

Global Maritime Weekly Digest

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The **Global Maritime Weekly Digest**, based at **Southampton SOLENT University**, provides a regular flow of maritime news and analysis, of significance in a global context. Topics covered include shipping fleets and management, seaborne trade, ports, shipbuilding, ship

recycling, maritime policy and regulations, and seafarers' labour.

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Editorial comments

- A brief analysis emphasises the significance of *dry bulk trade* within the entire global seaborne movement of all cargo types (item 1). Dry bulk commodities comprise well over two-fifths of the total, a much bigger proportion than the next largest cargo sector, crude oil and products, which comprise around one-quarter.
- The progress of *China's economy* is of great interest to shipping industry players, given the actual and potential implications for sea trade. Updated IMF forecasts suggest that GDP growth in 2017 will be the same as last year's 6.7% rate, instead of the further deceleration expected earlier (item 7).
- There are still worries about the *longer term outlook for economic activity in China* and how the global shipping industry might be affected. While some possible consequences of the intended rebalancing (shifting away from manufacturing towards services) can be envisaged, the timing and magnitude of changes affecting seaborne trade is unclear.
- In the approach to London International Shipping Week next month, attention has been drawn to the more prominent role adopted by the *UK Chamber of Shipping*, which has been seeking to become a leading voice promoting the UK's maritime industry (item 4). Currently, seafarer safety and the maritime environment are two topics receiving special attention.

Richard Scott MA MCIT FICS editor (email: bulkshipan@aol.com) +++++++++++++ (1) Clarksons Research, 11 August 2017

Centuries On, And Dry Bulk Still Rules The Waves...

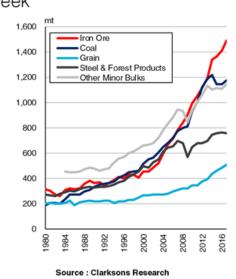
By the late 1800s, the shipping industry had been transformed by the introduction of steam power and iron ships. Coal and grain were two of the most important cargoes, alongside timber, sugar, cotton and tea. While technology, the sheer scale of the business, and the global cargo mix, have of course all changed since then, dry bulk cargoes have retained a position at the heart of global seaborne trade. **An Ancient Title**

In 2016, seaborne dry bulk trade totalled 4.9 billion tonnes. That's equal to 44% of world seaborne trade, by far the highest proportion of any cargo group, followed by oil with a 27% share. From the early days of the industrial revolution, dry bulk goods fuelled the world's industry, and they still do so today, although the drivers of expansion have shifted. Looking at the recent history, dry bulk trade has gone through a rather rocky patch, but some cargoes have still steamed ahead.

Graph of the Week

High & Mighty: Dry Bulk Cargoes Steam Ahead

The graph shows estimated global seaborne dry bulk trade, split by cargo type. Coal includes coking coal and steam coal. Grain includes wheat, coarse grains, and soybeans. Minor bulk trade is split into manufactures (steel and forest products) and other minor bulks, including agribulks and softs, and other metals and minerals. 2017 data basis latest projections. Timeseries of seaborne dry bulk trade are available to download on the *Shipping Intelligence Network*.



King Of The Cargoes

Today, seaborne trade in iron ore is the largest of any dry bulk cargo in terms of volumes, with 1.4 billion tonnes shipped in 2016, 13% of global seaborne trade. In the early 1980s, iron ore was the biggest individual dry bulk cargo, although lost the top spot to coal in the 1990s. However, the meteoric rise of China's steel industry in the 2000s propelled trade in iron ore to new heights, with growth in Chinese imports accounting for 94% of expansion in global iron ore trade between 2000 and 2014. Whilst coal trade has taken a breather since then, iron ore has pushed on, supported by major mine expansions, despite concerns about the Chinese economy (particularly in 2015). While iron ore and coal trade were a similar size in 2013, by 2016, iron ore trade was 25% larger than coal trade.

Troubled Queen

In the late 19th century, it was coal that was the dominant cargo, with around 50mtpa shipped. Today, it is still the second largest dry bulk cargo at 1.1 billion tonnes in 2016, but it has had a bumpy ride of late. Having grown fairly steadily between 1980 and 2008, coal trade was significantly boosted in 2009-13 by China raising imports to supplement vast domestic output. By 2012, China was the largest coal importer globally, but a 31% drop in imports in 2015 led to a 6% decline in global seaborne coal trade that year. While coal trade has now returned to growth, rising environmental concerns in many countries could limit expansion.

Goods Of The Realm

Outside of the two largest cargoes, grain trade, which in the early 1980s was a similar size to coal trade, has expanded steadily, but not as dramatically as the more significant commodities, and totalled 481mt in

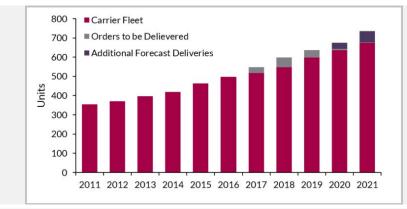
2016. Meanwhile, minor bulk trade, which was dented by the global economic downturn, has still risen considerably, but was hit again in 2014-16 by Indonesia's raw mineral export ban. Leading The Way So, hundreds of years have passed, but dry bulk remains shipping's largest cargo type. Some cargoes have fared better than others, but despite the challenges still present today, nothing yet looks like it will easily knock dry bulk off its top spot. Source: Clarkson Research Services Limited

(2) Hellenic Shipping News, 8 August 2017/ Westwood Global Energy Group

Westwood Insight: Will New LNG Trade Routes Support Demand for LNG Carriers?

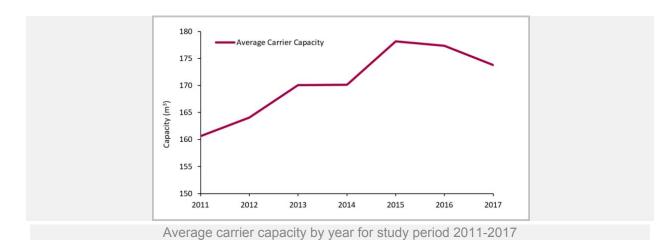
The Liquified Natural Gas (LNG) carrier market has been highly cyclical and is often driven by global macroeconomic events. The growth of LNG carriers over the past decade has been synonymous with the growth in global LNG import and export capacity. However, in recent years the increase in LNG cargos hitting the market has led to an oversupply problem, causing a significant decline in LNG spot prices. This oversupply has heavily impacted the LNG carrier market resulting in appetite for newbuild carriers to dwindle. In 2016, orders for newbuild LNG carriers amounted to only 6 units (excluding two optional orders) – a 92% decline compared to the number of LNG carriers ordered in 2014.

The recent focus on the LNG market oversupply and the continuous growth in LNG export capacity is, however, masking the continuous increase in LNG demand. Whilst increasing demand has been driven by traditional demand hubs, such as China and India, several new LNG importers including Poland, Jordan, Malta, and Pakistan have also emerged in the last two years. This is part of a trend of more countries seeking to utilise LNG to diversify their gas supply and improve power generation. Westwood expects this trend to continue, as 16 additional countries, including Bangladesh, India, Russia, and Sri Lanka, commission their first floating import units (FSRUs) over the 2017-2021 period. These units are expected to unlock new import markets by providing a quick and cost-effective solution to the increasing local gas demand.



Global LNG carrier fleet by year for the period 2011-2021

Over the forecast period, much of the LNG that will drive supply increase, will come from mega projects like Chevron's Wheatstone in Australia, as well as North American projects such as Next Decade's Rio Grande and Cheniere's Corpus Christi. The increase in demand will be driven by small and medium sized projects dotted across the world. As a result, LNG carriers will have to travel longer distances from supply bases such as the US to Asia/Europe or East Africa to Asia and this could potentially lead to an increase in carrier demand.



This latter situation provides a silver lining to a recent gloomy market, as over 219 new-build LNG carriers are expected to be delivered over the 2017-2021 period, including 17 new units that have been ordered in since 2017. The expected deliveries also include 92 new-build LNG carriers, which are yet to be ordered. Over 80% of LNG carriers ordered in recent years have trended towards the large conventional carriers (150,000-179,999m3). This indicates the significant design improvements the industry has made for greater cost and operational efficiencies.

Whilst Westwood still expects oversupply to persist beyond the forecast period, continuous pro-gas energy policies in Asia in combination with expanding LNG trade routes are expected to support the demand for newbuild LNG carriers. Source: Westwood Global Energy Group

(3) US Energy Information Administration, 11 August 2017

The Strait of Malacca, a key oil trade chokepoint, links the Indian and Pacific Oceans

Nearly one-third of the 61% of total global petroleum and other liquids production that moved on maritime routes in 2015 transited the Strait of Malacca, the second-largest oil trade chokepoint in the world after the Strait of Hormuz. Petroleum and other liquids transiting the Strait of Malacca increased for the fourth time in the past five years in 2016, reaching 16 million barrels per day (b/d).

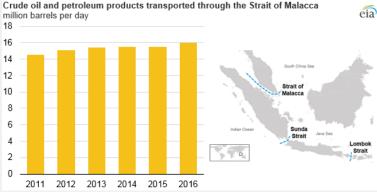
The Strait of Malacca, which flows between Indonesia, Malaysia, and Singapore, connects the Indian Ocean with the Pacific Ocean through the South China Sea. It is the shortest sea route between Persian Gulf suppliers and key Asian markets.

Oil shipments through the Strait of Malacca supply China and Indonesia, two of the world's fastest growing economies. The Strait of Malacca is the primary chokepoint in Asia, and in recent years, between 85% and 90% of annual total petroleum flows through this chokepoint were crude oil. The Strait of Malacca is also an important transit route for liquefied natural gas (LNG) from Persian Gulf and African suppliers, particularly Qatar, to East Asian countries with growing LNG demand. The biggest importers of LNG in the region are Japan and South Korea.

At its narrowest point in the Phillips Channel of the Singapore Strait, the Strait of Malacca is only about 1.7 miles wide, creating a natural bottleneck with the potential for collisions, grounding, or oil spills. According to the International Maritime Bureau's Piracy Reporting Centre, piracy, including attempted theft and hijackings, is a threat to tankers in the Strait of Malacca.

If the Strait of Malacca were blocked, nearly half of the world's shipping fleet would be required to reroute around the Indonesian archipelago, such as through the Lombok Strait between the Indonesian islands of Bali and Lombok or through the Sunda Strait between the Indonesian islands of Java and Sumatra. Rerouting would tie up global shipping capacity, add to shipping costs, and potentially affect energy prices.





Several proposals have been made to increase bypass options and reduce tanker traffic through the Strait of Malacca. In particular, China and Myanmar (Burma) commissioned the Myanmar-China natural gas pipeline in 2013 that stretches from Myanmar's ports in the Bay of Bengal to the Yunnan province of China. The oil portion of the pipeline was completed in August 2014, and it is now operational at full capacity.

(4) Lloyd's List, 11 August 2017

Policy split shakes out at re-invigorated UK Chamber

ANALYSIS

Sharp right turn for British institution once at risk of becoming outdated

THE UK Chamber of Shipping has got a bit of an edge to it these days. Once at risk of becoming yet another outdated British institution servicing the needs of a dwindling membership, it has taken a sharp right-hand turn in recent years to become a leading voice in promoting the maritime industry to the

layperson and to government alike, a position that has become more prominent as Brexit negotiations begin in earnest.

Under current president Grahaeme Henderson, who is Shell's vice-president for shipping and marine, the Chamber has pushed forward its agenda on seafarer safety and the environment – two key components of his manifesto.

Working with tanker industry association Intertanko, among others, Mr Henderson has sought crossindustry support for improvements to safety performance that are embedded in corporate culture.

It is in shaping the debate around maritime and shipping in the Brexit negotiations where the chamber has come into its own. Chief executive Guy Platten has led a <u>media campaign</u> on the risks of losing the customs union, which could see road gridlock at the country's ports, should the free flow of goods be stopped.

In November 2016, the Chamber launched its <u>Blueprint for Growth</u>, which outlined the "absolute priorities" for the UK government ahead of Brexit negotiations. These include preserving the ease of doing business with the European Union, ensuring maritime companies have access to global talent and reform of domestic maritime policy.

It also wants the government to double spending on seafarer training. In December 2016, it presented a business case to the Department for Transport to increase funding for training seafarers to £30m (\$37.2m), along with the Merchant Navy Training Board and the shipping professionals' trade union Nautilus International.

In January, the UK shipping minister John Hayes seemed to suggest the money would be forthcoming. He dropped some pretty heavy hints of a big announcement on seafarer funding at a UK Ship Register drinks reception to announce Doug Barrow's appointment as UKSR director.

An official confirmation of that extra spend was hoped for at the Chamber's February 2017 annual dinner, but was delayed due to the unexpected general election, with no more detail as yet forthcoming. Mr Henderson remains confident the government will come through after some hard lobbying from the Chamber.

It hasn't all been plain sailing at the Chamber. Rumours of internal policy differences swirl around London's inner circles as the 140-year-old institution pulls out of a significant period of change.

The factions break down loosely into those modernisers who believe the UK maritime industry has squandered its world-leading position in the past 20 years and those traditionalists who see the value in preserving a steadfast heritage. And that translated into a difference in interpretation of the role the Chamber should play in coming years.

Mr Henderson reckons that if everyone agreed all the time, there would be something very wrong with the organisation: the wrong agenda, or not being curious enough. "It's good that there's a bit of edge in there... Whatever there is we'll find a way, we'll find a path through it which everyone agrees with."

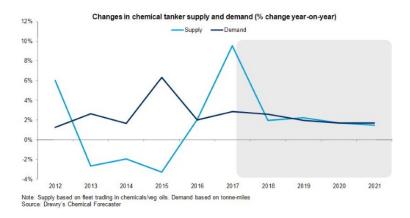
What seems to be shaking out from this process is that the modernisers have begun to win the argument, with a path forward emerging in which the Chamber provides a first-class service to members alongside robust lobbying for the industry, based on a platform of key deliverables. Smart+ is one example of this. But to be truly successful it is clear that the Chamber will need many more specific policy examples in the months and years to follow.

(5) Hellenic Shipping News, 8 August 2017/ Drewry

Specter of oversupply haunts chemical shipping

The shipping fleet trading in chemical and vegoil markets is expected to accelerate at a much faster pace than demand, weakening earning prospects, according to the latest edition of the Chemical Forecaster, published by global shipping consultancy Drewry.

Drewry estimates that tonne-mile demand will grow at 2.9% in 2017, and the fleet trading in chemicals/vegoils will expand by 9.5% by the end of this year, the highest fleet growth observed in recent years.



The chemical shipping market is facing severe oversupply because of new deliveries and swing tankers returning to the chemical/vegoils trade and seeking employment in this market. The orderbook still contains 9% of the existing capacity to be delivered by 2021 and the deliveries of MR tankers will also contribute to rapid growth. Even though the Ballast Water Convention will take effect in 2019, any expected surge in demolitions by that time will not be enough to pull the market out of its current gloomy state. Combined with a bearish outlook for the CPP market, Drewry expects the oversupply situation to continue for the next two years which will squeeze freight rates on major routes.

Tonne-mile demand is expected to edge down from 2018. Organic tonne-mile demand growth is expected to decline from 6% in 2016 to 3.7% in 2017, while inorganic demand is likely to follow the same trend – a fall from 7.3% in 2016 to 1.2% in 2017. As a result, long-haul routes might face challenges in the next few years.

"Although vegoil volume will support the market, weak demand for chemical products during the summer lull and the bearish CPP market continue to encourage swing players to return to the chemicals/vegoils market, reducing freight rates and pushing up lot sizes. The effect of the latter will reduce not only the number of vessels needed, but also the opportunity to find cargoes in the spot market," said Hu Qing, Drewry's lead analyst for chemical shipping.

"This quarter freight rates on major routes are facing challenges as there are few drivers to prevent the continuing trend of declining freight rates," added Qing.

Source: Drewry

(6) Clarksons Research, 27 July 2017

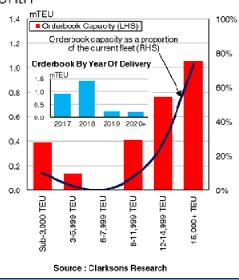
Through The Looking Glass: Exploring The Orderbook

The containership orderbook has diminished by 30% in capacity terms since the start of 2016. Ordering during this period has remained very limited, with capacity contracted in 2016 at 0.29m TEU, representing

the lowest level since 2009, and contracting in the first half of 2017 totalling less than 40,000 TEU. Despite this, however, there are several important aspects of the containership orderbook to consider.

Graph of the Month Reflecting Upon The Shape Of The Orderbook

The bar graph represents orderbook capacity, with the red bars representing capacity by sector, and the dark blue line representing capacity on order in each sector, relative to the sector's current fleet. The inset graph shows the orderbook schedule by year of delivery as at the start of July 2017. Timeseries of the containership orderbook and orderbook listings are available on the Shipping Intelligence Network



Getting Smaller

The first of these concerns the change in the overall size of the orderbook, with the volume of capacity on order shrinking considerably over recent years. At the start of July 2017, the orderbook stood at 396 units of 2.78m TEU, a marked drop from 515 units of 3.97m TEU at the start of 2016. While the volume of capacity on order is still not insignificant, as a percentage of fleet capacity, it is the lowest it has been on record, standing at 14% at the start of July. As a result, boxship fleet growth in the next few years is expected to be relatively moderate, and significantly lower than 8.1% in 2015. In full year 2017, the containership fleet is projected to expand by 3.0% y-o-y in TEU terms, and by 3.7% y-o-y in 2018. **Checking The Schedule**

The second interesting aspect is the shape of the orderbook schedule, which is a result of the pattern of ordering, as well as delays to deliveries to owners throughout challenging market conditions. With the vast majority of boxship capacity currently on order scheduled for delivery either in the remainder of this year or next year, the containership orderbook looks very thin after 2018 (see inset graph). Basis start July, just 22 boxships of over 12,000 TEU (including 'mega boxships') are scheduled for delivery from 2019 onwards (out of a total 108 vessels in this size range currently on order). In reality, some vessels currently expected to be delivered in 2017-18 may slip into 2019-20. Moreover, new orders for containerships of very large capacity could yet still emerge for delivery in that period, although appetite for boxship ordering in general currently remains very subdued.

Different Sizes

Thirdly, the orderbook tells a very different story across the boxship sectors, remaining heavily weighted towards the larger sizes (see graph). Ships of 15,000+ TEU account for c.40% of capacity on order, and represent the equivalent of 73% of 15,000+ TEU fleet capacity. Meanwhile, sub-3,000 TEU there are currently 213 ships of 0.39m TEU on order, equivalent to 10% of fleet capacity in this size range, and expectations of limited deliveries mean that the sub-3,000 TEU fleet is expected to shrink in the shortterm. Moreover, the orderbook in the 3-7,999 TEU size range is extremely limited, just 2% of fleet capacity.

Shrinking Further?

So, the boxship orderbook has dwindled significantly, and against the current backdrop of a diminished appetite for contracting, it looks likely that it will continue to shrink. The shape and size of the orderbook does vary significantly across different vessel sizes but overall the schedule looks pretty thin after 2018. Peering through the orderbook 'looking glass', clearly there's still a lot to see.

Source: Clarksons

(7) Article by Richard Scott, GMWD editor, 22 August 2017

Prospects for China's economy in the year ahead

Just over a week ago the International Monetary Fund (IMF) published the results of its annual talks with the Chinese authorities about how China's economy is progressing. Economic activity in China, measured by gross domestic product, is now forecast to grow by 6.7% in 2017, the same rate as seen last year. But a slackening is still expected to emerge in 2018, when 6.4% growth is estimated.

Previously, this year's GDP growth was widely expected to be slightly slower than seen in 2016, continuing the established pattern of a decelerating trend. Explaining the reasons for a more optimistic outlook, the IMF says that the growth outlook for China 'has been revised up reflecting strong momentum, a commitment to growth targets, and a recovering global economy'.

Domestic demand within the economy (government, business and consumer spending) has been strengthened by policy changes which lowered interest rates, supported the housing market, and increased government borrowing. Nevertheless, restraining measures have been introduced which may result in GDP growth moderating during the second half of 2017.

Looking further ahead, IMF economists worry that large and continuous expansion of private and public debt could prove problematical, and could intensify downside risks for the economy. The Chinese authorities disagree, contending that the debt build-up so far has been manageable and is likely to decelerate amid economic reforms unfolding.

There have been numerous signs of how China's robust economic performance ('robust' is a description used by the IMF) has benefited the global shipping market this year. Major Chinese industries such as steel production and power generation have derived support. These features were reflected in additional import demand for iron ore, coal, oil and gas, although other more specific influences were also evident.

In the 'longer term' future, changes in the nature of Chinese economic growth seem set to produce a resumed slowing trend. An intended shift away from investment-led expansion towards consumption (particularly consumer spending), and the parallel rebalancing from manufacturing towards services, remains a firm objective. Overcapacity in the industrial sector is being reduced. When, and to what extent this changing pattern will affect global seaborne trade movements remains unclear.

The new IMF report about China refers only briefly to the *Belt and Road Initiative*, and does not attempt to assess the economic consequences of this scheme. However, the report does acknowledge that the BRI 'could foster multinational cooperation in trade, investment and finance, bring much needed infrastructure and connectivity to the region'.

(8) Hellenic Shipping News, 21 August 2017/ BBC

How hackers are targeting the shipping industry

When staff at CyberKeel investigated email activity at a medium-sized shipping firm, they made a shocking discovery.

"Someone had hacked into the systems of the company and planted a small virus," explains co-founder Lars Jensen. "They would then monitor all emails to and from people in the finance department." Whenever one of the firm's fuel suppliers would send an email asking for payment, the virus simply changed the text of the message before it was read, adding a different bank account number. "Several million dollars," says Mr Jensen, were transferred to the hackers before the company cottoned on.

After the NotPetya cyber-attack in June, major firms including shipping giant Maersk were badly affected.

In fact, Maersk revealed this week that the incident could cost it as much as \$300 million (£155 million) in profits.

But Mr Jensen has long believed that the shipping industry needs to protect itself better against hackers – the fraud case dealt with by CyberKeel was just another example.

The firm was launched more than three years ago after Mr Jensen teamed up with business partner Morten Schenk, a former lieutenant in the Danish military who Jensen describes as "one of those guys who could hack almost anything".

They wanted to offer penetration testing – investigative tests of security – to shipping companies. The initial response they got, however, was far from rosy.

"I got pretty consistent feedback from people I spoke to and that was, 'Don't waste your time, we're pretty safe, there's no need'," he recalls.

Today, that sentiment is becoming rarer.

The consequences of suffering from the NotPetya cyber-attack for Maersk included the shutting down of some port terminals managed by its subsidiary APM.

The industry is now painfully aware that physical shipping operations are vulnerable to digital disruption. Breaking into a shipping firm's computer systems can allow attackers to access sensitive information. One of the most serious cases that has been made public concerns a global shipping conglomerate that was hacked by pirates.

They wanted to find out which vessels were transporting the particular cargo they planned to seize. A report on the case by the cyber-security team at telecoms company Verizon describes the precision of the operation.

"They'd board a vessel, locate by barcode specific sought-after crates containing valuables, steal the contents of that crate – and that crate only – and then depart the vessel without further incident," it states. But ships themselves, increasingly computerised, are vulnerable too. And for many, that's the greatest worry.

Malware, including NotPetya and many other strains, is often designed to spread from computer to computer on a network. That means that connected devices on board ships are also potentially vulnerable.

"We know a cargo container, for example, where the switchboard shut down after ransomware found its way on the vessel," says Patrick Rossi who works within the ethical hacking group at independent advisory organisation DNV GL.

He explains that the switchboard manages power supply to the propeller and other machinery on board. The ship in question, moored at a port in Asia, was rendered inoperable for some time, adds Mr Rossi. Seizing the controls

Crucial navigation systems such as the Electronic Chart Display (Ecdis) have also been hit. One such incident is recalled by Brendan Saunders, maritime technical lead at cyber-security firm NCC Group. This also concerned a ship at an Asian port, but this time it was a large tanker weighing 80,000 tonnes. One of the crew had brought a USB stick on board with some paperwork that needed to be printed. That was how the malware got into the ship's computers in the first instance. But it was when a second crew member went to update the ship's charts before sailing, also via USB, that the navigation systems were infected.

Departure was consequently delayed and an investigation launched.

"Ecdis systems pretty much never have anti-virus," says Mr Saunders, pointing out the vulnerability. "I don't think I've ever encountered a merchant ship Ecdis unit that had anti-virus on it."

These incidents are hugely disruptive to maritime businesses, but truly catastrophic scenarios might involve a hacker attempting to sabotage or even destroy a ship itself, through targeted manipulation of its systems.

Could that happen? Could, for example, a determined and well-resourced attacker alter a vessel's systems to provoke a collision?

"It's perfectly feasible," says Mr Saunders. "We've demonstrated proof-of-concept that that could happen." And the experts are finding new ways into ships' systems remotely. One independent cyber-security researcher, who goes by the pseudonym of x0rz, recently used an app called Ship Tracker to find open satellite communication systems, VSat, on board vessels.

In x0rz's case, the VSat on an actual ship in South American waters had default credentials – the username "admin" and password "1234" – and so was easy to access.

It would be possible, x0rz believes, to change the software on the VSat to manipulate it.

A targeted attack could even alter the co-ordinates broadcast by the system, potentially allowing someone to spoof the position of the ship – although shipping industry experts have pointed out in the past that a spoofed location would likely be quickly spotted by maritime observers.

The manufacturer behind the VSat unit in question has blamed the customer in this case for not updating the default security credentials. The unit has since been secured.

Safe at sea

It's obvious that the shipping industry, like many others, has a lot of work to do on such issues. But awareness is growing.

The Baltic and International Maritime Council (BIMCO) and the International Maritime Organisation (IMO) have both recently launched guidelines designed to help ship owners protect themselves from hackers. Patrick Rossi points out that crew with a poor understanding of the risks they take with USB sticks or personal devices should be made aware of how malware can spread between computers.

This is all the more important because the personnel on board vessels can change frequently, as members go on leave or are reassigned.

But there are more than 51,000 commercial ships in the world. Together, they carry the vast majority – 90% – of the world's trade. Maersk has already experienced significant disruption thanks to a piece of particularly virulent malware.

The question many will be asking in the wake of this and other cases now being made public is: What might happen next?

Source: BBC