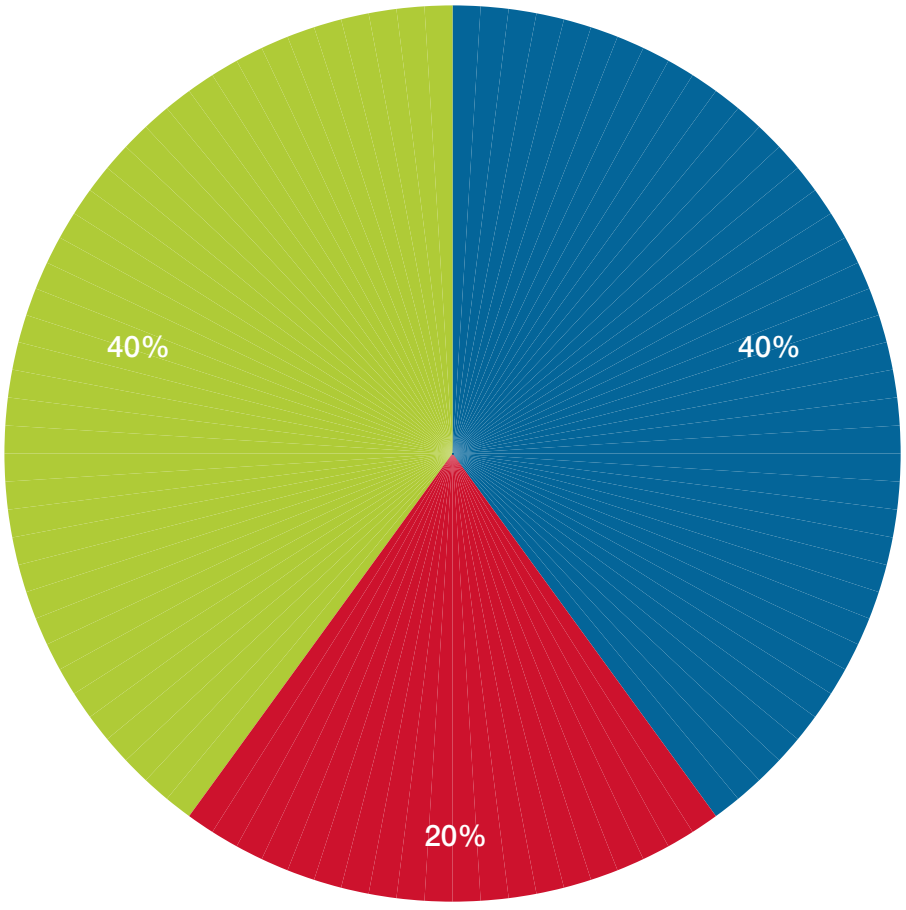
- Owners (35%)
- Professional Services (25%)
- Insurers (18%)
- Operators (14%)
- Charterers (3%)
- Financiers (3%)
- Brokers (2%)

Regions

- Western Europe (30%)
- Eastern Europe (18%)
- Northern Europe (13%)
- Asia (13%)
- North America (10%)
- Southern Europe (6%)
- Australia & Oceania (2%)
- South America (2%)
- Centra America & the Caribbean (2%)
- Middle East (2%)
- North Africa & Greater Arabia (2%)

Technological drivers

Q Which technology will be the most significant driver of change over the next five years?



Analytics of big data

Like most industries, shipping can benefit hugely from predictive analytics of big data. This was echoed by our survey participants, who identified it as one of the most significant drivers of change. Big data collated on voyage times, weather, traffic, repairs, etc. can be used to determine patterns and predict outcomes. This will have a huge impact on the day-to-day operations of vessels as well as on planning for future journeys.

Technology to address environmental issues and emissions

The IMO 2020 Sulphur Cap requires companies within the shipping industry to invest in new fuel and technology solutions. 'Scrubbers' can be installed on vessels to remove sulphur from exhaust gas. The installation of this technology is costly and the process is long. As at the end of 2018, it was estimated that less than 10 per cent of vessels across the globe have installed scrubbers as part of meeting the emissions cap for IMO 2020. However, subject to the fluctuation in price of low sulphur fuel oil (LSFO) and the performance of scrubbers, this percentage is expected to grow with new buildings and the ability to retrofit vessels with this technology. The IMO has stated its goal is to halve the world's emissions by 2050. For an overview on IMO 2020, **click here.**

Distributed ledger technology / blockchain

Only 20 per cent of our survey participants identified blockchain as a driver of change in the shipping industry. While the widespread use of blockchain is not seen as imminent, there is great potential for distributed ledger technology to change the way companies operate and conduct trade. Our article **"Blockchain, smart contracts and electronic bills – is the future of shipping paperless?"** explores the application of blockchain to the shipment of cargo through 'smart contracts' and electronic bills of lading (eBLs).

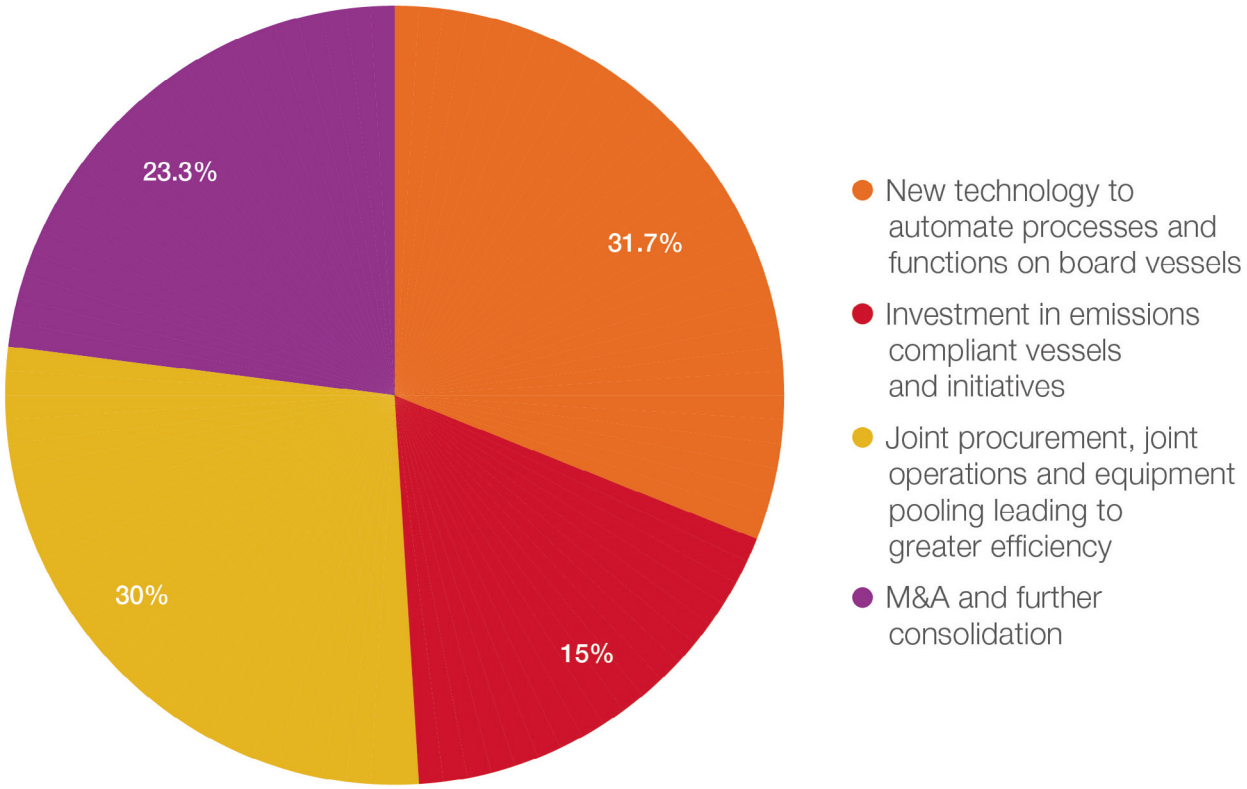
Smart contracts are carried out across a distributed blockchain network. The agreement is contained in code and is designed to auto-execute, with each party validating the conditions of the contract as they are performed. This would significantly change the way shipping companies operate, reducing paperwork and minimising delays and errors.

Although eBLs have been around for years, they have been underutilised in the industry. However, eBLs are making a resurgence in the digital age as they improve the processing times and transfer of real-time updates to parties who have access to the ledger and reduce costs associated with documentation and paperwork.

Both smart contracts and eBLs give complete transparency to all parties involved in each transaction. Distributed ledger technology could potentially eliminate paperwork entirely owing to a centralised system that holds information on the movement and storage of cargo.

Efficiencies

Q Which of the following do you believe will create efficiencies for the shipping industry in the next five years?



New technology to automate processes and functions on board vessels

The survey showed this as the highest ranking item for creating efficiencies over the next five years. As well as determining patterns and predicting outcomes of voyages, big data analytics could be used to develop automated procedures and functions onboard vessels. This technology will allow decisions to be made more quickly and efficiently, and reduce the overall risk attached to voyages, making the shipping industry safer. For example, big data is used to manage ship maintenance by identifying where and when replacement parts are required. As and when the need for maintenance arises, an automated process allows the relevant parts to be ordered and service engineers to be waiting at the next port by the time the vessel arrives.

Joint procurement, joint operations and equipment pooling

Business alliance models such as joint procurement, joint operations and equipment pooling are also expected to create significant efficiencies in the next five years. There are a number of existing examples in the market already. In 2016, IBM entered into a joint venture with Maersk to build new blockchain and cloud-based technologies. Since then, multiple parties have piloted the platform, including DuPont, Dow Chemical, Tetra Pak, Port Houston, Rotterdam Port Community System Portbase, the Customs Administration of the Netherlands, and U.S. Customs and Border Protection. Bridget van Kralingen, senior vice president of IBM Global Industries, stated that “our joint venture with Maersk means we can now speed adoption of this exciting technology with the millions of organizations who play vital roles in one of the most complex and important networks in the world, the global supply chain. We believe blockchain will now emerge in this market as the leading way companies seize new untapped economic opportunities.”

M&A and further consolidation

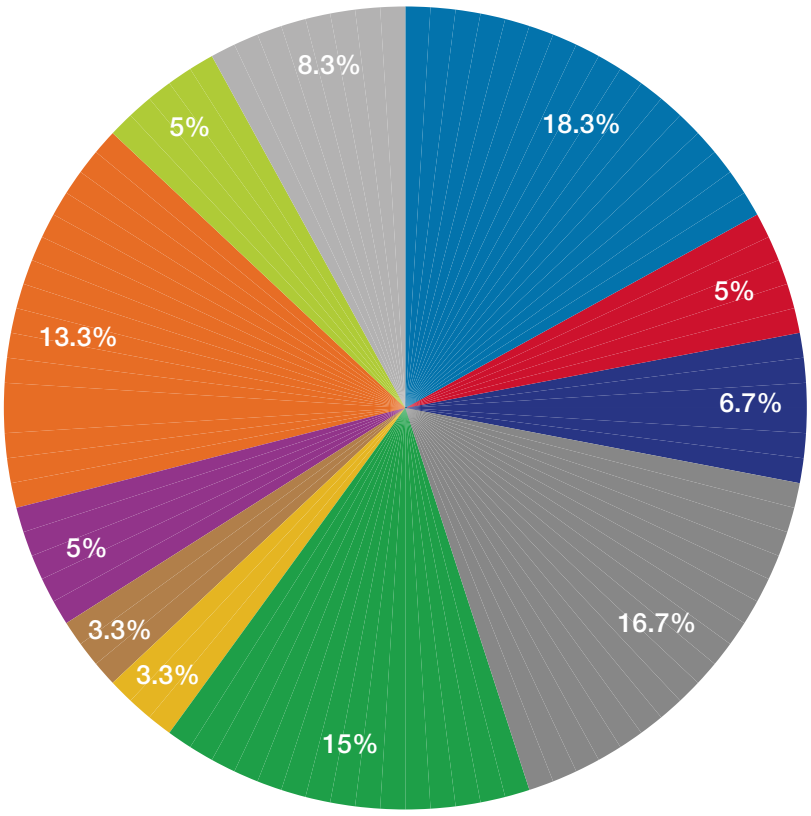
The prolonged market downturn and oversupply of vessels have together pushed freight rates down. This has led to a growing trend in liner consolidations in recent years, with CMA CGM’s purchase of Singapore’s Neptune Orient Lines in 2016, and **three container lines** becoming one in 2017 when Nippon Yusen Kabushiki Kaisha (NYK), Mitsui O.S.K. Lines (MOL) and Kawasaki Kisen Kaisha (K Line) entered into a joint venture merging their container liner shipping activities worldwide.

Investment in emissions compliant vessels and initiatives

This was the lowest ranking item when considering what will create efficiencies in the industry. This is not surprising due to concerns among shipowners, who will have to bear the heavy cost associated with abatement technology or investment in LSFO.

Greatest challenge

Q What is the greatest challenge facing the shipping industry in the next five years?



- Flattening demand growth
- Operational challenges
- Cybercrime
- Industry consolidation forcing freight rates down
- Meeting fuel emissions regulations
- Availability of funding
- Cost of funding
- Digitisation of supply chains
- International regulations keeping pace with technological developments
- Increased trend towards domestic pretectionism
- Changing working patterns and employee expectations

Flattening demand growth

One of the greatest challenges identified as part of the survey was flattening demand growth within the industry. With recent reports indicating the Chinese economy is slowing down, this is echoed by other industries across the globe. As demand is levelling out, there is a risk of excess capacity in the market. This will affect freight rates and potentially drive out smaller shipping companies.

Industry consolidation forcing freight rates down

Industry consolidation has transformed the shipping sector, resulting in a number of mergers and acquisitions, as well as new shipping alliances. In the tanker market, Robert Bugbee's Scorpio Tankers merged with Navig8 in 2017, and in December 2018 Hafnia Tankers and BW Tankers merged. This trend has given rise to a number of large companies dominating the market. With greater economies of scale, these larger companies are operating at reduced costs and are driving freight and charter rates down across the container, dry-bulk and tanker sectors.

Meeting fuel emissions

There are a number of challenges associated with meeting fuel emissions ahead of IMO 2020. For companies that decide to use scrubbers, there is significant capital expenditure required. In addition, scrubber technology is not necessarily suitable for all ships, given the equipment takes up a lot of space. And for those that are using LSFO, there is some concern around the availability of the fuel and a consequential rise in cost if demand exceeds supply.

International regulation keeping pace with technological developments

Given the complexities of both adapting and introducing regulations in the shipping industry, one of the concerns is whether regulation will keep up with technology. For example, the world's first fully autonomous container ship is expected to be in operation in 2020 and maritime autonomous surface ships (MASS) are expected to be operating by 2035. As mentioned in our **previous blog**, the IMO and the Comité Maritime International are working on identifying legal issues arising from the existing international conventions (such as those on safety of life at sea, on the prevention of pollution from ships, and on standards of training, certification and watchkeeping for seafarers) and regulations (such as the International Regulations for Preventing Collisions at Sea). The IMO will need to decide whether the existing conventions and regulations need to be adapted, or whether entirely new conventions and regulations that deal with MASS and advanced technologies need to be introduced. The latter may prove to be a time-consuming exercise and could potentially lead to a significant time lag between the operation of these technologies and the enforcement of the international legislation that governs them.

Another new development is blockchain technology, which is used in platforms such as ShipChain and ShipCoin. While blockchain technology creates efficiencies within the sector, there are no established regulations. Complex jurisdictional issues may arise should nodes be located, and goods transported, internationally. If a disputed contract contains no governing law and jurisdiction clause, an understanding of jurisdiction-specific principles, which may vary considerably, is essential as every transaction could theoretically fall under the respective jurisdiction of each node in the network.

Thought leadership

GDPR

6 months out of GDPR - The anatomy of a breach under the new regulation - Webinar

Emissions Regulations

The 2020 Global Sulphur Cap: An Overview - *Whitepaper*

The Financing of Green Shipping – *Asset Finance in Brief*

IMO 2020 and Liberia's stance – *Ship Law Log*

Prohibition on the carriage of non-compliant marine fuels – *Ship Law Log*

Cyber-crime prevention

Cyber Risk in Shipping - *Ship Law Log*

Social media management

Even in Social Media Age, Web Presence Without Specific Showing of Customer Interaction is Not Enough for Personal Jurisdiction – *Technology Law Dispatch*

Predictive analytics to Big Data

Big data analytics and autonomous vessels – when will legislation catch up? – *Ship Law Log*

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