




International  
Chamber of Shipping

Shaping the Future of Shipping



# ICS Maritime Barometer Report 2023-2024

## Foreword

# Clarity in Collaboration

ICS Chairman, Emanuele Grimaldi



Shipping has repeatedly proven its ability to navigate turbulent waters of change. Over the years, we have successfully weathered numerous threats, ranging a global pandemic and closure of major trade routes to cyber attacks and more. This ability to keep the supply chain largely uninterrupted is the result of stakeholders across the maritime sector — such as shipping, ports, legal and financial services, equipment providers, etc — working together to achieve common goals. I believe that this experience has positioned us well for the challenges that we are currently facing.

I am hopeful that clarity is beginning to emerge as individual governments, the International Maritime Organization (IMO), and regional governing bodies (such as the European Commission) recognise the need to act and implement workable regulations for maritime's long decarbonisation journey. These organisations not only create regulatory frameworks that set the standards for safe and efficient operations, but also - if strident enough - will help steer the direction of our industry's evolution. Policies shape demand for solutions, while public funding can jump start infrastructure projects or accelerate the immediate development of technology solutions that would otherwise not be commercially viable.

With increased transparency on the implementation of decarbonisation regulations, this Barometer report has highlighted that our industry is demonstrating a steadily growing confidence when coping with what is undeniably one of the biggest challenges we will face on a global level — delivering a net zero sector by 2050. By contrast, as geopolitical tensions have erupted, we are worried about the impact that this will have on our ability to maintain the flow of trade while protecting our seafarers, the environment, ships, and cargoes.



Seafarers have faced significant challenges over the last few years — impacted by a global pandemic followed by a great deal of regional unrest — and it is a testament to their courage, dedication and resilience that they continue to keep our supply chains running. The [EU Council and Parliament](#)'s formal designation of seafarers as key workers is a heartening sign of ongoing recognition of the impact crew have on the world's status quo, but there is still much to be done to keep our crew safe and happy. As we enter a period of extended geopolitical turbulence, we must act quickly to ensure that seafarers are safe and able to perform their duties efficiently.

The pandemic, energy and trade security efforts to manage geopolitical unrest and comply with decarbonisation targets, and economic policies favouring local manufacturing and consumption have led to a significant and alarming rise in protectionism across the world. As newly imposed or relaxed tariffs impact trade relationships, either splintering long-standing patterns or creating new ones, trade routes will continue to shift — with costly and complex consequences for shipping and the wider global economy.

Make no mistake, I am certain maritime will continue to adapt and evolve to cope with these new challenges. But we would be far more effective if our ongoing relationships with governments and regulators were more collaborative. I have seen a shifting sentiment over the last three years of this survey, which plainly outlines the positive impact that clear policy, funding streams and reassurance from governments and regulators can have on the maritime sector. It has also highlighted how quickly emerging threats (such as the Red Sea attacks and potential shortages of skilled workers) can keep our industry leaders up at night. Additional policy measures to address cyber security, decarbonisation, and streamline essential documentation would be welcome to deepen understanding and industry-wide consensus.

While many governments are understandably focused on the needs of their electorate, input from industries such as ours will help them to better serve the populace that they represent. After all, most country's GDP and employment is strongly linked to seagoing trade — as is the access to the low-carbon fuels needed to meet their greenhouse gas emission reduction targets of the Paris Climate Agreement.

Maritime must also play its part for this collaboration to be effective. Our industry and sub-sectors must streamline our collective narrative so that it is easily understood by to policy and lawmakers before they put frameworks in place that could impact leading maritime players and slow the pace of progress. I believe this report, with its global and cross-sectoral inputs, is an important tool to identify the pain points for the majority of our industry and can serve as a clarion call for action - whether from people within maritime, or those adjacent to it.

As our industry future-proofs itself, there is an increasing recognition of the true scale of risk that cyber attacks pose to our businesses. It is currently one of the top risks being faced by maritime leaders – a significant rise as compared to the previous two years. With our operations getting ever more digitally connected, and the need for joined-up systems to share data across the supply chain to further streamline operations, strong cyber security measures and resilience plans for business continuity are non-negotiable.

Thank you to those that contributed your time for this project, and I invite new readers to participate in the ICS Barometer in coming years. I hope that you find the data and insights from this report as useful as I have, and I encourage you to engage closely with it. A tool is only fulfilling its true purpose when it is in use, and this report is intended to support our sector as we move towards a more secure, efficient and greener future. As we continue to grow the insights in future editions, it is my heartfelt wish that this becomes a regular touchpoint for conversations about our sector's progress.

Make no mistake, I am certain maritime will continue to adapt and evolve to cope with these new challenges

Emanuele Grimaldi, ICS Chairman



## Executive Summary

The maritime risk landscape is often dominated by a key factor that acts as a risk multiplier and defines leaders' perceptions of their ability to cope with other various challenges. While in 2020-2021 this was the pandemic, data from the past two years makes it clear that this torch has now been passed to political instability, which is the top risk factor this year and has led to a sharp rise in protectionism. This risk multiplier has eroded industry confidence in public funding, traditional routing and the pace of the decarbonisation transition (with fossil fuels remaining dominant on the maritime energy front for the coming decade).

This political instability also links to the increased number of cyber attacks by [state-sponsored and non-state actors](#) — which have consistently been seen to pose a risk to maritime's steadily growing digital infrastructure and rank as the second highest threat for this year. And geopolitical upheaval has pulled malicious physical attacks into the leading concerns for the first time, ousting financial instability. In fact, geoeconomic confrontation and associated protectionism was seen to be a key factor driving both nearshoring and friendshoring of business operations for respondents.

Regulations remain the most significant factor impacting business operations — not just reinforcing the need for clear and sustainable regulatory oversight to establish a level playing field, but also boosting transparency for investors and other stakeholders as there are clearly defined metrics beyond those voluntarily adopted. The creation of an official phased pathway to net zero is likely to reduce the fragmentation of approaches to decarbonisation, which has varied across regions and individual sectors depending on public policies and company ambitions.

Following a formal agreement at the IMO's Marine Environment Protection Committee (MEPC) 80 to reach net zero GHG emissions by or around 2050, confidence is on the up. In fact, almost 50% of C-suite maritime stakeholders responding to the ICS Barometer in 2023-2024 indicated improved willingness to invest in low and zero-carbon solutions following IMO agreement, with only 23% of respondents remaining undecided, and a further 17% feeling this agreement has no impact on their decision-making.

This improved confidence in the regulatory process highlights the value of clarity from governments and regulatory bodies and is evidence of companies adopting a practical approach to decarbonisation. The latter incorporates factors such as currently available fuels and technologies, market demand and of course, competitive pricing.

To maintain this growing confidence, regulatory bodies must ensure meaningful policy measures, robust enforcement and access to funding are all put in place with minimal administrative burden.

Maritime leaders demonstrated evolving opinions on the fuel landscape with significant increase in interest in methanol, nuclear power, and wind power, although LNG, biofuel, and HFO with abatement technology continued to lead industry forecasts for the coming decade. The availability of infrastructure to deliver fuel in ports, availability of these fuels as determined by competition in existing markets, and the creation and implementation of global and regional regulation determining safe standards of operations remained key factors.

Given that many countries are looking to establish internal resilience and greater energy security in the coming years - particularly through investments in a mix of fossil fuel and renewable energy infrastructure - respondents anticipate a more complex operating environment. Upcoming hurdles could come in the form of shifts in trade routes, decreased public and private funding, and access to skilled labour. Escalating calls for decarbonisation regulations to ensure a level playing field are now paired with questions about commercial viability and incentives, particularly as green investment is still slow to materialise on the scale required for rapid transition.

While some of the factors are seen as manageable by respondents, the geopolitical and regulatory uncertainty drives home the need for closer relationships between industry players, governments and regulators. Steady progress is only possible in calm waters, when resources to push ahead are not diverted towards emerging issues - and when there is clarity on the intended destination.



	HIGHEST RISK TO OPERATIONS	GREATEST IMPACT ON OPERATIONS
<b>2021-2022</b>	<ul style="list-style-type: none"> <li>● EPIDEMICS &amp; PANDEMICS</li> <li>● CYBER ATTACKS</li> <li>● INCREASING ADMINISTRATIVE BURDEN</li> </ul>	<ul style="list-style-type: none"> <li>● REGULATIONS</li> <li>● INVESTOR REQUIREMENTS</li> <li>● STRANDED ASSETS</li> </ul>
<b>2022-2023</b>	<ul style="list-style-type: none"> <li>● POLITICAL INSTABILITY</li> <li>● FINANCIAL INSTABILITY</li> <li>● CYBER ATTACKS</li> </ul>	<ul style="list-style-type: none"> <li>● REGULATIONS</li> <li>● INVESTOR REQUIREMENTS</li> <li>● MARKET-BASED MEASURES</li> </ul>
<b>2023-2024</b>	<ul style="list-style-type: none"> <li>● POLITICAL INSTABILITY</li> <li>● CYBER ATTACKS</li> <li>● MALICIOUS PHYSICAL ATTACKS</li> </ul>	<ul style="list-style-type: none"> <li>● REGULATIONS</li> <li>● AVAILABILITY OF TRAINED CREW &amp; PERSONNEL</li> <li>● PUBLIC FUNDING</li> <li>● MARKET-BASED MEASURES</li> </ul>



## Introduction

The 2023-2024 ICS Barometer is the latest full-scale annual survey of risk and confidence among maritime leaders. C-suite global decision-makers from across the industry, nearly 30% of whom are shipowners and 26% are ship managers, have provided insight into key factors influencing their decision-making and the confidence they have in mitigating the impact of ongoing challenges to their business operations.\*

The survey and its responses capture year-on-year data on the following:

- C-suite perception of the key challenges and opportunities impacting the maritime sector today.
- The evolving risk profiles of the industry.
- Changes in confidence when it comes to a business' capacity to respond to or mitigate impact.

The result analyses year-on-year trends while comparing these against the current year's 'snapshot-in-time.' This not only highlights industry priorities and perspectives on factors that will be critical to the short-term success and long-term viability of the sector, but also indicates shifts in perception on these issues from 2021-2022 and 2022-2023.

By consistently tracking industry perception of risk and impact, the ICS Barometer is a valuable tool to assess the responsiveness of the maritime industry to global

and regional challenges, industry preparedness on decarbonisation, and responsiveness to key factors within and external to our industry.

This year's survey took a deep dive into the rising trend of protectionism impacting the supply chain, assessing how the industry perceives new trends of reshoring, offshoring, nearshoring and friendshoring — driven not only by geopolitical forces but also market incentives, availability of infrastructure and skilled labour.

The report is divided into four main sections:

- **Section 1:** Risks factor for shipping from political instability to industry reputation, how the C-suite views the threats and their capabilities around key issues.
- **Section 2:** Decarbonisation, fuels and emissions a deep dive on attitudes to the many concerns on climate that are dominating industry discussion, from fuel choice to funding.
- **Section 3:** Special Focus on Reshoring, offshoring, nearshoring and friendshoring and their impacts on maritime.
- **Section 4:** National Focus on the United Kingdom, which showcased the highest number of respondents this year.

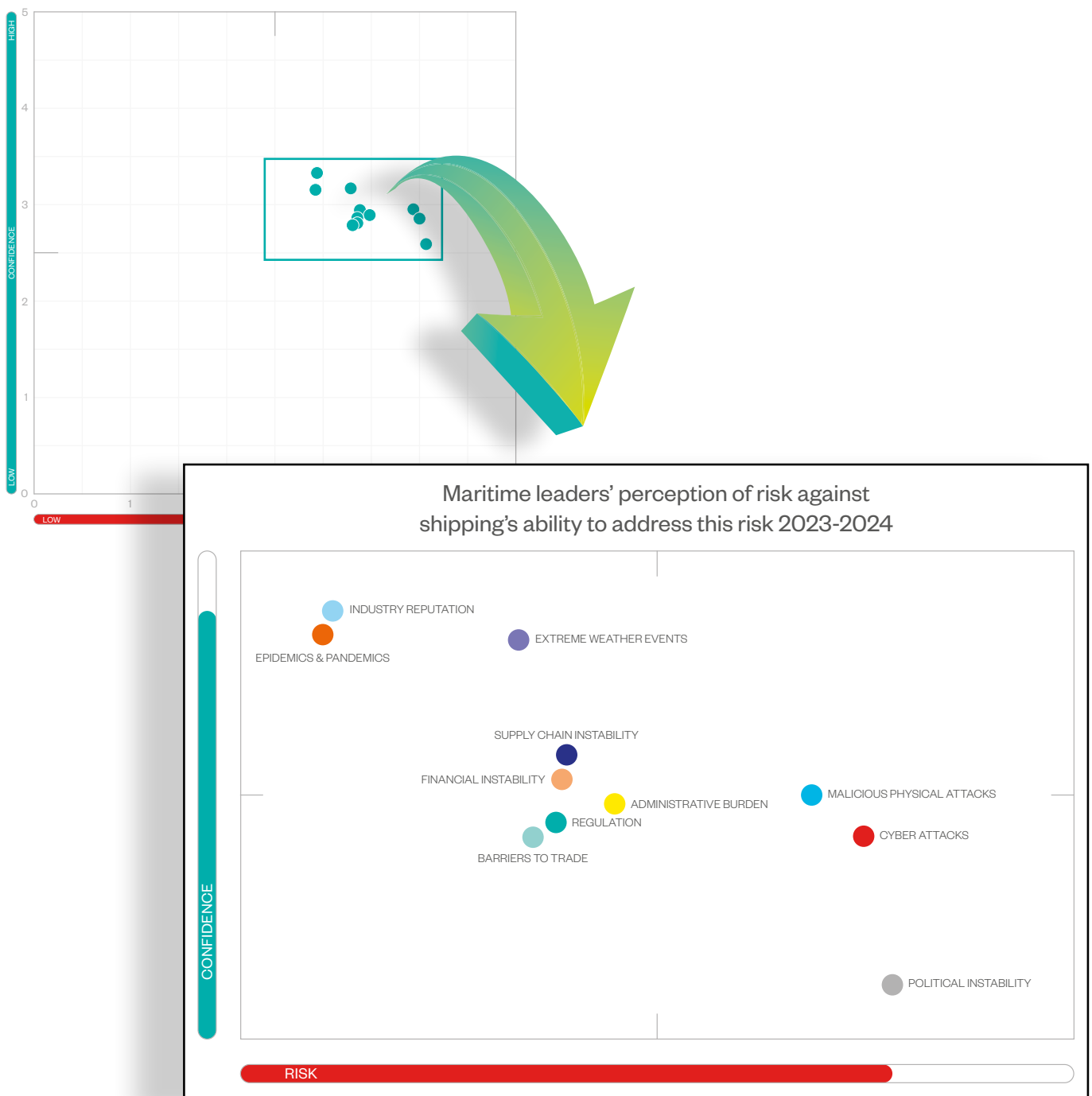
\*See annexe for full methodology and participant breakdown.



### How to read the graphs

Sentiment data from respondents about each of the issues is clustered together, which is why our individual factor focus will be zoomed in to the appropriate section.

For each issue explored in the main body of this report, a standardised grid infographic visualises industry perception of risk/impact and confidence in the current and previous surveys (in some cases there are only two years of data – these are marked with a ②). There is an arrow that indicates the direction in which industry sentiment is moving.



## SECTION 1

# Risk Factors for Shipping

### **2022-2023**

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Political instability  
Financial instability  
Cyber attacks

### **2023-2024**

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Political instability  
Financial instability  
Cyber attacks





### Overview

Over the past year, the maritime industry has proven its ability to maintain trade despite pandemic-related challenges, and maritime leaders' risk concerns have shifted to financial and political instability, reflecting wider societal trends. This section delves into existing risks and leaders' confidence to address these issues.

Political instability is a risk multiplier, threatening economic volatility and reduced growth as long-standing policies, trade arrangements and relationships are eroded. The results can have major consequences for trade and transport.

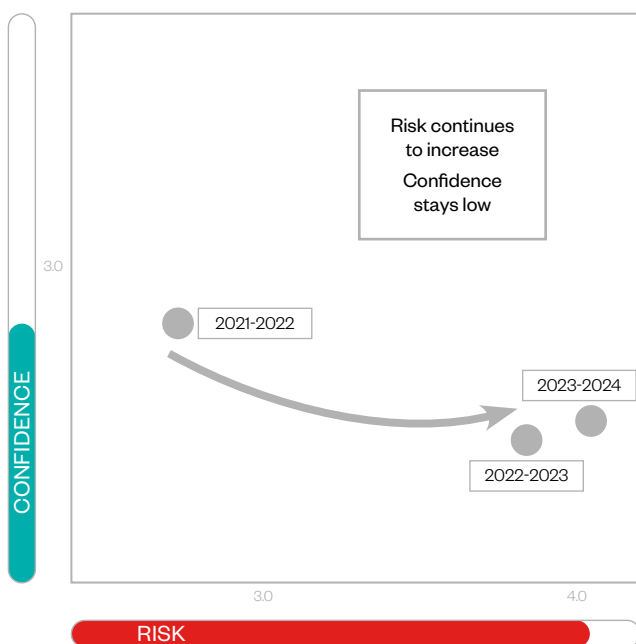
Heightened risk perception and lower confidence around political instability reflected rising unease across many regions. The impact of the conflict in Ukraine on food and energy prices was dramatic and remains a factor despite multilateral efforts to restore trade. Simmering territorial disputes in the South China Sea and ongoing instability in South Asia grew more entrenched, threatening trade in each region.

Political instability affects many aspects of maritime business including trade flows, port access and supply of seafarers. By driving waterborne migration in unsafe vessels or increasing stowaway attempts, humanitarian crises also have a direct impact on maritime safety.

Maritime leaders' perception of risk against shipping's ability to address this risk 2023-2024



## Top risk: Political Instability

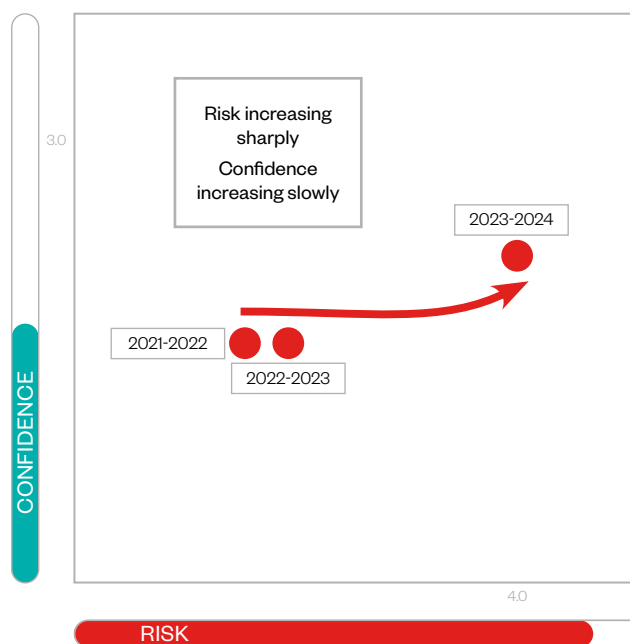


Financial instability is particularly challenging for an industry wrestling with the expensive challenges of decarbonisation, digitalisation and supply chain resilience. Given the long list of financial issues encountered globally – including the cost-of-living crisis, high levels of public debt, potential sovereign defaults, reduced government spending, the impact of the conflict in Ukraine and the aftermath of the pandemic – it is understandable that most respondents saw increased levels of risk this year. Encouragingly, however, confidence in dealing with the consequences of instability remained high.

Given the volume of goods transported by sea, financial trends in shipping are likely to have a major impact on consumers. Although there are numerous factors that affect the price of consumer goods (including supply of said goods, import policies, and more), it would be relevant for shipping to leverage its position as the leading method of global transportation in discussions with national authorities.

Cyber attacks have consistently risen up the risk rankings

## Cyber Attacks



Cyber security is understandably a growing concern for maritime leaders given the increasing dependence on digital infrastructure, which was accelerated during the COVID-19 pandemic. Although not a cyber-attack, the July 2024 disruptions to industries across the globe caused by outages on 8.5 million Microsoft computers as a result of corrupted software from CrowdStrike demonstrate the vulnerabilities inherent to digital operations.

Cyber attacks have consistently risen up the risk rankings for maritime leaders, moving to the second highest risk for 2023-24. This perception is echoed across the industry, with cyber risk being discussed by numerous CEOs at major maritime conferences this year, and Allianz's latest [Risk Barometer](#) citing 'cyber incidents' as the top global risk across all respondents and varying company sizes.

This latest spike in concern is undoubtedly spurred by the rise in attacks being experienced in the industry. The US Coast Guard's (USCG) [2023 Cyber Trends and Maritime Insights in the Marine Environment](#) reports a surge in ransomware incidents by 80% from 2022 to 2023, with the average request for ransom more than three times higher. Types of organisations targeted included maritime shipping companies, as well as LNG processors and distributors, petrochemical companies and maritime logistics and technology service providers.



Meanwhile, [a study](#) published in 2023 by law firm HFW and maritime cyber-security company CyberOwl, also highlighted the rising frequency and cost of ransomware attacks, with the average cost for an organisation ranging between USD 550,000 to USD 182,000 in 2022. It claimed that the frequency of attacks were up by more than 350% compared to 2021.

And these kinds of threats will continue to evolve.

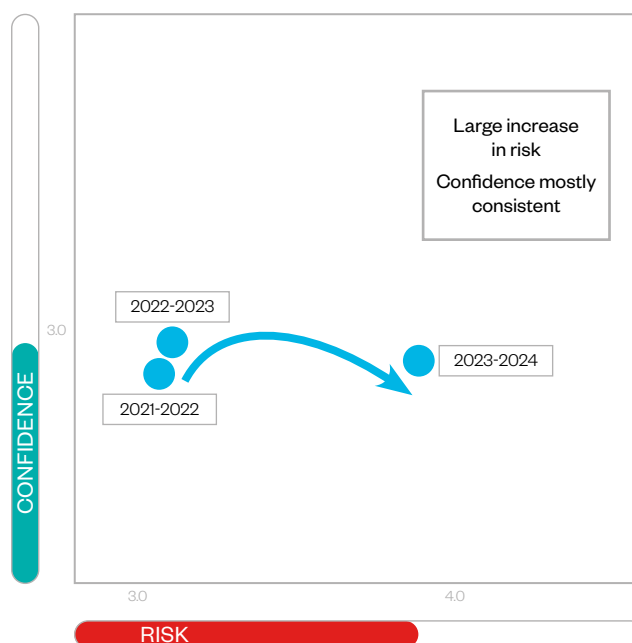
As Allianz points out, technologically driven attacks against shipping, ports and navigation systems are “a distinct possibility”, linking this possibility to politically motivated attacks that could be intended to shut down major infrastructure or businesses to cause wide scale disruption to specific countries or people. Its report refers to an instance of a state-run attack on a major global communications firm Viasat. According to the [UK's National Cyber Security Centre](#) (NCSC), Russia carried out a cyber-attack against Viasat in February 2022, an hour before it launched its invasion of the Ukraine. The [US Department of State](#) noted that that attack disrupted Ukrainian communications networks and energy systems (wind turbines), and had spillover impacts on other European countries. The [USCG Cyber Report](#) indicates a significant rise in “Advanced Persistent Threats” for those operating in the marine environment, noting that Volt Typhoon, a state-sponsored actor associated with the People's Republic of China, is believed to have targeted networks across critical infrastructure in the US, including within the marine environment.

Although there is a clear demand for a framework to navigate this risk, at present the IMO only provides [high-level recommendations and guidance](#) rather than a set of baseline regulations. Many existing national regulations about cyber security focus on data protection, with General Data Protection Regulation (GDPR) still being rolled out on a wider scale.

Most companies have accepted that [cyber attacks are inevitable](#), given the sharply increasing scale of global cyber-crime. [Cybersecurity Ventures 2023 Cybercrime report](#) puts a price tag of USD 9.5 trillion for the global annual cost of cybercrime in 2024, with the cost of damages predicted to reach USD 10.5 trillion by 2025. Unsurprisingly, the biggest threat comes in the form of a [data breach](#), which can have a commercial and reputational impact if handled badly.

Interestingly, the prevalence of cyber-crime may be the reason that companies are less worried about the reputational impact of such an attack and have greater confidence in their ability to manage the impact. While organisations are certainly taking steps to protect their data and inculcate good cyber hygiene, many are [focused on](#) efforts to limit liability, minimise damage, train staff to respond quickly, and reduce downtime.

## Malicious Physical Attacks



The recent geopolitical unrest has diversified the risk impacting vessels and their crews in these regions — as risk has shifted from a concern with being boarded, robbed or held hostage with the risk of the vessel and its crew being attacked with the extreme goal of total loss, intended to disrupt existing supply chains.

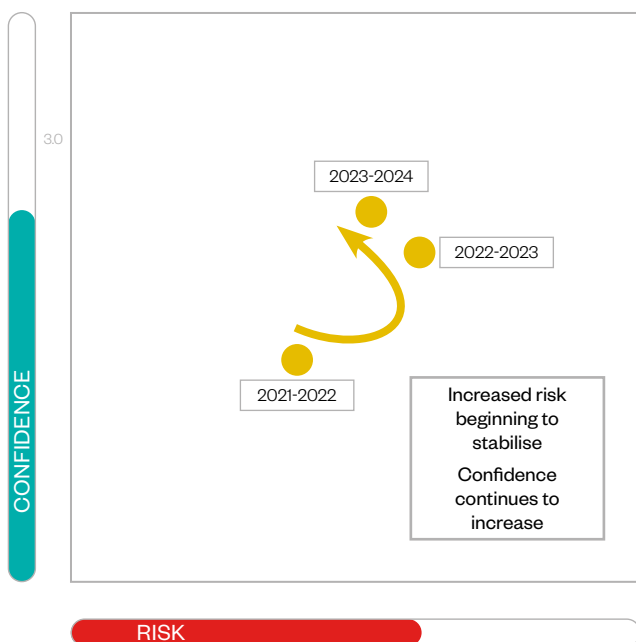
In the six months following the start of the Red Sea crisis in October 2023, commercial ships transiting the region have experienced more than [50 attempted attacks](#) by Houthi Rebels - and, at time of press, some crew members of the MV Galaxy Leader continue to be held hostage. Additionally, figures for maritime piracy and armed robbery against ships increased over the past year, going to 120 incidents in 2023 from 115 in 2022 according to the [IMB annual report](#), which reveals that 105 vessels were boarded, nine experienced attempted attacks, four vessels



were hijacked and two were fired upon. The risk of a malicious physical attack is multiplied in cases of political uncertainty, drawing a clear link between this risk and that at the top of maritime leader's minds.

Shipping faces increased exposure to malicious physical attacks as vessels are rerouted around the Cape of Good Hope to avoid Houthi attacks. If transiting the East Coast of Africa, this leaves them vulnerable to piracy in the region. However, established mitigation measures for these concerns has led to a consistency in respondent confidence. However, the biggest factors to reduce this risk will be enforcement of laws, successful prosecution of pirates and rebels and the creation of alternative forms of lucrative employment - both of which are [well known to be challenging](#).

## Increasing Administrative Burden



Respondents demonstrated a steady increase in confidence year-on-year towards managing the risk of increasing administrative burden. This positive shift can reasonably be attributed to progress on the matter of GHG regulations by the IMO, which has been both slow and steady (see section on risk of Unilateral Regulations) and wider acceptance of digital practices (particularly during the pandemic). In addition to greater use of digital tools by Port State Control, online access to company data for transparency purposes, there is also [growing](#) support for

e-bills of lading. The IMO had been championing use of a [Maritime Single Window \(MSW\)](#) for data exchange for a number of years through its facilitation committee and this became mandatory as of 1 January 2024.

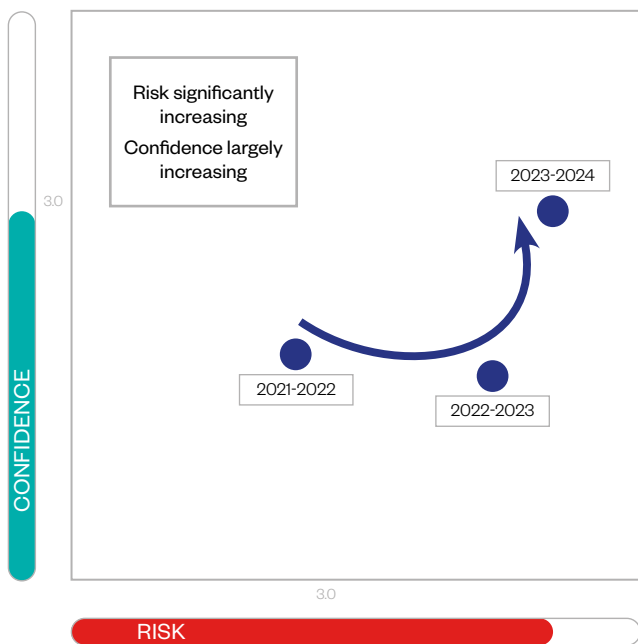
However there are a number of reasons why this is still considered a relatively high risk. There are still challenges to be overcome with digitalisation, with implementation remaining inconsistent in practice and varying wildly based on geographic region. Progress has been hampered by non-recognition of electronic transport documents by either public or private stakeholders in certain regions, a lack of standardisation for data exchange, as well as the lack of a recognised universal legal mechanism to address disputes. Local legislation may or may not support digital documents, or may lack the requisite infrastructure and cyber security to ensure that this information can be stored safely. [Maersk](#) has noted ongoing market hesitance to trust important documentation to an electronic system, highlighting concerns with technical difficulties or power outages.

Speaking at the 2024 UNCTAD Global Supply Chain Forum in Barbados, Andrea Tang, Legal Services Director at the [International Federation of Freight Forwarders Associations \(FIATA\)](#), noted that several of their members found digitalisation of documentation still inconsistent. Some were still being asked for print documentation for Bills of Lading, rather than the electronic Bills of Lading, and at times required stamping or manual filing. This echoes popular industry sentiment that new requirements for digitised documentation are currently an addition to, rather than reduction of, administrative burden that continue to rely on inconsistently formatted and manually-intensive processes that are paper-based.

Similarly, despite the expectation that global ports would implement the MSW from the start of this year, a recent [survey](#) conducted by the International Association of Ports & Harbours (IAPH), BIMCO, the International Federation of Ship Masters Associations (IFSMA) and the Federation of National Associations of Ship Brokers & Agents (FONASBA) revealed that only 40% of the shipping industry is aware of MSWs and only 36% of port calls today allow for a fully electronic data exchange. This inconsistency continues to present hurdles for the adoption of digitalisation — impacting maritime's ability to manage just in time arrival via reduced vessel speed, thereby reducing fuel consumption — while also keeping administrative burden high.



### Supply Chain Instability

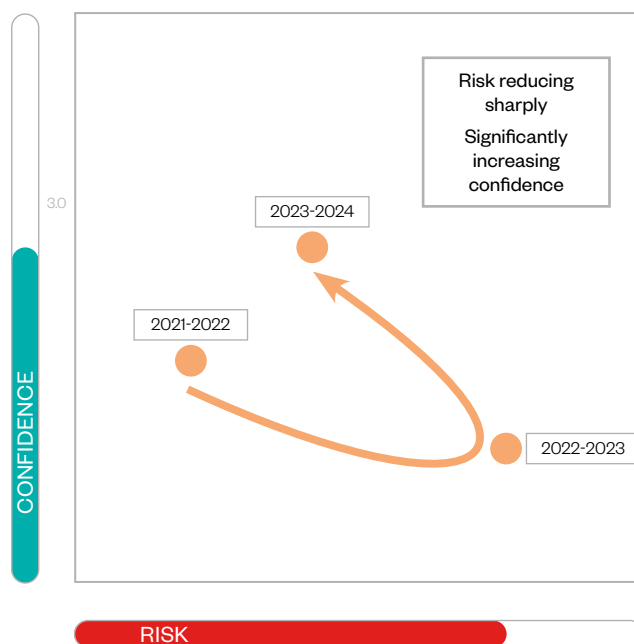


Given the fraught geo-political landscape, recent physical attacks on ships and steadily increasing worries about cyber attacks, it is not surprising that respondents have reported a year-on-year perception that the risk of instability in the supply chain is growing. Past experience in maintaining resilience in the supply chain, not just through the COVID pandemic but also the Black Sea crisis, may justify the huge rebound in confidence demonstrated by maritime leaders - with this element at an all time high.

However, the ICS Barometer believes that this is a risk worth monitoring, particularly given the UN Trade and Development (UNCTAD) organisation recently [issued a rapid assessment](#) warning titled 'Navigating Troubled Waters'. The UN body warns that "Since November 2023, escalating attacks on ships in the Red Sea have been compounding disruptions in the Black Sea caused by the war in Ukraine and in the Panama Canal due to climate-induced droughts...In both the Suez and Panama canals, transits are down by more than 40% compared to their peaks."

While the decline in vessels on the Suez Canal is more of a recent phenomenon, [transits through the Panama Canal](#) have been decreasing over the last two years - with the latter reporting just 676 transits in the month of January 2024, down from the peak of 1321 transits in December 2021. The pressure on the supply chain to keep operating despite simultaneous disruptions in two major global maritime trade waterways requires incredible agility by operators, particularly as unforeseen disruption can happen in a heartbeat, making this a risk worth monitoring.

### Financial Instability



Although the risk of financial instability is yet to return to the lows seen in 2021-2022 it has reduced a fair amount, and respondents have the highest confidence levels seen in three years for this particular factor. This positive shift could be the result of a significant public investment in ports and shipping, which includes more than [USD 653 million invested in US ports](#) to strengthen American supply chains with [a further USD 20 billion](#) invested in port cyber security upgrades, [GBP 33 million by the UK government for green ports and ships](#), calls for proposals to secure some of the [EUR 123.97 million](#) for projects under the Adaptation to Climate Change call as part of the Horizon Europe EU Missions, funding by the [Singapore Maritime Institute](#) and many more.

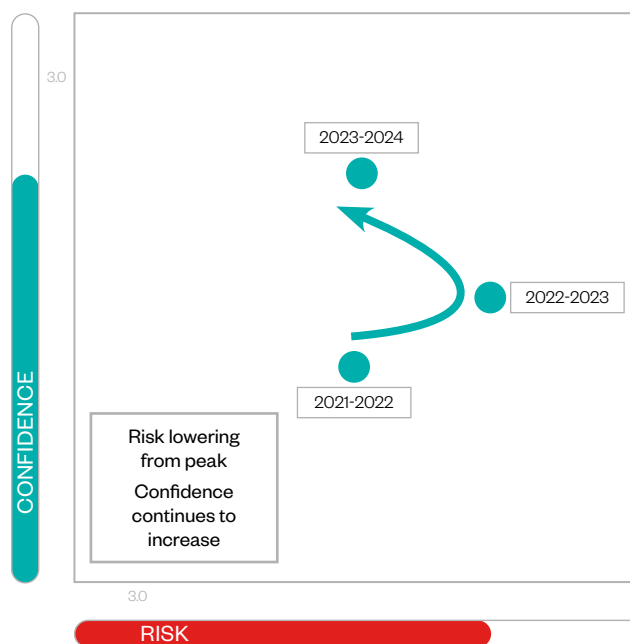


Maritime is also seeing an influx of funding for AI-based projects, not just from governments like [the UK](#), but from a number of [private equity](#) and [venture capital firms](#) over recent years, as well as funds to accelerate digitalisation. However, this funding is often limited to research, start ups and pilot projects, meaning that it is heavily weighted in favour of newcomers and theoretical work. Accordingly, the market may experience difficulties on this front in the long term if the pace of commercial adoption is slow or if focus shifts elsewhere meaning that returns on investment are not as lucrative as anticipated.

It is worth noting that some of the confidence in the financial landscape may be spurred by the increased spending on fossil fuels, which UNCTAD [forecasts will exceed USD 1 trillion in 2023](#), with more than 5.8 trillion USD in bank loans issued to the fossil fuel sector between 2016 and mid-2022 (with Chinese banks lending heavily to companies in the country). This ready access to finance for non-green projects may have reassured respondents of a less hasty transition to expensive low-carbon fuels - although concerns continue about private co-financing of the green transition, as this remains lower than envisaged by UNCTAD. It warns that in the area of fossil-fuel derived petrochemicals, only 20 out of 2000 active bonds were designated “green”.

The IMO, and regional governing bodies (such as the European Commission) recognise the need to act and implement workable regulations for maritime’s long decarbonisation journey

## Risk of Unilateral Regulations



Concerns about the risk of unilateral or regional regulations, as opposed to the introduction of consistent international requirements through the IMO, returned to almost pre-pandemic levels in 2023-2024. Industry leaders also reported higher levels of confidence to manage such risks in the future.

Although some states continue to introduce unilateral regulations – such as India’s [General Directorate of Shipping Order Number 6 of 2023](#) implemented to prevent the entry of older and potentially unsafe vessels into Indian waters – the majority of states recognise the importance of working primarily through international and regional fora, wherever possible, to develop and implement sustainable regulations that apply across jurisdictional boundaries.

In large part, the reduced perception of risk can be attributed to the [removal of pandemic restrictions](#) and fading concerns that they would be reimplemented in the face of another wave of infections. As the immediate impact of the crew change crisis and port closures continues to recede, the regulatory landscape has returned to normal and stakeholders are regaining confidence.



Widespread concerns about the impact of Brexit on trade have also waned. While the level of bureaucracy has increased significantly, the [UK-EU Trade and Cooperation Agreement](#) is largely working. Importantly, governments continue to engage to minimise trade disruption and ensure that future regulations are not completely incompatible.

In addition, in 2022-2023 there was significant concern about the possible impact of incoming decarbonisation regulations, such as CII and [EU ETS](#) (see below) and the introduction of the IMO [Maritime Single Window](#) to facilitate the electronic exchange of information. In such cases, uncertainty about how the regulations would work in practice was seen to have undermined industry confidence. However, 2023-2024 brought more clarity, and confidence levels have increased correspondingly. Implementation of the EU ETS is better understood, market-based measures have not yet come into force, and port states have taken a pragmatic view on compliance with information exchange requirements, easing short-term concerns.

## Barriers to Trade



Despite a difficult operating landscape, with geopolitical and physical challenges to trade, the confidence of the maritime sector to manage any barriers to trade has rebounded to rise above levels

seen in 2021. The optimism displayed by ICS Barometer respondents is reflected in UNCTAD's recently issued [2023 Review of Maritime Transport](#), which has tracked a similar path for maritime trade volumes. These dipped 0.4% in 2022 but are said to be on track for a 2.4% rebound in 2023 and above 2% growth through 2028. This surge in trade is particularly attributed to the oil and gas sectors, where trade surged 6% and 4.6% respectively in 2022 as pandemic restrictions eased - and to a lesser extent for container trade, which was expected to grow 1.2% in 2023 after suffering a 3.7% drop in 2022 (still remaining below pre-pandemic levels).

As a number of countries across the globe go to the polls, geopolitical tensions and growing national sentiment in many countries may explain why maritime leaders continue to see barriers to trade as a steadily increasing risk - albeit one that is slowing in pace. As political parties ramp up their campaigns, there are often promises made to local labour and production groups that can unsettle trade patterns, and with a number of international conflicts ongoing, this factor is seen as a growing risk. The World Trade Organisation's [March 2024 Goods Trade Barometer](#) continues to signal weak upward momentum in trade - with 2023 performing below expected levels. The authors cite concerns that activities could be derailed by regional conflicts and geopolitical tensions, echoing the views of ICS Barometer respondents.

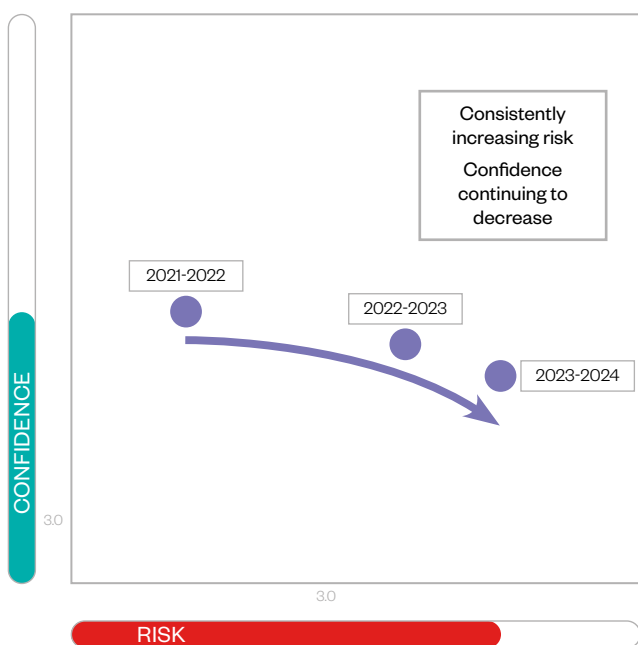
The World Economic Forum has [highlighted](#) the ongoing economic splintering arising from a steep rise in protectionism, the impact of sanctions (particularly following the war in Russia and Ukraine), trade decoupling (following further geopolitical rifts, such as between the US and China), increased trade tariffs and more. Data from the [World Bank](#) shows that regional trade agreements are on the decline while trade restrictions are surging. However, as previous economic ties fragment, trade routes are being redrawn and new alliances cemented — a relatively recent example being the significantly increased trade between [China and Mexico](#) in an effort to circumvent US tariffs on goods imported from China.

Although regional trade agreements have been on the decline overall, this may be changing. For example, the launch of the [African Continental Free Trade Area](#) — currently being ratified by 44 countries — will create the world's largest free trade zone and bring together an economic bloc with a combined GDP of roughly USD



3.4 trillion. On a smaller scale, the 2024 amendments to trade pact agreements between [Indonesia and Japan](#) will reduce barriers to trade and improve market access for certain products, with Indonesian exports expected to surge to USD 35.9 billion by 2028 against the previous estimation of USD 20.8 billion in 2023.

### Extreme Weather Events



The ongoing impact of climate change on maritime activities is extremely visible in the responses to this topic, with confidence decreasing year on year and risk increasing year on year. That said, this remains one of the factors for which respondents continue to have an overall high level of confidence, perhaps due to minimal disruption of the supply chain as a result of demonstrated maritime operational agility.

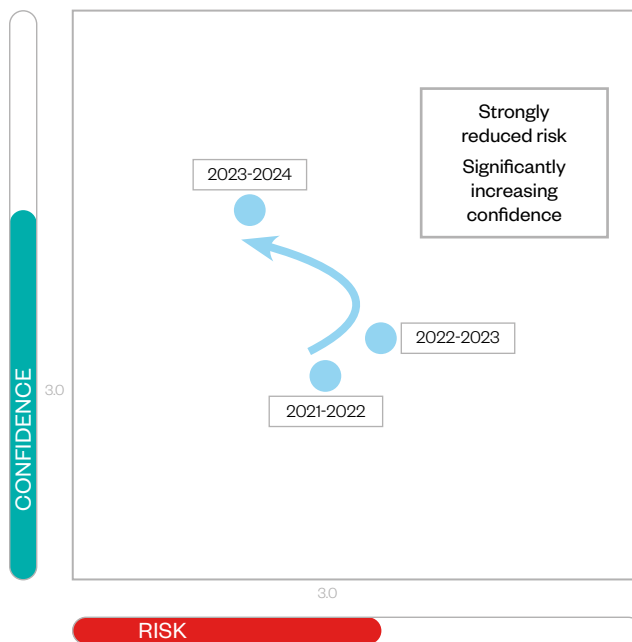
This confidence remains in place despite the fact that [2023 was the warmest year on record](#), with temperatures close to 1.5°C above pre-industrial level and marine heatwaves around the globe, including in parts of the Mediterranean, Gulf of Mexico and the Caribbean, Indian Ocean and North Pacific, and much of the North Atlantic.

The service cited impactful flooding events such as flash floods caused by intense rainfall, to large-scale flooding due to the passage of atmospheric rivers (such as in California in January and March, and over Chile in July), monsoon rainfall, large low-pressure systems and tropical

cyclones. Cyclone Freddy impacted southeast Africa (February, March), Cyclone Mocha south and southeast Asia (May), Hurricane Hilary Mexico and the western USA (August), Storm Daniel the Mediterranean (September), Hurricane Otis Mexico (October), and post-tropical cyclone Jasper Australia, (December), among others. The [severe droughts followed by flooding](#) in the horn of Africa in 2023 and the [evacuation of Panama's Gardj Sugdub island](#) due to rising sea levels are both warnings of greater climate impact in the future.

While production and trade routes did see some fluctuations due to the aforementioned events and geopolitical circumstances, there were no impactful breaks in the supply chain. It remains to be seen if this trend continues, particularly given the [low levels of water in the Panama Canal](#).

### Industry Reputation



Industry reputation is the factor with highest confidence level amongst 2023-2024 respondents who clearly feel that the sector has recovered from the reputational lows of the COVID pandemic, when shipping received greater attention in the international press. Given the fact that trade numbers are on their way up (see section on risk of barriers to trade), confidence in coping with supply chain instability and regulations, as well as the flow of funding into maritime, this confidence seems justified.





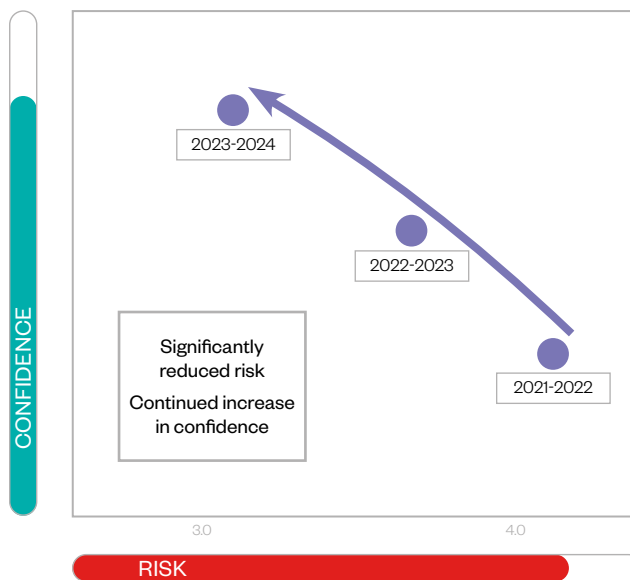
However, this assumption is precarious, as evidenced by the growing trend of “green hushing”, where companies are limiting information about their ESG and sustainability activities to avoid accusations of greenwashing, which bears reputational harm. According to consultancy South Pole’s [Net Zero Report 2023/2024](#), the majority of 1,400 companies with dedicated sustainability leads that were surveyed in nine of the 14 major sectors are intentionally decreasing their climate communications. This is attributed in the report to a loss of confidence in their abilities to meet their goals and comply with complex regulations, which would draw attention to any failure to toe the line of their public narratives.

Maritime is often in the [firing lines](#) for its [reputation](#) as a [major source](#) of pollution, but many of the conversations about various efforts to green shipping activities are restricted to inter-industry events and the trade press. Although industry bodies and maritime companies have scaled up engagement with the mainstream media about industry activities over the past few years, there is still work to be done to cement maritime’s reputation as a progressive industry.

That said, activities around high-profile projects like [Clean Energy Marine Hubs](#), the social impact of the [Maritime Just Transition](#) movement, initiatives to [boost the visibility of women in maritime](#) and improve diversity and inclusion in the workplace are gathering more traction and hold the potential to continue the upward trajectory for confidence in managing this risk factor.

Most economies have largely bounced back and are either trading at similar volumes as pre-pandemic, or have rebounded

## Epidemics and Pandemics



As the impact of COVID-19 continues to fade across the supply chain (despite ongoing strain variation), the threat of MonkeyPox-based disruptions has not manifested and the threats of [Middle East respiratory syndrome \(MERS\)](#) and the newest strain of Influenza are yet to pose a global threat, epidemics and pandemics are seen as the lowest risk factor by maritime leaders – and has been decreasing year on year.

Many of [the systems put into place](#) during the COVID-19 pandemic – such as increased digitalisation, cross-national cooperation agreements, prioritisation of essential operations, etc – are likely to provide ongoing resilience in the global north for future illnesses that follow similar trajectories. In fact, [past experience with viruses](#) such as SARS, Ebola and Avian Flu could have contributed to lessons learned and assisted in minimising the impact of the COVID pandemic on business operations.

While some challenges were not resolved fully, such as the long-term financial recovery of fully privatised ports - most economies have largely bounced back and are either trading at similar volumes as pre-pandemic, or have rebounded (as is the case with China, despite the delay in lifting COVID-19 restrictions). This is not the case for SIDS and LDCs, which have a longer build-back timeline and are more vulnerable to even small gaps in the supply chain.

As such, this risk is not expected to move far from the lowest point on the index unless an unforeseen pandemic occurs.



## SECTION 2

# Decarbonisation, Fuels and Emissions

### 2022-2023

Regulations  
Investor requirements  
Market-based measures

### 2023-2024

Regulations  
Investor requirements  
Market-based measures



## Overview

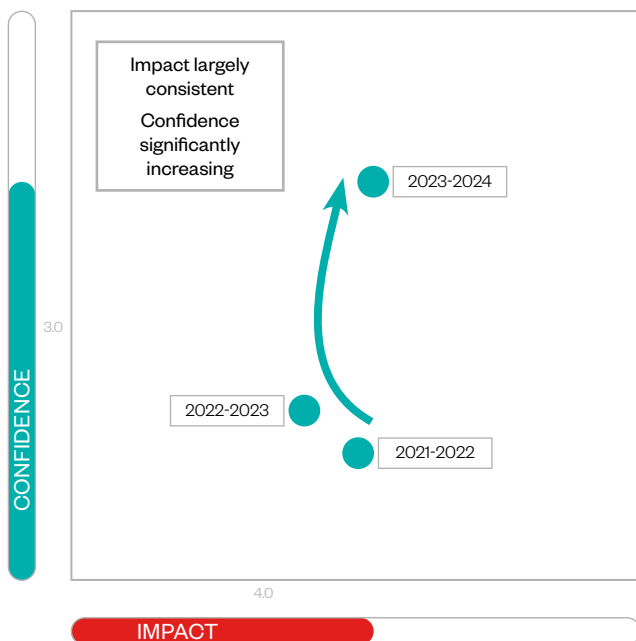
C-suite respondents to the ICS Barometer have continued to find that regulations have the most significant impact on their business operations. However, this year demonstrates that a key concern for industry respondents is the availability of crew and trained personnel — an issue predicted by the [2021 ICS/ BIMCO Seafarer Workforce Report](#). In their 2023 Crewing [Annual Review and Forecast](#), Drewry warned that seafarer shortages were at a 17-year high, noting that the shortfall for skilled officers has continued to widen dramatically over the year. This shortfall has led to greater expansion into labour markets outside of traditional seafarer recruitment hubs, alongside an increased focus on competitive recruitment and retention. Competitive maritime businesses have focused on strengthening company culture, providing strong leadership, and indicating company values such as [diversity, equality and inclusion](#) (DEI).

The possible introduction of market-based measures and availability of public funding factor fairly high in impact to business, with C-suite respondents showing significantly low confidence in the availability of public funding for decarbonisation. Although a number of countries have announced grants and awards to support maritime’s transition to lower emissions, experts warn that this still remains only [a fraction](#) of the [overall costs](#) required to make this transition commercially successful. This has been attributed variously to a lack of available data on key impact factors, a continued need for stronger regulation and clear guidelines, as well as a lack of consensus or clarity regarding the fuels involved, their availability and costs.

Global industry leader’s perception of key green transition issues and their impact on business operations 2023-2024



## Top Impact Factor: Regulation



Maritime is an industry that is extremely regulation driven, whether imposed on a global level by the IMO, on a regional level by entities such as the European Union, or by individual countries themselves - with states such as California in the US determining behaviour in territorial waters. It is thus understandable that for the third year in a row, respondents have continued to see regulations as the leading factor impacting their business operations relating to decarbonisation, fuels and emissions. Although respondents in previous years felt significantly less confidence in their ability to meet regulatory compliance and/or mitigate its impact on their business, this year shows a stratospheric rise in confidence even as perception of impact remains unchanged.

Improved understanding among maritime stakeholders of the scope of the work involved in decarbonisation, alongside actions taken by the IMO and other regional regulatory bodies (such as the EU), has been key in mitigating concerns and improving confidence among shipping's C-suite. A number of changes over the past year have removed obstacles, with Member States [adopting the revised IMO GHG strategy](#) in mid-2023 and [agreeing on a draft outline illustration of a possible IMO net-zero framework](#) in March 2024. The urgency felt in the past seems to have faded with [widespread belief](#) that many Member States [will fail to meet the 2030 GHG emission target](#) (although IMO Secretary General Arsenio Dominguez [disagrees](#)

with this assumption), and expectations that the real crunch will be felt [around the 2040 mark](#). Despite this, the industry's commitment to progress can be felt in continued demand for greater clarity and transparency when it comes to upcoming phases of this process.

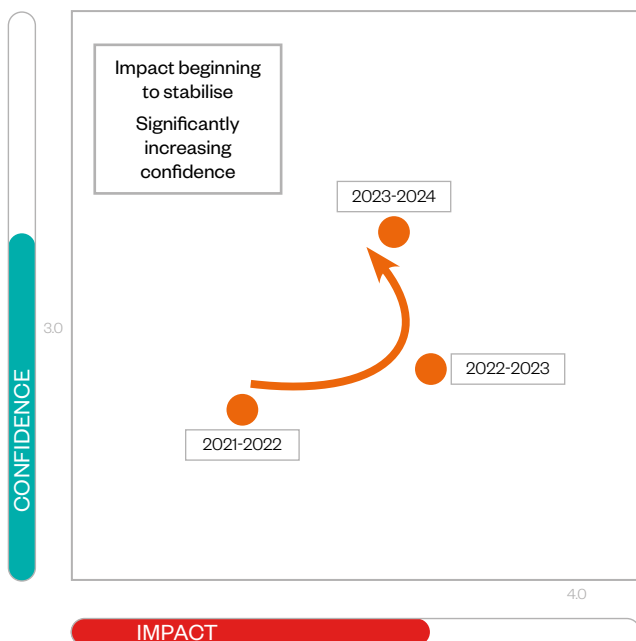
Concerns remain about the IMO's CII (Carbon Intensity Indicator) regulation with [industry-wide calls for a rapid review](#), most operators have already used data from previous years to assess the grade that vessels in their fleet are likely to obtain. While many voyage charter party contracts now include a CII clause, the efficacy of this remains to be seen over the coming years. Furthermore, discussions about a possible carbon tax are yet to reach fruition, providing a longer lead time for development of new fuels and for operators to prepare.

There are still challenges to be navigated including the [EU Fit for 55](#) which has created a legal obligation to reduce EU emissions by at least 55% by 2030 (as compared to 1990 levels) and will introduce the FuelEU Maritime Regulation as of 1 January 2025 that [may be complex to implement](#). However, steady progress is being made on access to the low carbon fuels necessary to comply with these regulations, which may make this feel like an achievable goal. In fact, some shipping companies have already begun working to exceed IMO requirements with ambitious long-term net zero emission plans for their fleets.

However, it is worth noting that competition from other sectors for the same fuel is likely to intensify in coming years leading to significant price increases. Impact perception may also rise in the future if carbon taxes are introduced that are higher than market appetite. Additionally, green fuels are likely to carry a hefty price tag. [IRENA's World energy transitions outlook](#) warns that achieving the Paris Climate Accord's limit to global temperature rises to within 1.5° of pre-industrial levels will require investments of USD 5.7 trillion per year until 2030, with an estimated USD 0.7 trillion in annual investments in fossil fuels needed for energy transition technologies



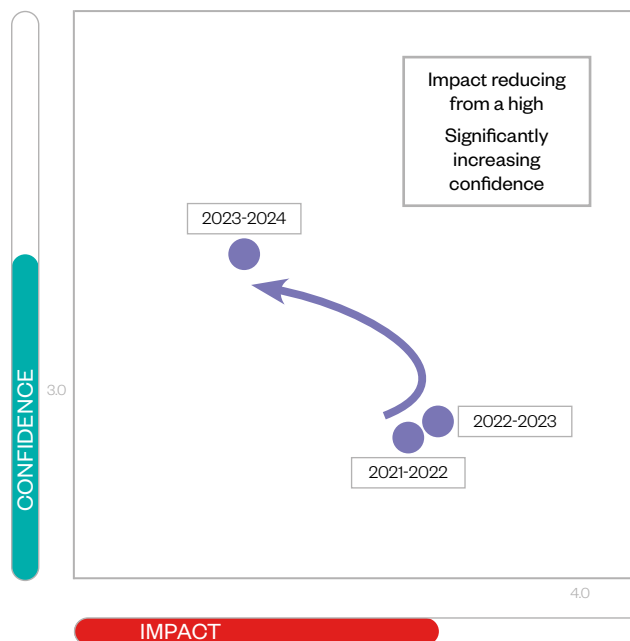
## Market-based Measures



The International Maritime Organization (IMO) has yet to institute formal market-based measures (MBMs), and is currently in the process of assessing the [proposals](#) that have been submitted for consideration. Among these proposals, a range of actors, including [ICS - with the support of the Bahamas and Liberia](#) – and [Maersk](#), are openly calling for a fuel surcharge to be imposed on fossil fuel use. Taking a different approach in their proposal to the IMO, Japan has proposed a leveraged incentive scheme (LIS) where GHG fund contributions are collected on marine bunkering and part of this contribution is then refunded to ships meeting or exceeding agreed efficiency benchmarks.

Improved communication and transparency by the IMO and government bodies has clarified the need for MBMs among maritime stakeholders — addressing concerns felt by C-suite respondents in 2021-2022 and 2022-2023 about potential impact on their business operations. Improved understanding of the timeline to agreement and implementation, and the use of MBMs in ensuring commercial viability during shipping's journey to net zero, has led to significantly increased confidence in the market, as demonstrated by respondents to the latest ICS Barometer survey.

## Investor Requirements



Respondents in the latest ICS Barometer indicated significant confidence in their ability to mitigate the impact of investor requirements, and saw these as having far less impact on their business operations. This improved confidence can be attributed to an improved understanding of impact factors determining risk — such as emissions regulations, availability of technologies, availability of infrastructure and more — and its impact on business operations, reducing the fear of the unknown. Increased clarity within the industry, as well as greater outreach to the mainstream media regarding operations and the scope of decarbonisation, is also likely to have added to the knowledge public and private funding bodies require to address the needs of maritime's unique ecosystem.

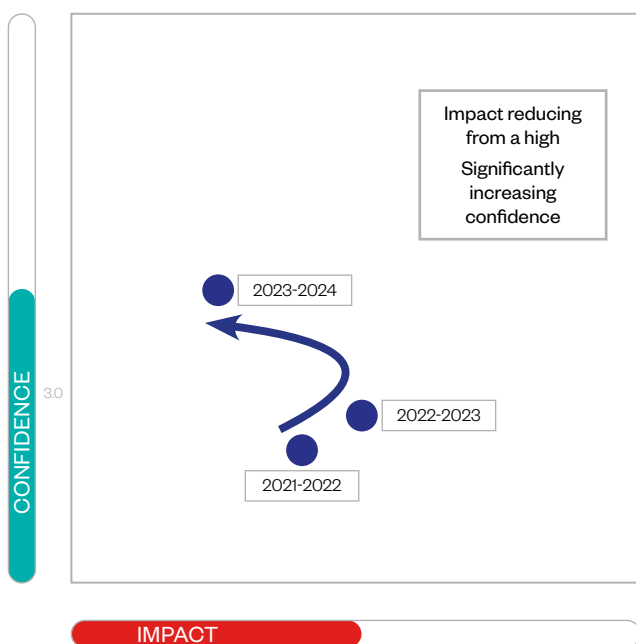
Additionally, the increase in confidence could also be attributed to reduced market pressure when it comes to greening operations, as a majority of financial investment for shipping remains unconcerned with green credentials for the moment. Green bonds have yet to be proven viable as a funding mechanism, and continued uncertainty about fuels and decarbonisation strategies continues to impact investor confidence. As a consequence, investment for the maritime industry continues to remain largely conservative and currently favours more traditional fuels and technologies with proven results.



Increased confidence in mitigating impact can also be attributed to an increased industry focus on formalising [ESG guidelines](#) (Environmental, Social, Governance) and offering frameworks like the [Poseidon Principles](#) – although it is worth noting that a number of players do not subscribe to these initiatives. This push back hinges on a view of these frameworks being too restrictive and shrinking the market. In fact, some financiers [may even be](#) targeting operators that do not meet ESG or Poseidon Principals criteria for new business as these asset owners could be willing to accept less competitive terms.

While confidence is likely to remain impacted by disparities in regional regulation — for example, with regional ESG-based initiatives like the EU Green Deal and the Corporate Sustainability Reporting Directive (CSRD) — respondents appeared largely assured of their ability to address increased standards of emissions reporting, sustainability disclosures, and adherence to green policies. However, the fragmentation of regional regulation on emissions reporting and the need for an international standard to drive compliance continues to impact the industry.

### Consumer Pressure



Over the past few years, some consumers have demonstrated a growing preference for products that are identified as ethical or sustainable. This trend led consumer centric companies such as Flying Tiger Copenhagen, IKEA, Amazon, Lego, Walmart and others

to partner with organisations that would help them to achieve related aims such as ethical sourcing, lowering carbon emissions, fair pay and more. This created [demand for greener vessels and operating practices](#), which can offer a competitive advantage - albeit at a price premium.

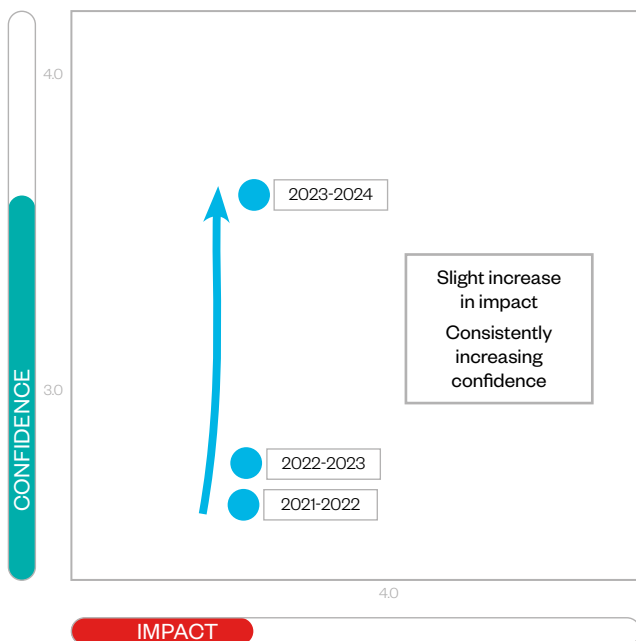
However, the ongoing global economic downturn and its impact, felt particularly in the Global South, may be responsible for a greater focus on pricing of goods by consumers who are no longer willing or able to pay a financial premium for sustainable goods. This has combined with push back on fuel cost from charterers that are seeking to avoid paying for low carbon fuels beyond what is required to meet regulatory requirements.

It is worth noting that maritime is already crafting a greener image, with progress towards [revised IMO GHG emission](#) targets, and a greater focus on ESG regulations and compliance, which is boosting shipping's reputation and overall public perception. With the [EU Emissions Trading System](#) (EU ETS) coming into place, and [FuelEU Maritime](#) regulations to be implemented by 2030, shipping's prerogative to provide cleaner and green logistics for the transport of goods to consumers has strengthened.

Adoption of alternative fuels such as hydrogen, and ammonia as well as renewable energy sources such as wind power, and shore power have benefited marine ecosystems and local communities - leading maritime leaders to worry less about consumer pressure. With new technologies to improve fuel efficiency, as well as investment in workforce learning and development, and greater focus on seafarer wellbeing and safety, in progress maritime leaders are demonstrating greater confidence in their ability to address consumer pressure.



## Stranded Assets



As reflected in the findings above, shipowners continue to recognise the risk of stranded assets as both the global fleet and non-maritime industrial sectors move towards decarbonisation. Understanding the risk remains critical to mitigating potential financial losses but market uncertainty around future fuels continues to impact commercial decisions.

Notwithstanding the sustained level of perceived impact, according to the responses received, confidence in the ability to manage it is significantly higher in 2023-2024 than the previous two years. The sharp increase in confidence perhaps reflects both the shipowners' efforts to mitigate financial impacts and their ability to keep pace with the emerging decarbonisation narrative.

Some shipowners are diversifying newbuild investments across different future fuel types and technologies, while others are retrofitting existing vessels to operate on dual fuels to meet GHG emissions targets. Yet more have adopted a "wait and see approach" to investment while introducing operational changes to reduce emissions, such as steaming at lower speeds. It should also be noted that this reluctance to invest, in tandem with inflationary pressures and, for crude tankers, the growth of the "shadow fleet", is combining to push up the price of [second hand vessels](#).

And of course, as noted in a recent [report](#), the transition to a low-carbon future not only impacts on the fuel used by a vessel, it will also lead to a decline in transporting fossil fuels as consumption falls. While some vessels, such as LPG tankers and bulk carriers (coal) may be able to pivot to carrying alternative fuels, other types, in particular highly specialised LNG carriers, will pose a considerable challenge. With the LNG orderbook already at around 55% of the fleet, as per [May 2024](#), the potential impact on shipowners is self-evident and investments will be driven primarily by a company's risk appetite.

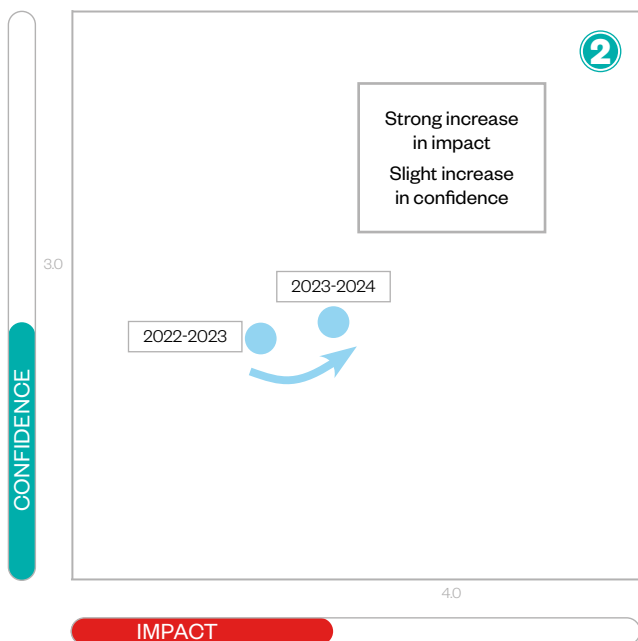
Although shipowners cannot control macro-trends, they will likely continue to address risk by balancing engagement in the regulatory process with investment in new fuels and technologies to comply with current and emerging environmental regulations.

Of fundamental importance to maintaining industry confidence is open and early dialogue. Implementing the measures and solutions required to decarbonise shipping is still in its relative infancy. As end users and carriers, it is imperative that the industry continues to play an intrinsic part in the debate. This will ensure it remains informed of the emerging regulatory landscape and, crucially, allow it to inject practical considerations into the regulatory mix.

Shipowners continue to recognise the risk of stranded assets as both the global fleet and non-maritime industrial sectors move towards decarbonisation



### Availability of Crew and Personnel



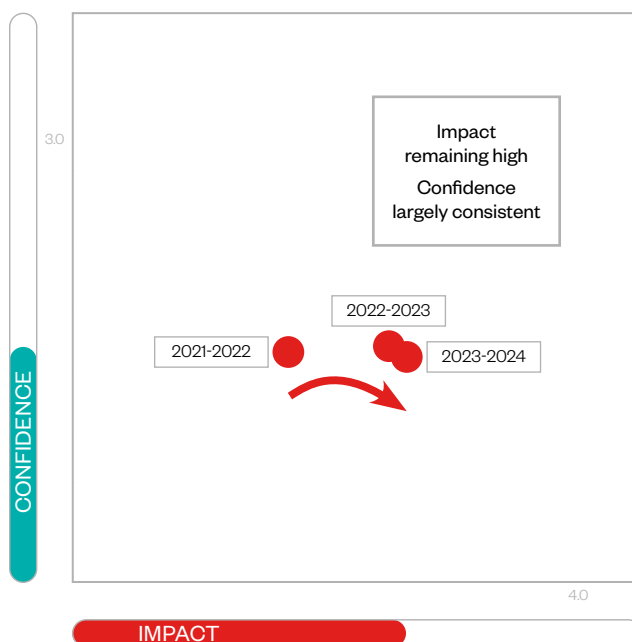
With the maritime decarbonisation landscape rapidly evolving, change is accelerating at a pace that outstrips existing training of new and existing sea-going and shore-based personnel, with demand for skilled employees on the rise. This may explain why this risk has seen year-on-year growth as an impact factor for maritime leaders who are grappling with the planned use of new low-carbon marine fuels such as hydrogen and ammonia, new vessel designs, technologies, and industry digitalisation.

The [revisions](#) to the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW), and reports such as [Tripartite Advisory Panel \(TAP\) for Future-Ready Maritime Workforce](#), and [DNV’s Insights into seafarer training and skills needed to support a decarbonised shipping industry](#) are likely to provide greater clarity on training requirements going forward, which may account for the steady increase in confidence. Furthermore, digital learning methods have seen greater acceptance over the past few years and hold the potential to play a crucial role in equipping crew and personnel with the necessary knowledge and skills for new and emerging challenges in a short period. The prevalence of high-bandwidth connectivity at sea has also [increased onboard training](#), which could deliver upskilled workers that meet safety and insurance standards to sufficiently mitigate risk.

As the industry progresses towards incorporating these new fuels and technologies into regular operations, it will need to address the gap between theory and practice, as critics of online training only warn that crew may lack practical knowledge which could pose a risk in real-world conditions. Ensuring similar levels of quality in training across different providers and geographic locations will also be a challenge – one that is vulnerable to geopolitical and safety factors.

This risk may see a higher impact score or lower confidence in the future if maritime is forced to compete with land-based decarbonisation efforts for skilled staff. For maritime to attract the best and brightest minds to help decarbonise the sector, it will need to remain a competitive and attractive industry, with more evolved recruitment processes.

### Public Funding



Compared to last year, respondents expressed marginally less confidence in public funding in 2023-2024 as wars, geopolitical tension and economic uncertainties continue to pressure the public purse. To compound matters, around 50% of the world’s population will be voting in 2024 creating further political instability and a funding vacuum as decisions are delayed. In addition, shipping and ports face stiff competition for limited funds from other heavy





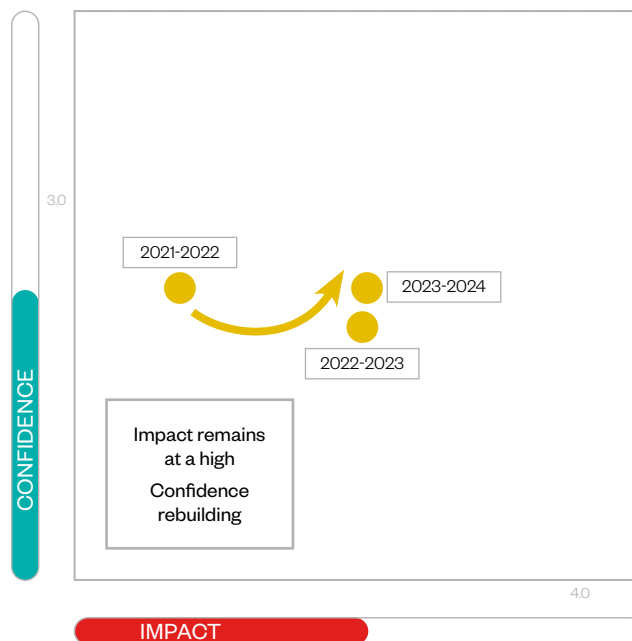
industries seeking to implement their own ambitious decarbonisation plans, including aviation and other 'hard to abate' industries such as [steel and cement](#).

At the same time, concerns about the limited public funding and its impact on decarbonisation's progress continue to increase. As mentioned earlier in this report, money is being made available by governments and institutions, but perhaps not at the scale required to bolster confidence. For example, India's recently announced scheme to support the use of [green hydrogen](#) in the shipping sector (supporting retrofitting existing vessels as well as the development of bunkering and refuelling facilities in ports for green hydrogen-based fuels) has a budget of 115 crores INR (approximately USD 13.8 million). The project aims to ensure a minimum of two retrofitted ships by 2027 and the creation of green ammonia bunkers and refuelling facilities at a minimum of one port by 2025 — aims that are extremely ambitious with a conservative budget of this nature.

In January 2024, the UK Government awarded funds through the Clean Maritime Demonstration Competition (CMDC) to [33 projects](#) around the UK. Aimed at developing clean maritime technologies, the latest round of funding brought the total awarded to GBP 128 million. The GBP 33 million awarded in round four of funding was drawn from a wider [GBP 206 million UK Shipping Office for Reducing Emissions \(UK SHORE\) programme](#), announced in March 2022. Such figures will not go far considering the cost of decarbonising the UK's domestic maritime industry alone is estimated at [GBP 75 billion over three decades](#).

Similar levels of funding have come from industry-government match funding projects. For example, in April 2024, CMA CGM and public sector investment bank Bpifrance [announced a EUR 200 million fund](#) to accelerate the energy transition in the French maritime industry. However, it will be necessary for such funding projects to go into the billions to effect meaningful change at the pace required. For example, while not focused solely on maritime, the European Commissions' Innovation Fund announced two calls to industry and clean tech players in Europe in November 2023 totalling a combined EUR 4.8 billion. The goal is to accelerate innovations in decarbonisation, clean tech manufacturing, and maritime and energy-intensive industries. Grants are expected to be signed off in the first quarter of 2025.

## Private Funding



Interestingly, confidence in private sector funding increased significantly in 2023-2024 compared to views expressed in 2022-2023 - in direct contrast to the public funding results which saw a slight decrease in confidence. As can be seen, respondent confidence returned to the level first reported in 2021-2022. This increase in confidence could potentially be attributed to major private players entering the decarbonisation funding space, one example of which is '[Decarbonization Partners](#),' a collaboration between BlackRock and Singaporean state investment firm Temasek which has already raised USD 1.4 billion for its first fund in 2024. While this fund is not maritime-specific, it does indicate a shift in perception among private investors about the potential value of investing in decarbonisation.

Perhaps reflecting the widespread uncertainty about the potential outcomes of the 2024 elections and the [consequent impact on funding priorities](#), the perceived level of impact on business operations increased again between 2023 and 2024, echoing the views expressed about public funding. While the rate of increase was significantly lower than that seen between 2021-2022 and 2022-2023, it could accelerate quickly if the long-term outlook is disrupted by the forthcoming election results.



Public and private funding remain inextricably linked. Citing the UK’s CMDC again, as an example, the first three rounds allocated over [GBP 95 million to 105 projects and leveraged over GBP 45 million in private investment](#) - reflecting the importance of sharing the risk. While these amounts may not seem significant when considered against the often high costs of research and development associated with decarbonisation, government funding continues to remain critical to reassuring and stimulating private investors to engage in such projects.

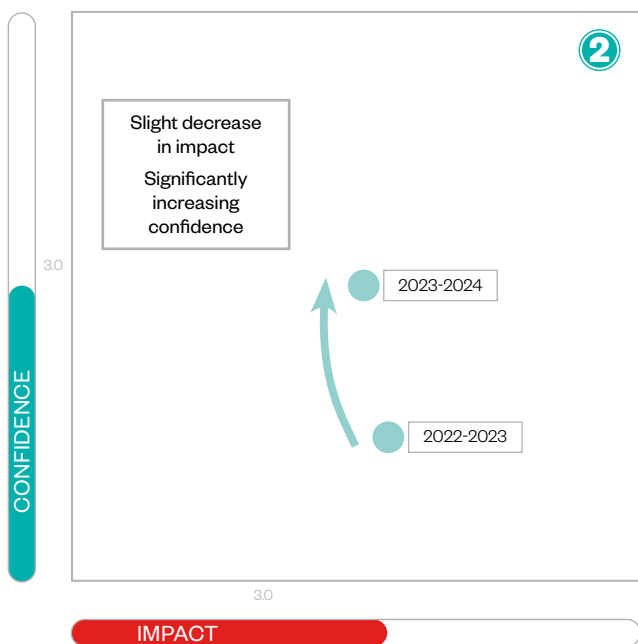
However, as noted in a [report](#) published by the [First Movers Coalition](#) (FMC), significant barriers to private investment remain. Barriers include but are not limited to customer and consumer demand, economic and finance (lack of credible third-party estimates and suitable financing instruments) and regulatory issues (for example carbon pricing and lack of standardised emissions reporting). Such barriers must be overcome to ensure the supply of zero-emission fuels can be scaled to support the shipping industry’s decarbonisation journey.

announcement that Lloyd’s Register (LR) would be creating a framework to equip seafarers with the skills they require to operate vessels running on zero or near zero fuels and technologies, overseen by the IMO and the Maritime Just Transition Task Force Secretariat. This project follows a 2021 [research report](#) by DNV that indicated that approximately 800,000 seafarers were likely to require upskilling by the mid-2030s to align with maritime’s decarbonisation goals. The project will be funded by the IMO and Lloyd’s Register Foundation (LRF) and will be trialled in Asia initially before being expanded globally.

Increased confidence among survey respondents could also be attributed to industry training providers beginning to roll out seafarer training on methanol, ammonia, hydrogen and other future fuels, as well as updated training regarding emissions reporting associated with bridging fuels such as LNG and biofuels. Classification societies have also started to publish guidance on vessels using [low carbon](#) fuels, clarifying requirements for safe operations.

Considerations on funding for infrastructure, training and other requirements for a decarbonised shipping industry in countries in the Global South need to be considered, and could, in part, be addressed in market-based measures. Knowledge exchange will also be key.

### Just Transition



[Due to] High costs of research and development associated with decarbonisation, government funding continues to remain critical

Respondents to the latest ICS Barometer showed a significant increase in confidence to manage the impact of a maritime Just Transition on their business operations. This could be down to the 2023



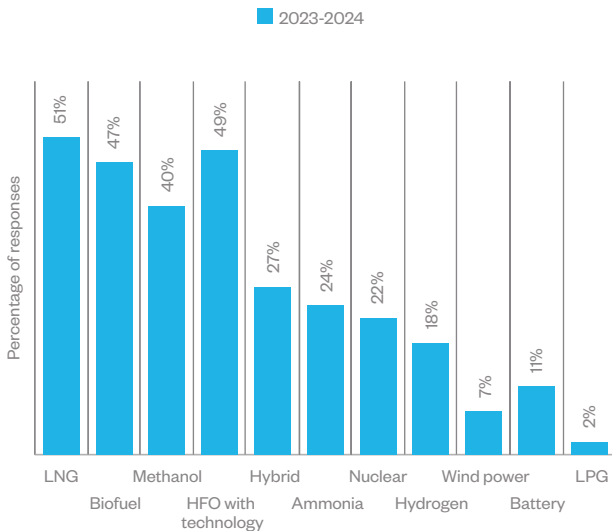
SECTION 3

# Fuels and Technologies



## Fuels and Technologies

Perception by shipowners and ship operators of the fuels and technologies that will be the most viable in the next decade

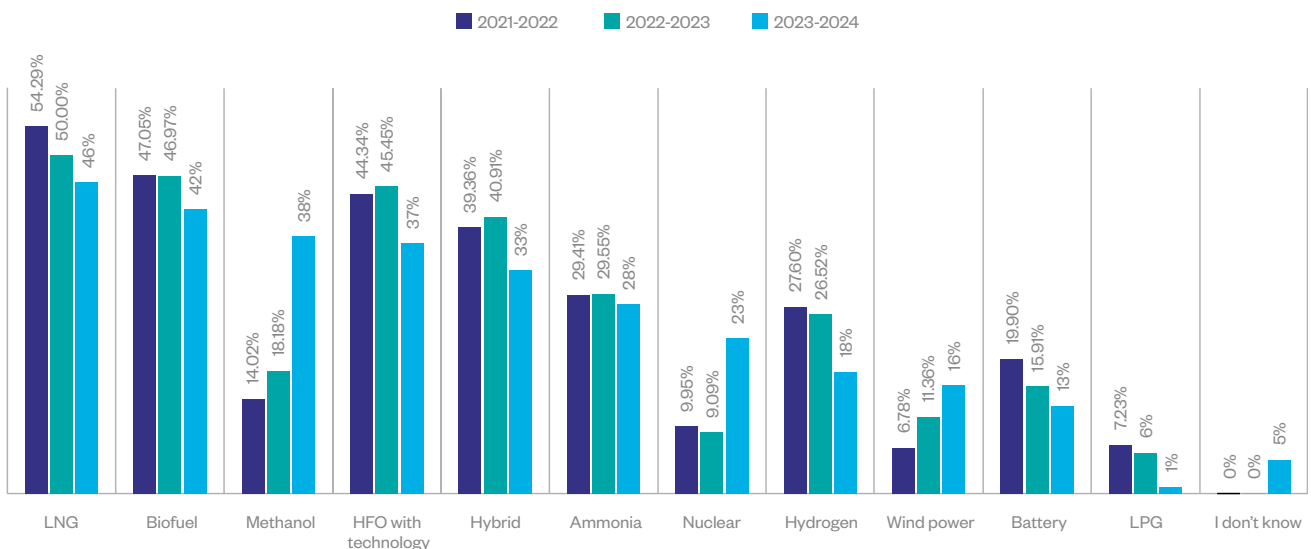


Fuel remains an integral part of shipping’s decarbonisation equation and while the broad expectation is for a multi-fuel future, the industry perception of individual technologies has changed significantly over the past two years. The continued strength of LNG, biofuel, and HFO with abatement technology in leaders’ forecasts for the next decade demonstrate the power of the familiar in an uncertain time for the shipping industry, although each is seen as less viable than it was in 2022-23.

Investments in alternative fuels require significant capital expenditure on ships and even larger investments on land, both in fuel production and infrastructure for distribution; each of the familiar fuels limit investment risk in some capacity. Writing in their [Review of Maritime Transport 2023](#), UNCTAD stated that decarbonising the world’s fleet by 2050 could require an estimated USD 8 billion to USD 28 billion annually. The infrastructure for 100% carbon-neutral fuels could need an even heftier USD 28 billion to USD 90 billion each year. With elections in 64 countries plus European Union elections this year, the tension between the need to decarbonise and the effect of rapid industrial change on [workers and voters](#) is a [challenge to investors](#) in large scale green fuel projects looking for clear demand signals from politicians and the public alike.

For shipping, the continued popularity of LNG, biofuel and HFO with abatement technology show their position as lower-risk options over the 10-year timescale, albeit on a downward trend. Despite its reputation as a transition fuel, LNG remains the most well-perceived option among respondents but its standing would likely drop in a longer term forecast. With an established supply chain, sufficient production volumes for demand, and robust regulations for its use in shipping, LNG’s maturity appears to offset in the eyes of shipping leaders the 20% ceiling on its well-to-wake emissions reductions. LNG remains the most prevalent alternative fuel in the orderbook, although overtaken by methanol for orders placed in the last 12 months.

Global maritime leaders’ perception of the fuels and technologies that will be the most viable in the next decade



That growing representation in the orderbook is reflected by a more than doubling in strength for methanol among ICS Barometer respondents, one of only three solutions to grow in popularity. High profile projects like the joint venture between methanol producer [Proman and Stena Bulk](#) have proven the viability of methanol as a marine fuel, along with extensive commitments from major container vessels operators, including ONE that [confirmed an order](#) for twelve methanol dual-fuel 13,000 TEU containerships at the start of 2024. Supply risks for methanol are limited by the availability of grey methanol and on-the-market dual-fuel methanol marine engines.

Unlike methanol, ammonia engines remain in development and there are widespread concerns around handling and bunkering the toxic chemical, as well as the implications of leaks and spills. The latest survey results show a relatively small drop in perception of its viability, but the failure of the headline-grabbing fuel to gain ground as other fuels slipped is notable. [DNV figures](#) put ammonia at 0.36% of the orderbook, compared to 4.66% for methanol and 8.74% for LNG.

However, this could potentially see a shift in perception in late 2026 or early 2027 as Japanese companies Nippon Yusen Kaisha (NYK), engine makers Japan Engine Corporation and IHI Power Systems, Nihon Shipyard and ClassNK aim to deliver a prototype 44,000 cu m ship with a dual-fuel two-stroke [ammonia-fuelled engine](#) that claims to have overcome the significant challenges posed by ammonia's stable combustion in engines, nitrous oxide emissions and ammonia toxicity.

Bucking any trend for conservatism in shipping is nuclear power. Energy security concerns and volatile oil prices increase the appeal of a vessel which needs refuelling no more frequently than every few years. The power available may open up faster operating speeds, cutting vessel numbers on regular routes, and more cargo space will be achievable if reactor manufacturers deliver on their promises of small modular reactors. Necessary technologies remain in development, social acceptance is a challenge, and maritime-specific regulation will need thorough updating, but shipping leaders are clearly open to the prospect of nuclear power in commercial shipping.

Almost as sharp as the rise for nuclear was the fall for hydrogen. Technical and safety challenges exist in adopting the smallest element as a fuel for shipping, along with the fundamental issue of its low energy density which may limit its application in ocean transportation. With multiple uses in zero carbon technologies as a blend component for other gases, fuel for hydrogen fuel cells, and as a feedstock for creating [green ammonia](#), the hydrogen message is less clear than for other fuels. Some analysts expect the adoption of hydrogen in the wider market to [accelerate from 2035](#), which may in time be reflected in shipping.

Hydrogen's sharp decrease in perceived viability may see regional variations, particularly in Asia. Per the World Economic Forum, [Japan](#) has implemented a strategic focus on hydrogen across various sectors, including transport and steel manufacturing, with an investment of 15 trillion JPY (approximately USD 98.8 billion) over the next 15 years. In maritime, this effort builds on Kawasaki Heavy Industry's (KHI) 2022 development and completion of a prototype vessel, the *Suiso Frontier*, to transport liquefied hydrogen at an ultra-low temperature of minus 253 degrees Celsius without additional cooling from Australia to Japan. KHI is currently working on scaling up ships and onshore storage tanks for mass hydrogen supply by 2030. [India](#) has also announced its intent to [scale up](#) the use of green hydrogen through the National Green Hydrogen Mission (launched in 2023) funded by an initial outlay of 19,744 crores INR (approximately USD 2.38 billion) — with several pilot projects to be launched in the shipping sector under the supervision of the Indian Ministry of Ports, Shipping and Waterways.

In an effort to support this process, ICS has created a 2024 report [Turning Hydrogen Demand into Reality: Which Sectors Come First](#) which examines the potential of hydrogen to assist with decarbonising hard-to-abate sectors and discusses the opportunities and challenges for future supply and demand dynamics.

Biofuels are a low-impact change for shipowners, holding the potential for greenhouse gas emissions savings of over 90% with [almost no changes to engines, machinery, and operations](#). The vast majority of ships on the water are conventionally fuelled, 99.26% according to DNV's Alternative Fuels Insight platform, and as those ships age and costly retrofits become less commercially viable, biofuel may prove the only



option to remain trading under tightening environmental regulations. Blending biofuels with fossil fuels will allow ships to increase their use of the renewable fuel in step with regulatory requirements, although the availability of sufficient volumes will restrict full adoption in shipping.

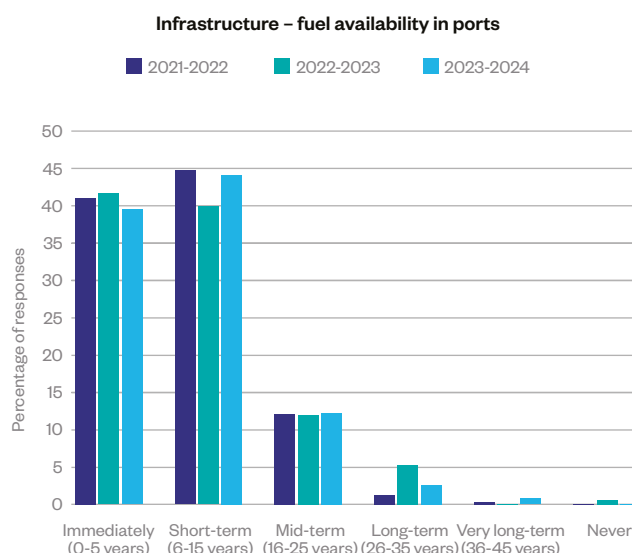
Pairing carbon capture technology with the continued use of HFO is a route to environmental compliance, but its waning popularity may reflect the fundamental challenge of investing in new technology for a short term transition, the [development hurdles to overcome](#), and wider uncertainty over offloading captured carbon.

While not a viable primary propulsion method for most commercial applications, wind power's role in the shipping energy mix is growing. The number of ships with wind propulsion technologies installed [doubled in the 12 months to April 2024](#) and new orders reached new highs with the signing of the [largest-ever wind propulsion deal](#) by Union Maritime covering 34 of its vessels. Whichever fuel is powering the main engines, wind power can contribute significant fuel consumption reductions, [ranging up to 25% for some technologies](#), depending on route.

In 10 years' time, the greenhouse gas intensity of fuel used onboard vessels will need to be 6% lower than 2020 levels under FuelEU Maritime, and a 14.5% reduction will be approaching in 2035. Shipping will by then have a firmer understanding of the practical benefits and limitations of its fuel options from first movers.

### Impact points for decarbonisation

C-suite respondents across 2021-2024 have highlighted that the provision of infrastructure that impacts fuel availability in ports is likely to have the highest impact on their decision to invest in low and/ or zero carbon fuels and technologies. Almost 80% of respondents have consistently indicated that this infrastructure would need to be available within either the immediate or short term (between 0 -15 years) in order to ensure their buy-in for decarbonised operations.

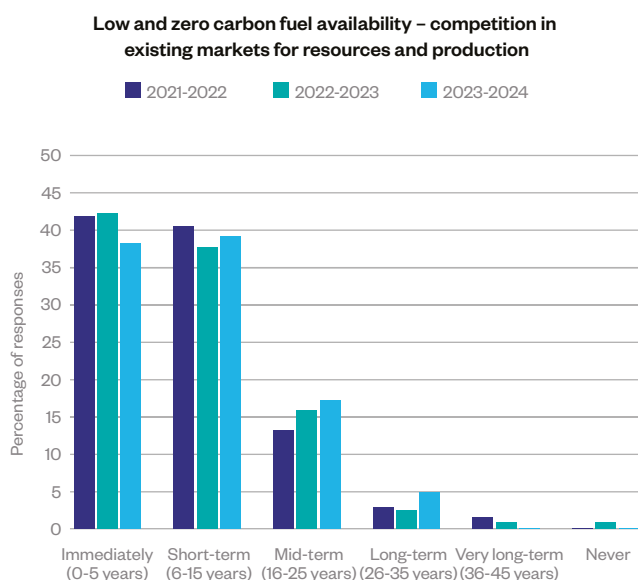


At this time, C-suite respondents see little recourse to shipping's continued dependence on fossil fuels for the mid to long term. About 36% of respondents to the ICS Barometer felt this dependency would be for the mid-term (16-25 years), 23% felt it would be long term (26 - 35 years), and a little over 19% of respondents felt shipping will continue to require access to fossil fuels for the very long term (36 - 45 years). Approximately 13% felt it was likely that this dependency on fossil fuels would only continue until the short term (6-15 years), and a bit more than 7% felt that this dependency could be ended in the immediate term (0-5 years).

In 10 years' time, the greenhouse gas intensity of fuel used onboard vessels will need to be 6% lower than 2020 levels under FuelEU Maritime, and a 14.5% reduction will be approaching in 2035



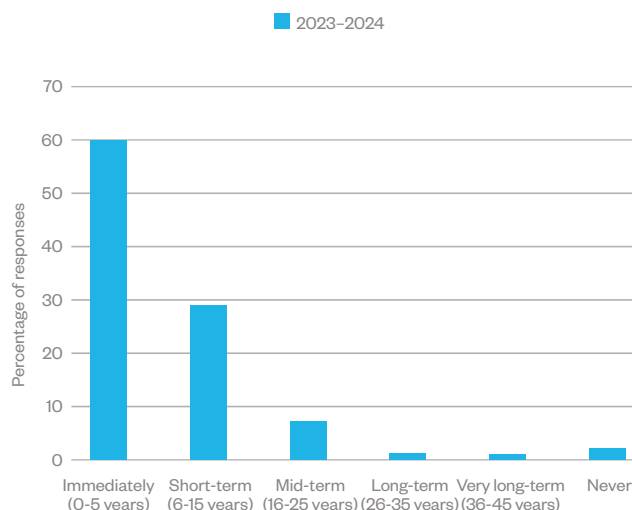
Changing this perception would require greater clarity on low and zero carbon fuel availability, particularly when considering competition in existing markets for resources and production — a fact that respondents noted was the second highest factor impacting their willingness to invest in reduced emissions. Respondents to the ICS Barometer over 2021-2022, 2022-2023 and 2023-2024 have consistently indicated that progress on this front would need to be made either immediately (0-5 years) or within the short term (6-15 years) to ensure wider uptake of zero and low carbon fuels across maritime.



By the next edition of ICS Barometer, the IMO will have adopted its mid-term measures under the 2023 GHG strategy, granting broader regulatory certainty to international shipping. Notably, the creation and implementation of regulations ensuring safe standards of operation was the third highest impact factor for respondents to the 2023-2024 ICS Barometer. The relative viability of the components of the future fuel mix will depend on the details of these regulations, which could well shift leaders' perceptions in 2024-25.

Swift decision-making from the IMO on these aspects is likely to drive greater buy-in from maritime decision-makers, particularly those that remain hesitant or undecided as of this moment. 60% of C-suite respondents to this year's survey indicated that progress on global and regional regulation would need to occur within the next 0 - 5 years in order to ensure maritime's progress on decarbonisation and continued investment from the shipping industry.

**Global and regional regulation – the creation and implementation of recognised standards of safe operation**



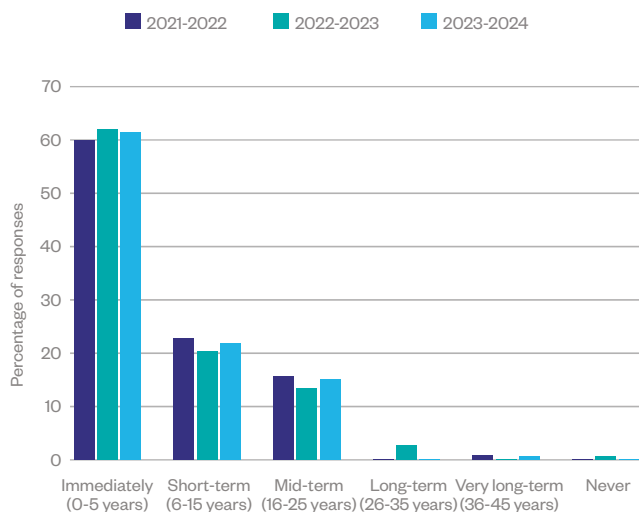
However, when questioned whether the IMO agreement at MEPC 80 to reach net-zero GHG emissions by or around 2050, with indicative checkpoints for 2030 and 2040, increased willingness to invest in low and zero carbon solutions, 49% of respondents to this year's ICS Barometer indicated that it would while approximately 17% indicated that it would not. An estimated 33% felt their business would not be impacted by decarbonisation, that they were unsure, or that they would prefer to take a 'wait and see' approach to the proposed updates.

This marked split in responses indicates that there is still a great deal of work to be done to convince decision-makers of the viability of regulations as markers of progress on decarbonisation — particularly following the introduction of the controversial CII regulation — while also ensuring that these processes are carefully staged so as to be commercially viable, as otherwise businesses may indicate a preference for penalties over compliance.

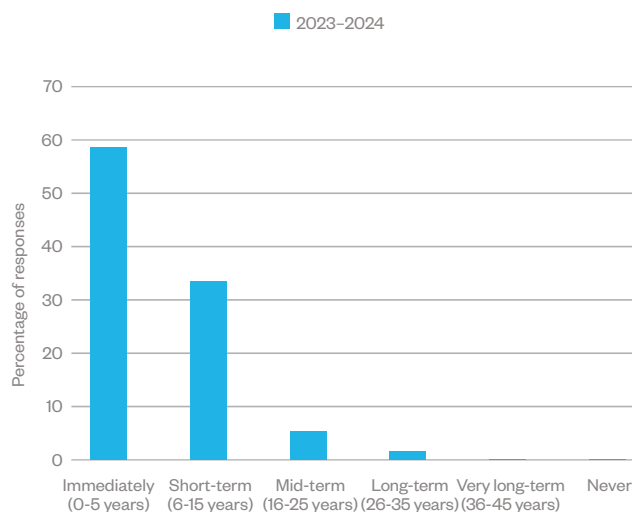
Investment to research and develop viable low carbon fuels and technologies was seen as a comparatively low priority for C-suite respondents when assessing their investment in zero and low carbon fuels and technologies, followed only by the availability of standardised training and certification for crew and staff to aid in decarbonisation. However, respondents continued to indicate that these factors would need to be addressed in either the immediate (0-5 years) or short term (6-15 years) to ensure shipping's decarbonisation goals are met.



**Research and development – investment to develop viable zero carbon technologies and fuel**



**Training and certification – availability of standardised training for crew and staff**



The comparatively low perceived impact of these factors for the moment can be attributed to the small percentage of vessels currently operating on future fuels and technologies, the continued market hesitance when it comes to fuel-specific guidelines, and the ongoing creation of standardised certification for crew by the IMO and the Maritime Just Transition Secretariat. But while this may not be a marked priority for C-suite respondents in 2023-2024, a significant majority noted the need for this training and certification to be made available within the next 0-5 years.

A clear takeaway from responses by decision-makers to this year’s ICS Barometer is the clear urgency for clarity — with a majority repeatedly indicating that the next five to fifteen years are likely to be crucial for delivering key structures enabling decarbonisation and cementing shipping’s ability to reduce emissions by 2050. It is therefore imperative that our industry continues to collaborate and build consensus on these key issues in order to facilitate further investment and commitment from shipping’s leaders.

Investment to research and develop viable low-carbon fuels and technologies was seen as a comparatively low priority for C-suite respondents





## SECTION 4

# Special focus: Nearshoring, Reshoring, Offshoring and Friendshoring



## Overview

The period of 2021-2024 has seen trade operations and routes significantly impacted by the COVID-19 pandemic, an ongoing global economic recession, extreme weather events and anomalies attributed to climate change (such as the drought impacting the Panama Canal), geopolitical unrest and sanctions, and more. With the rise in [protectionism](#), supply chain bottlenecks, rising labour costs, emphasis on reduced emissions and competitive regional regulations, competitive tax tariffs and funding opportunities impact global manufacturing, certain industry sectors and markets to consider amending their operations to involve:

For example, The Conference Board [reported in 2023](#) that the US had seen a significant boost in reshoring with construction on manufacturing facilities up 40% year-on-year and 62% over the past five years. Similarly, container shipowners have [signalled](#) their awareness of a rise in friendshoring as ongoing shifts in production and manufacturing away from China towards other countries leads to changed trade routes — with levels of containerised demand and tonne-mile demand remaining consistent and even potentially opening up the option for this to rise in future. Given the role shipping plays in transporting over 80% of world trade, reactive shifts in manufacturing are likely to impact business operations within some maritime sectors.

<b>RESHORING</b>	Transferring operations back to its primary country of operations, reducing exposure to outside risk (such as the disruption of supply chains by geopolitical events) and choosing local businesses with whom to partner.
<b>NEARSHORING</b>	Relocating business operations to a nearby country, often with a shared border, with the aim of ensuring faster speed to market and quicker transit from manufacturers to customers.
<b>OFFSHORING</b>	Relocating existing operations to a different country, usually with the goal of reducing labour or manufacturing costs and/ or ensuring the ready provision of certain skills and raw materials.
<b>FRIENDSHORING</b>	Rerouting supply chains to countries that are political or economic allies, where these countries may be perceived as politically and economically safe or low-risk to avoid disruption to the flow of business.

With the rise in protectionism, certain markets and industries will need to amend their operations to adapt to the new landscape



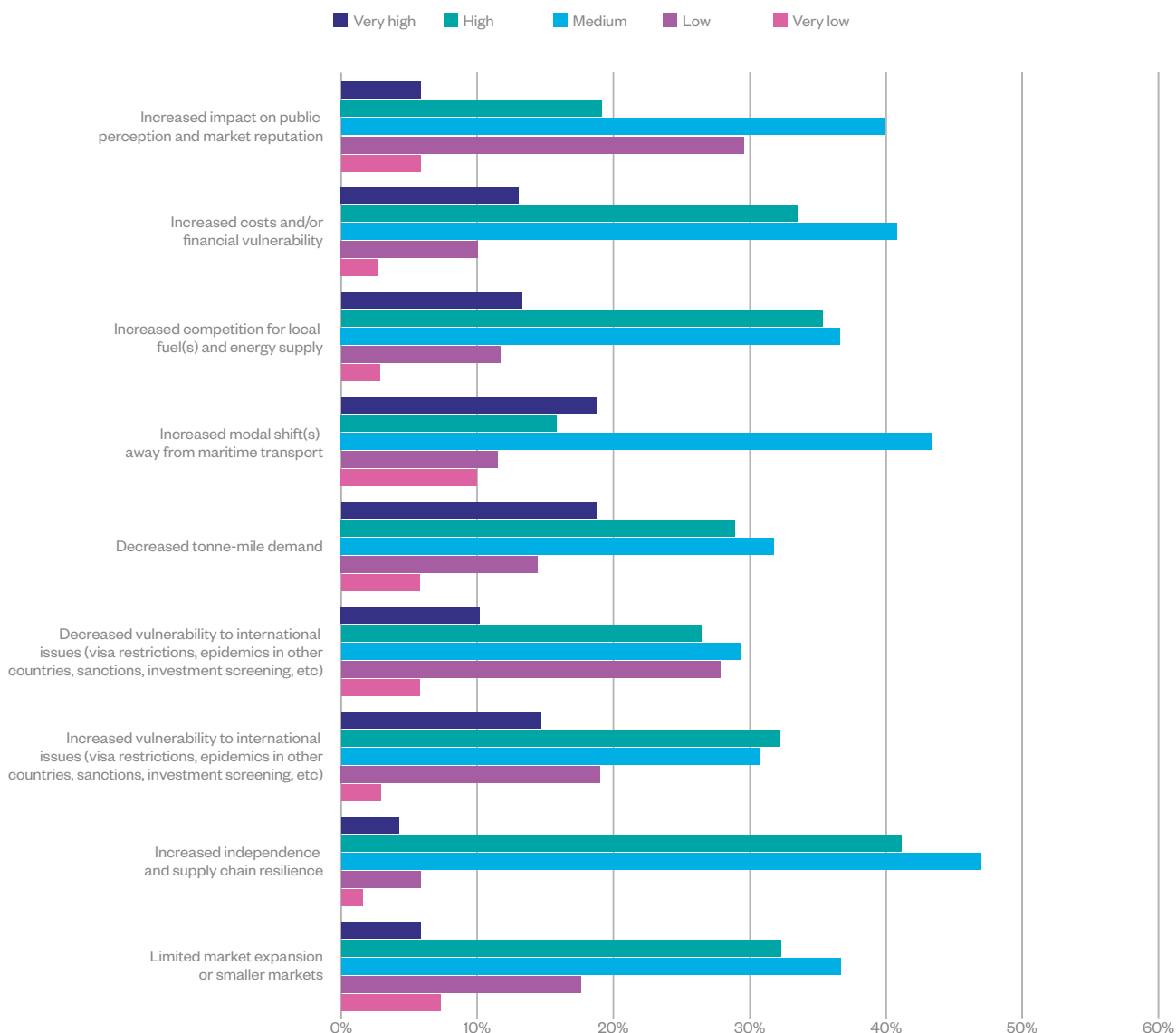
## Key Risk Factors Swaying Industry Leaders into Shifted Operations

RESHORING	NEARSHORING	FRIENDSHORING	OFFSHORING
Political instability in regions of operation	Geoeconomic confrontation	Geoeconomic confrontation	Availability of a trained and certified workforce
Defensive policy measures	Development of unilateral or regional regulation that overlaps with global regulation	Political instability in regions of operation	Increasing administrative burden
Exposure to geographically concentrated risks	Availability of "secure" low/ zero carbon energy	Defensive policy measures	Exposure to geographically concentrated risks
Geoeconomic confrontation	Exposure to geographically concentrated risks	Exposure to geographically concentrated risks	Costs of compliance and operation
Malicious physical attacks	Cyber attacks and cyber insecurity	Malicious physical attacks	Supply chain instability
Costs of compliance and operation	Defensive policy measures	Costs of compliance and operation	Cyber attacks and cyber insecurity
Cyber attacks and cyber insecurity	Availability of a trained and certified workforce	Increasing administrative burden	Development of unilateral or regional regulation that overlaps with global regulation
Availability of "secure" low/ zero carbon energy	Increasing administrative burden	Availability of a trained and certified workforce	Resource rivalries in regions of operation
Availability of a trained and certified workforce	Resource rivalries in regions of operation	Financial instability	Defensive policy measures
Resource rivalries in regions of operation	Supply chain instability	Cyber attacks and cyber insecurity	Availability of "secure" low/ zero carbon energy
Financial instability	Financial instability	Development of unilateral or regional regulation that overlaps with global regulation	Financial instability
Increasing administrative burden	Political instability in regions of operation	Availability of "secure" low/ zero carbon energy	Malicious physical attacks
Supply chain instability	Costs of compliance and operation	Resource rivalries in regions of operation	Geoeconomic confrontation
Epidemics and pandemics	Malicious physical attacks	Supply chain instability	Political instability in regions of operation
Development of unilateral or regional regulation that overlaps with global regulation	Epidemics and pandemics	Extreme weather events	Extreme weather events
Extreme weather events	Extreme weather events	Negative industry reputation	Epidemics and pandemics
Negative industry reputation	Impact of media on business	Epidemics and pandemics	Impact of media on business
Impact of media on business	Negative industry reputation	Impact of media on business	Negative industry reputation



## Protectionism and the Impact of Shifting to De-Globalised Operations

Perceived Impact from a Shift to De-globalised Operations



Respondents noted that increased competition for local fuel(s) and energy supply is likely to have the most significant impact on their business operations arising from a shift to de-globalised operations. With fuel costs continuing to rise, impacted by geopolitical turmoil and sanctions, local competition for energy would likely significantly impact maritime — particularly as maritime does not contribute to Nationally Determined Contributions (NDCs) for local governments and therefore might not be prioritised in the distribution and/ or provision of low emission and zero emission fuels and energy.

The second most significant impact point for respondents was the risk of increased costs or financial vulnerability within the region as global and regional market fluctuations may carry greater implications for business resiliency. Writing in their [2024 Global Financial Stability Report](#), the International Monetary Fund (IMF) reported that global financial conditions have eased and disinflation is perceived to be in its last stretch, leading to a growing confidence in market resilience set against the backdrop of better-than-expected economic data in many parts of the world. However, the IMF warned



that recent oscillation of core inflation points in some countries and the potential of global inflation remaining persistently above central bank targets could return certain regions to financial instability. This is likely to impact the resilience of maritime businesses that have chosen to shift to primarily de-globalised operations.

C-suite respondents felt that decreased tonne-mile demand would be the third most significant factor impacting shipping operations in a de-globalised setting. This would be particularly significant for cargo ships if manufacturing operations were to be localised, unlike the ongoing surge in tonne-mile demand in the tanker sector. This is primarily [attributed](#) to the [ongoing](#) crises in the Red Sea and the Black Sea, with sanctions against Russia continuing to play a significant role in fuel availability. As governments world-wide look to scale up energy independence and transition to greener energy infrastructure, scenarios of this nature may begin to wane — particularly with a continued emphasis on lowered global emissions.

Notably, respondents to the ICS Barometer felt that increased modal shift away from maritime operations would have less of an impact on their businesses than the benefits of increased independence and supply chain resilience resulting from de-globalised operations. However, they also felt this would leave them more vulnerable to the impacts of localised issues such as the availability of skilled labours, resource scarcity, epidemics and pandemics, etc.

While respondents found the likelihood that they would be operating in smaller markets or with limited options for market expansion a concern, this was a comparatively less significant impact point for their business operations. Similarly, they indicated that a decrease in vulnerability to international issues — such as visa restrictions, sanctions, investment screening, and epidemics in other countries — were likely to have a comparatively low impact on their business operations. And despite de-globalised operations restricting their operations to a region, C-suite decision-makers felt that the increased impact on public perception and market reputation, even in smaller localised markets, would have the lowest impact on their business operations.

C-suite respondents noted that geopolitical stability was the most important issue determining whether or not they would undertake business operations in a given market, followed by the availability of essential infrastructure and the availability of skilled workers and resources.

Respondents felt that the fourth most significant factor impacting a business' ability to operate in a given region was the availability of supportive local regulations.

While important, the presence of strong political or economic relationship(s) in the region and the availability of technology were less significant to respondents when assessing whether to operate in a given market. Notably, the availability of public or private financial incentives for operation was among the lowest impact factors for business operations, followed only by the value of public perception and any perceived impact to their reputation.

As geopolitical tensions have erupted, we are worried about the impact that this will have on our ability to maintain the flow of trade while protecting our seafarers, the environment, ships, and cargoes



## Key Impact Factors for Business Operations

Perceived importance to business operations in a given market



## SECTION 5

# Conclusion



## Conclusion

Over the past three years, maritime leader's views have demonstrated the immediacy of the impact that events such as multiple international elections, climate change, access to funding and geopolitical tension can have on business operations. This kind of uncertainty and volatility increases hesitance in global markets and slows the pace of change (particularly in important areas like decarbonisation) when governments attention and finances are being directed into resolving these more immediate issues.

The coming year (2024-2025) will see many countries around the world run by newly formed governments that will be tasked with nurturing industry on their shores and in their territorial waters. It is on industry to create the pressure on governments to provide answers and clear market signals to enable change - irrespective of ongoing geopolitical unrest. Action is required by these powers that frame policy, dictate finance and set the parameters of vessel safety.

With investment still largely conservative and keen to see established returns, incentives for shipowners and operators to transition their fleets to greener fuels and technologies continues to be a challenge — one significantly compounded by a continued lack of clarity on low and zero carbon fuel availability and infrastructure. Shipping is hungry for industry-led solutions to these concerns, fuelling the urgency to establish market-based measures (MBMs) that could enable and accelerate maritime's decarbonisation.

Closer collaboration with governments and regulators should increase predictability and ensure optimal allocation of resources - both public and private. It also boosts the likelihood of widespread compliance with regulatory requirements as there will be buy-in across all relevant stakeholders, and should also increase the pace of progress on the green transition front.

Despite these uncertain times, the data shows a steady rise in confidence levels across many risks being faced by maritime leaders, which suggests a belief in their abilities to handle threats they feel to be more within their control (such as cyber attacks).

Confidence in our industry's resilience, adaptability and capability to handle risk factors felt to be within

people's control is evident in the data. For example, maritime leaders noted that they would likely reshore their business if political instability flares up in their existing regions of operation. They would also do so if exposed to defensive policy measures from governments or to geographically concentrated risks, such as conflict. Meanwhile, offshoring their business would likely be driven by the availability of a trained and certified workforce, an increase in administrative burden in their local region of operations, and exposure to geographically concentrated risks.

One thing remains certain: the supply chain will continue to expand and will need a labour force equivalent to the scope of the work. As our industry continues to be impacted by geopolitical turmoil and seafarers face heightened risk from war and piracy, shipping faces new challenges in the recruitment and retention of a skilled workforce.

As investments in infrastructure and the development of fuels and technologies for lower carbon operations continue, the sentiments expressed in this report towards individual fuels will trickle into the global orderbook. This has already been the case for wind propulsion, which has been rising over the past three years in respondent's estimations as a future technology. Union Maritime recently [placed an order](#) for 34 newbuild vessels to be equipped with WindWings sails, which is an undeniable show of confidence in this solution. Methanol and LNG continue to dominate the global fleet makeup, with ammonia and hydrogen requiring more support to become viable options in this decade.

The coming year (2024-2025) will see many countries around the world run by newly formed governments that will be tasked with nurturing industry on their shores and in their territorial waters. There is an urgency to the maritime sector's calls for clarity and support, which must be translated into action by these powers that frame policy, dictate finance and set the parameters of vessel safety.

Incidents such as a major cyber-attack, another outbreak of war or the announcement of a significant new funding programme are likely to ripple across maritime leaders' operating landscape and change the balance of sentiments expressed to date. This ICS Barometer will be there to track the trajectory of change and deliver the insights needed to safely guide our industry to port.





## SECTION 6

# National focus: The United Kingdom



### National focus: The United Kingdom

The UK accounted for 20 of the 104 responses received for the ICS Barometer survey, the highest participation from a single country. A snapshot of the opinions of respondents is illustrated below.

Three of the highest risk factors identified by UK-based respondents are consistent with responses from the wider community. The main point of divergence was that UK respondents rated barriers to trade as a particularly high risk, no doubt due to ongoing challenges concerning the movement of goods between the UK and EU countries.

As per the 2022-2023 ICS Barometer results, political instability was once again identified as the highest risk factor by respondents based in the UK for 2023-2024. This indicates the continuing uncertainty arising from wars, conflicts, regional tensions, and elections in the UK, as well as across the EU, US, India, and beyond. The year

2024 has been politically tumultuous and could have extensive implications across various sectors. There are concerns about the imposition of trade tariffs and other barriers to trade as nations adopt more isolationist stances, which is considered a high risk.

Respondents reported lower levels of confidence in their ability to manage the fallout of political instability. Although the shipping industry has shown resilience in the face of recent unexpected events like the COVID-19 pandemic and supply chain disruptions caused by the war in Ukraine, the inability to predict such external factors complicates risk management.

The risk of physical attacks became a major concern in 2023-2024. Threats such as sea mines in the Black Sea, sustained Houthi attacks on commercial shipping and an increase in piracy and armed robbery against ships have highlighted the vulnerability of shipping to malicious acts. There is also increasing concern about weapons proliferation as non-state actors gain

### Regional focus: United Kingdom



access to advanced technology. Intimidation in various regions, including the Strait of Hormuz and South China Sea, is adding to the sense of unease. The low level of confidence reported by respondents illustrates that the industry alone cannot effectively address these risks. However, naval presence in the Red Sea and the option to reroute ships away from conflict zones, albeit at the cost of higher fuel consumption, emissions, and crew fatigue, means respondents were more confident in managing the risk compared to concerns about political instability.

The risk of cyber attacks was again noted by UK respondents and others. This is an enduring risk factor and is the only one to recur as a high-risk factor across the three ICS Barometer reports produced to date. Reflecting this, on 18 June 2024, the [International Maritime Cyber Security Organisation \(IMCSO\)](#) was launched with the aim of raising the standard of

cybersecurity risk assessment across the maritime industry. It remains to be seen whether IMCSO will instil greater levels of confidence.

For the impact analysis, UK respondents were broadly aligned with others. Funding, regulation, market-based measures, and trained crew and personnel were consistently recognised as the most significant impact factors. However, UK respondents also cited stranded assets as having a moderately high impact, while lacking confidence in their ability to mitigate it.

Despite the UK Government’s investment in maritime decarbonisation initiatives, public funding was seen as having the most significant impact. Respondents also expressed low levels of confidence, likely reflecting the gap between the stated ambitions, such as the Net-Zero policy, and the necessary funding for it. This echoed the sentiments expressed by respondents outside of the

### Regional focus: United Kingdom



UK, indicating maritime stakeholders remain concerned that governments are not doing enough to attract private sector funding. Accordingly, UK respondents also acknowledged private funding as a significant factor, although with less impact and exhibiting greater confidence that the challenges can be overcome.

UK-based respondents also cited regulations and the lack of trained crew and personnel as high impact factors. Uncertainties regarding future fuels, regulatory standards, compliance tools etc mean that many within the industry are reluctant to move significantly while the future regulatory framework remains opaque.

The ability to recruit, train, and retain qualified personnel in an increasingly competitive job market is also considered high impact. Commentary, for example, [Drewry's Manning Annual Review and Forecast](#), estimates that the officer shortfall rose to a record 9% of the global pool in July 2023, up from 5% in 2022. However, UK-based respondents expressed greater confidence in managing regulatory uncertainties and seafarer shortages compared to public and private funding.



## SECTION 7

# Annexe



## Methodology

The ICS Barometer survey was conducted by Intent Communications Ltd, on behalf of ICS, between January 2024 and April 2024. The aim of the survey was to measure maritime industry leaders' evolving attitudes towards risk, resilience, future-proofing, fuels, technologies and decarbonisation. The survey received a total of 104 complete responses from C-Suite executives representing shipowners, ship operators/managers, classification societies, trade organisations, service providers, ship builders, port authorities, the insurance sector, and also law firms.

This year also featured an optional section which assessed respondents' perception of the risks and impact factors driving reshoring, nearshoring, offshoring and friendshoring. This section received an average of 50 responses.

While a majority of respondents had their primary region of business operations in the UK and the EU, the ICS Barometer survey saw significantly increased responses from Asian countries including Singapore, Hong Kong and South Korea, as well as an uptick in responses from India. Future reports will continue to strive to ensure balanced regional representation for analysis of priorities and risk.

The ICS Barometer survey covers three primary topics: risk, resilience and future-proofing (consisting of 11 key points), decarbonisation, fuels and emissions (nine points), and new technologies (expanded from three points to five points this year, with the addition of a focus on training and certification as well as the impact of global and regional regulation). This followed feedback gathered by the ICS Barometer team during the 2022-2023 ICS Barometer survey regarding the need to represent countries and associations where a seafaring workforce is a primary contribution to maritime operations (for example, the Philippines). The industry's decarbonisation goals rest significantly on the shoulders of the crew and personnel delivering these strategies and operations, and these responses will continue to be tracked and assessed in future editions of the ICS Barometer survey.

The survey examined how these topics are perceived by maritime industry leaders from different parts of the world, and maps initial assessments of fuel futures, financial imperatives and greatest risks. Responses were weighted on a five-point scale and then compared with data gathered from 221 respondents in the 2021-2022 pilot ICS Barometer survey and 132 responses in the 2022-2023 ICS Barometer survey to track trends and shifts in perception among anonymised C-suite respondents. Each risk map or graph illustrates how respondents locate risk or the impact of key variables, and the confidence policymakers, CEOs and leading experts feel when addressing these issues within their area of operations.

The methodology for generating graphs involved taking the number of responses from that country and the weighting of the strength of those responses to each of the two dimensions measured (impact or risk against confidence in response). These were then mapped to indicate year-on-year trends for these factors.

Weighting was allocated as follows:

- 1 very low risk/ very low impact/ no confidence
- 2 low risk/ low impact/ some confidence
- 3 medium risk/ medium impact/ reasonable confidence
- 4 high risk/ high impact/ high confidence
- 5 very high risk/ very high impact/ extreme confidence

Global and regional maps were then plotted using the X axis used to denote either risk or impact while the Y axis was used to denote perceived confidence in ability to address the relevant issues. For visual clarity and ease of interpretation, the maps are zoomed out or zoomed in depending on the range of data points, hence the corresponding shifting of the axes.

The ICS Barometer's risk maps can be used:

- For readers to ascertain where industry leaders foresee challenges and priorities.
- To follow the evolution of specific trends related to decarbonisation and fuels over the coming decade.



## Diverse Respondent Voices

The survey was sent to ICS National Shipowner Associations and ICS Affiliated Regional Shipowner Associations\*, prominent organisations, and some individuals by email. Additional response was solicited via a social media campaign on ICS linkedin and X (Twitter) channels.

\*Abu Dhabi National Tanker Company, Armateurs de France, Asian Shipowners' Association (ASA), Brazilian Association of Cabotage Owners (ABAC), Chamber of Marine Commerce (CMC), Chamber of Shipping America, Chamber of Shipping of British Columbia, China Shipowners' Association (CSA), Confederazione Italiana Armatori, Italian Shipowners' Association (CONFITARMA), Cruise Lines International Association (CLIA), Danish Shipping, European Community Shipowners' Associations (ECSA), European Dredging Association (EuDA), Filipino Shipowners' Association (FSA), Finnish Shipowners' Association, German Shipowners' Association (VDR), Ghana Chamber of Shipping, Grupo TMM, Mexico, Hong Kong Shipowners Association (HKSOA), Interferry, International Maritime Employers' Council (IMEC), Irish Chamber of Shipping, Japanese Shipowners' Association (JSA), Korea Shipowners' Association (KSA), Kuwait Oil Tanker

Company, KOTC, Liberian Shipowners' Council (LSC), Luxembourg FEDIL Shipping, Malaysia Shipowners' Association (MASA), Malta International Shipowners Association, Maritime Industry Australia Ltd (MIAL), Monaco Chamber of Shipping (CMS), New Zealand Shipping Federation, Nigerian Chamber of Shipping, Norwegian Shipowners' Association, Portuguese Shipowners' Association (AAMO), Royal Association of Netherlands Shipowners (KNVR), Russian Chamber of Shipping, Shipowners of the Faroe Islands, Shipping Australia Ltd (SAL), Singapore Shipping Association (SSA), Spanish Shipowners Association, Asociación Navieros Españoles (ANAVE), Swedish Shipowners' Association, Swiss Shipowners Association (SSA), The Bahamas Shipowners Association (BSA), The Cyprus Shipping Chamber (CSC), The Royal Belgian Shipowners' Association (RBSA), Türkiye Chamber of Shipping (TCS), UK Chamber of Shipping, Union of Greek Shipowners (UGS), United Arab Emirates Shipping Association (UAESA), and World Shipping Council (WSC).

Other bodies approached include the International Association of Ports and Harbors (IAPH), International Union of Marine Insurance (IUMI), International Association of Classification Societies (IACS) and Global Shippers Forum (GSF).





International  
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Shaping the Future of Shipping

## ICS Maritime Barometer Report 2023-2024

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