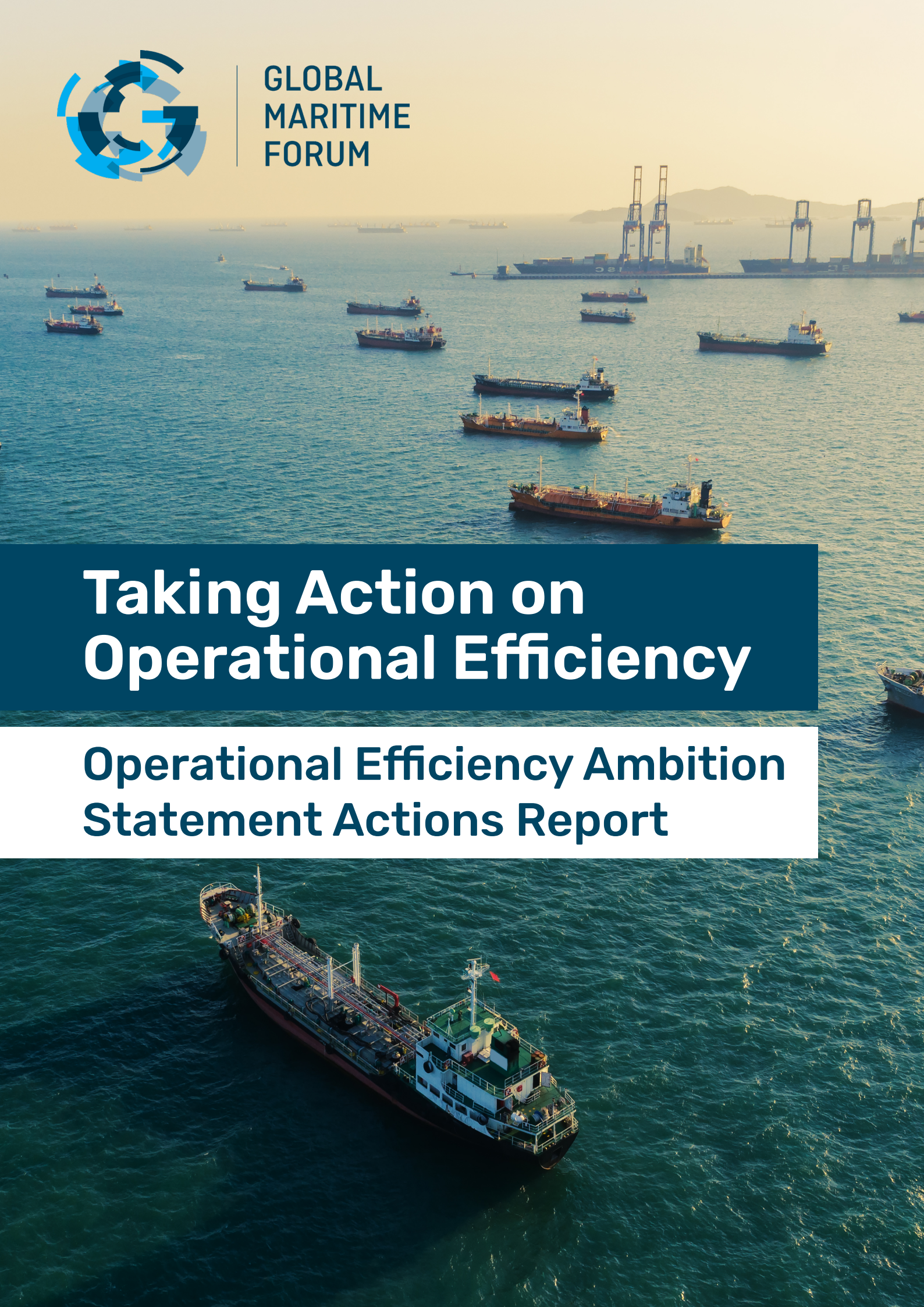
GLOBAL MARITIME FORUM

Taking Action on Operational Efficiency

Operational Efficiency Ambition Statement Actions Report



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Disclaimer

Executive Summary

Improving the operational efficiency of voyages is a triple win: while reducing fuel use and operating expenditures, it reduces greenhouse gas emissions today and paves the way for the uptake of more expensive zero-emission fuels in the long run. Although many barriers to the large-scale uptake of operational efficiency measures still exist, the maritime sector is already making efforts to overcome them. Twenty-six companies submitted 73 operational efficiency measures across five action areas: data and transparency; contractual changes; pilot projects; ports, terminals and value chains; and culture and leadership.

Some key findings are:

- **Action is being taken** across the shipping industry, with shipowners, operators, charterers, commercial managers, ports, terminals, and service providers all implementing operational efficiency measures.
- There is a clear **focus on collaboration** across all action areas and sectors, with over one-third of all submitted actions involving two or more parties.
- Most action is being taken within the area of **data and transparency** and the least number of actions were submitted in the areas of ports, terminals, and value chains.
- While companies are taking concrete measures in the form of pilots, **more pilots are needed**. However, they require the implementation of measures across all action areas and a high level of collaboration.
- The actions shared in this report and the annexes **need uptake throughout the industry** and need to become standard practice in order to drastically reduce emissions this decade.

Introduction

Improving operational efficiency is key to reducing emissions now and paving the way for the uptake of zero-emission fuels in the future. Thirty-three companies, organisations, and industry associations underlined the need for the accelerated uptake of operational efficiency measures by signing the Global Maritime Forum's Operational Efficiency Ambition Statement in autumn 2023. This report captures the operational efficiency actions being taken by companies and analyses areas in which action is still lacking.

The actions presented in this report are by no means exhaustive and do not represent a complete list of operational efficiencies being undertaken in the private sector. Furthermore, the report only showcases actions submitted by the signatories of the Operational Efficiency Ambition Statement. While it is not possible to represent the scale of action being taken through such a small sample, the breadth of actions is believed to be accurate. The report not only builds on the submissions of the signatories but also includes learnings from two years of conversations within the industry.

A mandate to act now

The International Maritime Organization's (IMO) newly-revised greenhouse gas (GHG) emissions strategy calls for the maritime industry to peak its emissions as soon as possible and fully decarbonise "by or around" 2050. Furthermore, the strategy calls for reducing the total annual GHG emissions from international shipping by at least 20%, striving for 30%, by 2030 and by at least 70%, striving for 80%, by 2040 (compared to 2008 levels). While there is some room for ambiguity when it comes to the concrete targets of the IMO, the message behind these targets leaves no room for doubt: Emissions from international shipping must be reduced drastically and already this decade.

While the transition to zero-emission fuels plays a major role in this transformation, their adoption will require time for technological development and infrastructure investment. Yet the industry must act faster to reduce emissions now. One important piece of the puzzle for emission reductions is to improve the operational efficiency of vessels, voyages, and transport systems.[1]

What's more, operational efficiency measures yield a triple-win opportunity: more efficient voyages reduce fuel use and operating expenditures, help reduce current emissions, and pave the way for the uptake of more expensive zero-emission fuels in the future.

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1 *Efficiency can be improved not only through operational means but also through technical measures. While being an important piece of the puzzle to improve overall value chain efficiency, technical efficiency is out of scope for the purpose of the Operational Efficiency Ambition Statement and this report.*

What does action look like?

While the industry explores zero-emission fuels and technologies, immediate emission reductions can be achieved through operational efficiency measures like speed optimisation. However, there remain many barriers to the scaled uptake of speed optimisation measures, such as a lack of trust between charterparties, insufficient real-time performance and fuel data, port congestion, and existing business norms. Enhanced data sharing and transparency, and contractual adjustments such as performance warranties, Just-in-Time (JIT), or Virtual Arrival (VA) clauses are ways to overcome these barriers and enable more optimised voyages.

Historically, uncertainty prevailed during the era of wind and steam navigation, leading to waiting times in ports due to the unpredictable nature of winds and weather and the inability to communicate to or from vessels at sea. Despite the advent of satellite tracking, more accurate weather forecasting, and route optimisation opportunities, mismatches between vessel arrival and berth availability persist. This results in extended waiting times, increased costs, and unnecessary GHG emissions from both excessive speed and waiting at anchor. The challenge to optimise speed is often driven by customer demands and contractual arrangements. Voyage charters incentivise shipowners to prioritise speed over efficiency, contributing to increased environmental costs. Under time charter parties, the responsibility for fuel provision and payment lies with charterers, creating disincentives for owners to optimise operations. Therefore, improving the operational efficiency of vessels will need to go hand in hand with a more efficient supply chain, which will require much broader cross-value-chain collaboration.

There are different measures available to improve the operational efficiency of vessels and voyages and different enablers for these measures. Based on extensive industry conversation over two years, the Operational Efficiency Ambition Statement clusters the different measures into five key action areas: data collection and transparency; contractual changes; pilot projects; ports, terminals, and value chains; and culture and leadership. Most of these action areas focus on collective action and have been derived from discussions with stakeholders across the maritime value chain who identified key challenges and enablers to operational efficiency measures.[2]

Five action areas for operational efficiency

Data collection and transparency

One of the reasons operational inefficiencies persist in shipping is the lack of standardised measurement and up-to-date data related to vessel performance. This leads to trust issues between owners and charterers and makes it difficult for them to work together to improve the efficiency of their voyages. Increasing the availability and digitalisation of relevant data would be a major enabler for the transparency and trust needed to increase the uptake of operational efficiency measures.

2 *Global Maritime Forum (2023). Short-Term Actions Taskforce - Resources.*

Contractual changes

Speed optimisation is one of the most effective measures to immediately cut down on shipping's GHG emissions. However, many of the contractual norms in international maritime trade encourage inefficiency. For example, traditional demurrage clauses make "sail fast then wait" (SFTW) a common industry practice and most contracts are based on standards that have been around for centuries. Modernising contracts, especially when enabled by data and increased transparency, is a key element to enable and encourage operational efficiency.

Pilot projects

Pilot projects can play an important role in understanding and removing the barriers to improving operational efficiency. Firstly, they provide key learnings with regard to barriers and enablers in practice. Secondly, they provide a platform for experimentation among willing partners. Lastly, and most importantly, they prove to the rest of the industry that working together to improve operational efficiency is both possible and profitable, underscoring the importance of sharing learnings that can be replicated and scaled.

Ports, terminals, and value chains

For any given voyage, there are many different stakeholders involved, each with a vested interest in how the voyage performs. Stakeholders such as shipowners and charterers have a key role in the operational and contractual elements of the voyage. However, there are several other actors involved that are equally important, for example ports and terminals. If operational efficiency is to be optimised on a large scale, there must be collaboration across the full value chain. Inefficiencies need to be addressed at the system level, including fleet and land-based infrastructure such as ports, terminals, and berths. Practices such as virtual arrival, just-in-time arrival, and virtual notice of readiness require standardisation and collaboration in order to capitalise on the efficiency gains that they promise.

Culture and leadership

A prerequisite for all of these changes is a shift in mindset at all levels within companies, trading partners, and customers. There is often a misalignment within businesses, where different departments of the same company operate in their own silos, having their own key performance indicators (KPIs), strategies, and cost centres. It is important that before any external action is taken, departments are aligned on these matters. This can be through internal initiatives, change management, and mutual education. Demonstrated commitment and leadership are needed to overcome the inertia of hundreds of years of tradition.

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These five action areas provide a framework to cluster industry action on operational efficiency and seek a better overview of what companies can do now.

The signatories

The Ambition Statement[3], initially published in October 2023, was signed by 33 companies and organisations from different sectors across the full value chain. As Figure 1 shows, Shipowners, Operators, Commercial Managers, and Charterers comprise 59% of all signatories.

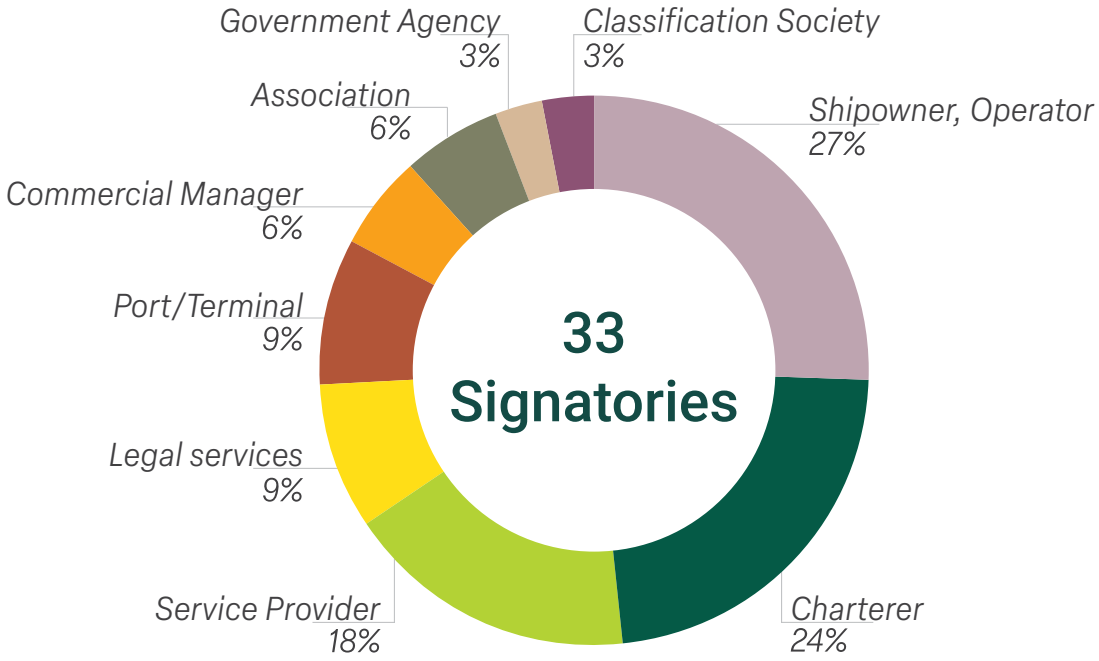

Figure 1: Signatories of the Ambition Statement[3] by organisation category.

The focus of the Ambition Statement and therefore the actions contained within this report, is on bulk sectors, with 99% of respondents' fleets transporting dry bulk (39%), tanker (9%), or both (51%) (Figure 2). These companies represent a major slice of the industry, covering over 12% of the global dry and wet bulk fleet.[4]

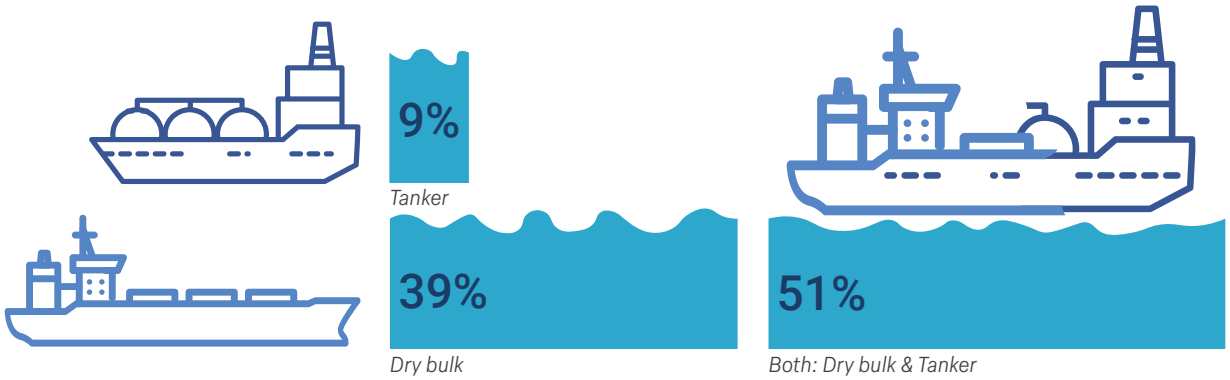

Figure 2: Share of fleet according to sector among charterers, commercial managers, and shipowners/operators that have signed the Ambition Statement

The remaining 1% corresponds to sectors other than tanker and/or dry bulk.

3 Global Maritime Forum (2023). Taking Action on Operational Efficiency.
4 UNCTAD STAT (2023). Merchant fleet by flag of registration and by type of ship, annual.

Some of the signatories of the Ambition Statement are listed as companies, while others are listed as supporters. The former provided concrete actions they are taking in the operational efficiency realm, while the latter did not. The reason behind this lies for the most part in the nature of the organisations, as NGOs, law firms, and/or industry associations cannot provide company actions in the same way as charterers, owners, and/or ports can.

All companies and their actions are listed in the Annex. The supporters are BIMCO, Gorrissen Federspiel, Lloyd's Register, Stephenson Harwood LLP, UK Hydrographic Office, Wisdom Marine Group, Watson Farley & Williams LLP.

Company actions for operational efficiency

Reflecting the distribution of companies, most actions were submitted by charterers (which represent 29% of companies and have submitted 22 actions) and shipowners/operators (which also represent 29% of companies, having submitted 19 actions); followed by contributions from service providers (17 actions), commercial managers (eight actions), and ports/terminals (seven actions) (Figure 3).

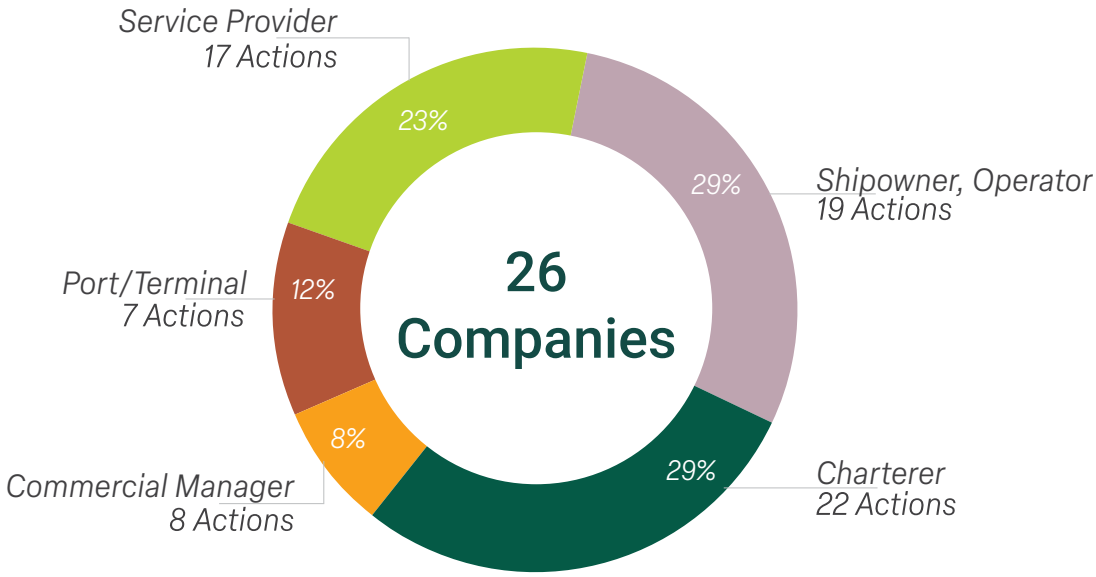

Figure 3: Share of companies who have signed the Ambition Statement (i.e. excluding supporters) and the corresponding number of actions submitted per category.

In total, 73 actions were submitted by 26 companies (Figure 4).

Figure 5 analyses the distribution of actions across the five action areas. With the two action areas of pilot projects and ports, terminals and value chains accounting for the smallest number of actions, there is a potential untapped opportunity for targeted pilots and deeper engagement from ports and terminals. Eight percent of

Figure 4: Total number of actions submitted by the 26 companies.

submitted actions did not fit into any of the provided categories and are categorised as "other" in the annex.

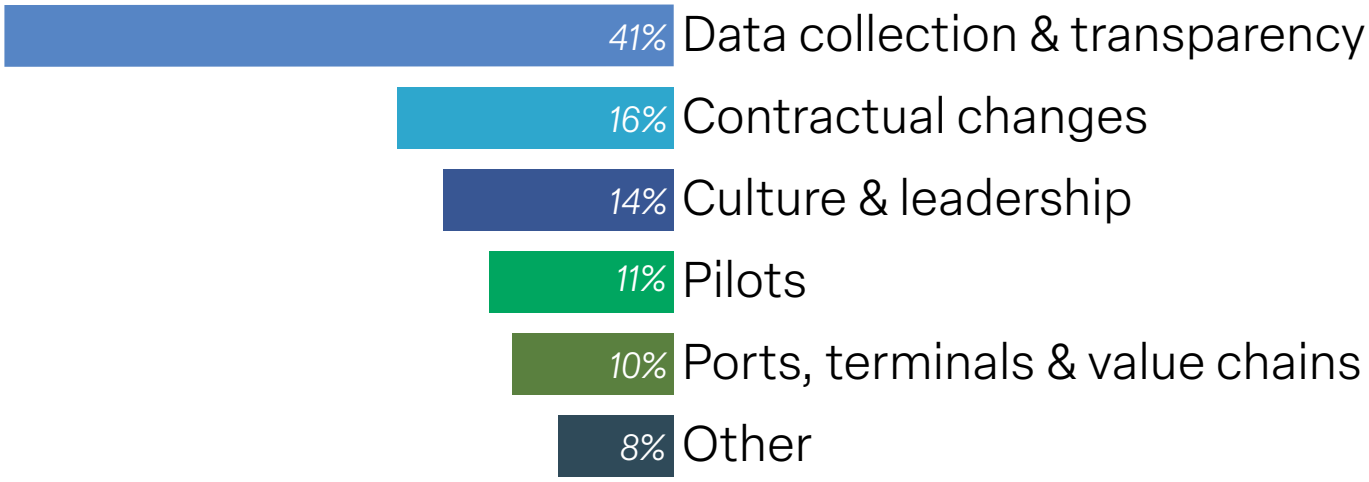

Figure 5: Distribution of actions per action area.

A recurring theme that can be observed in the submitted actions is a focus on collaboration. As Figure 6 shows, over one-third (34%) of all actions submitted are characterised by their collaborative nature. This is not surprising as industry dialogue about operational efficiency has shown that most measures must include multi-stakeholder collaboration in order to unfold their potential.[5] This is part of the reason why operational efficiency measures and their accompanying emissions and cost savings are not simple to realise. Most of these opportunities rely on collaboration between at least two parties or even collective action across an entire value chain. It is therefore positive that so many submissions focus on collaborative efforts and that this trend can be observed across all five action areas.

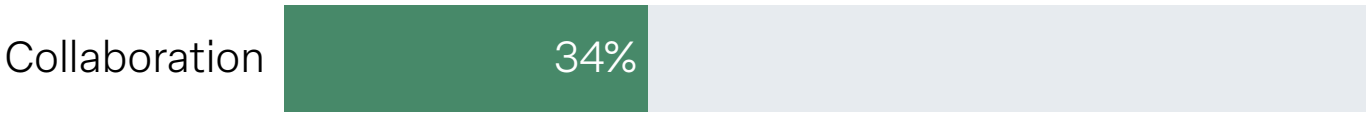

Figure 6: Share of the 73 actions that were assigned the keyword 'collaboration'.

The companies' actions also show that the industry could deliver on a more robust Carbon Intensity Indicator (CII), as they are already demonstrating action beyond regulatory compliance. Companies are ready and willing to take measures to reduce their emissions and are collaborating across the industry to maximise efficiency gains.

When analysing the actions, keywords have been assigned to each submission. These keywords can be split into those describing the "what" and those describing the "how". In terms of "what", the actions focus on just-in-time arrival and speed optimisation. When it comes to the "how", measures show a wide range of variety from emissions reporting, the development of reporting tools, and the sharing of best practices, to charterparty changes, real-time information processing, and development of standards (Figure 7).

5 Global Maritime Forum (2023). Short-Term Action Opportunities.

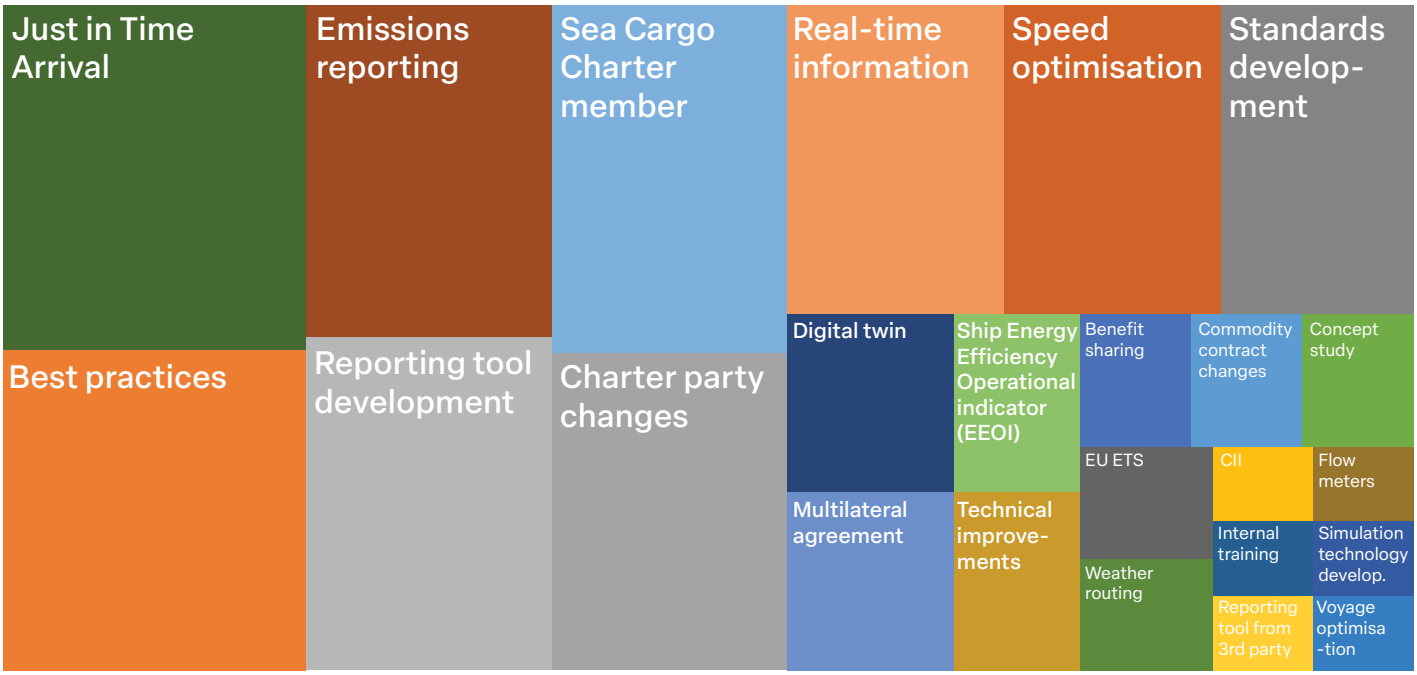

Figure 7: Treemap of keywords identified from all the submitted actions.

The following sections will go through each of the action areas and a few examples will be spotlighted from company submissions. The examples do not represent all actions submitted in that area nor all actions submitted by any company. Some examples in the text might have been shortened by the authors. All submitted company actions are fully listed in the annex.

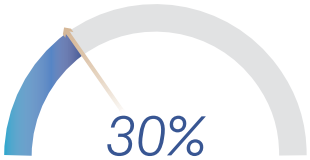

Figure 8: Collaboration metre for data and transparency.

Share of 'collaboration' keyword assigned to the submitted actions within data and transparency.

Action area: Data and transparency

In total, companies submitted 30 actions relating to data and transparency, with 30% of the actions focusing on collaboration (Figure 8).

Most of the actions were submitted by charterers (38%), followed by shipowners/ operators (25%) and service providers (23%), reflecting the overall sectoral distribution of the signatories (Figure 9).

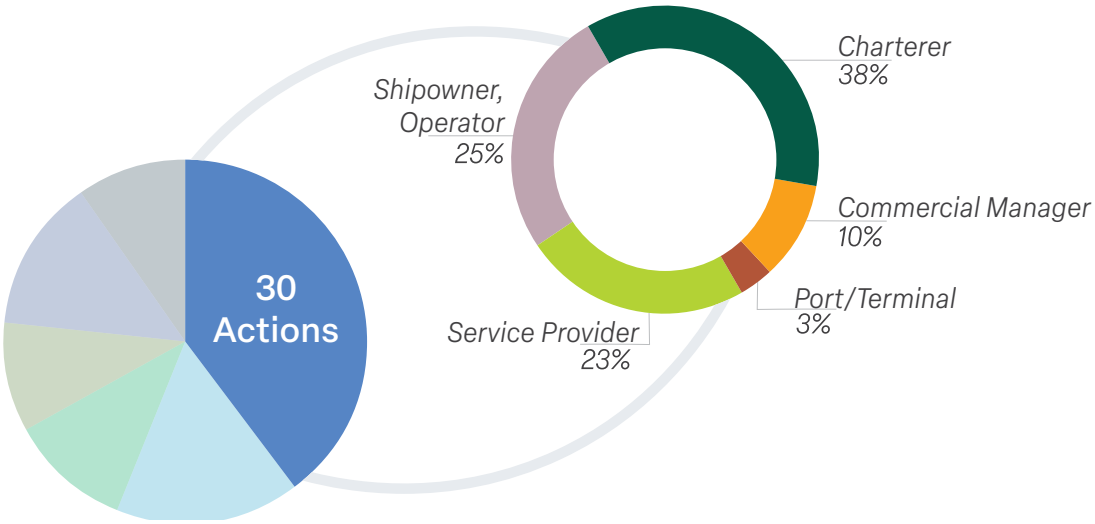

Figure 9: Left: number of actions submitted in data and transparency; Right: share of companies' categories regarding the number of actions submitted (i.e. 30 actions).

As shown in Figure 10, one of the main submissions within this action area is membership in the Sea Cargo Charter. Eleven of the 33 signatories are members of this association, which aims to align chartering activities with shipping decarbonisation by providing a standardised methodology for emissions calculation and reporting. Connected to the support of the Sea Cargo Charter, many submissions are related to reporting tool development and emissions reporting.

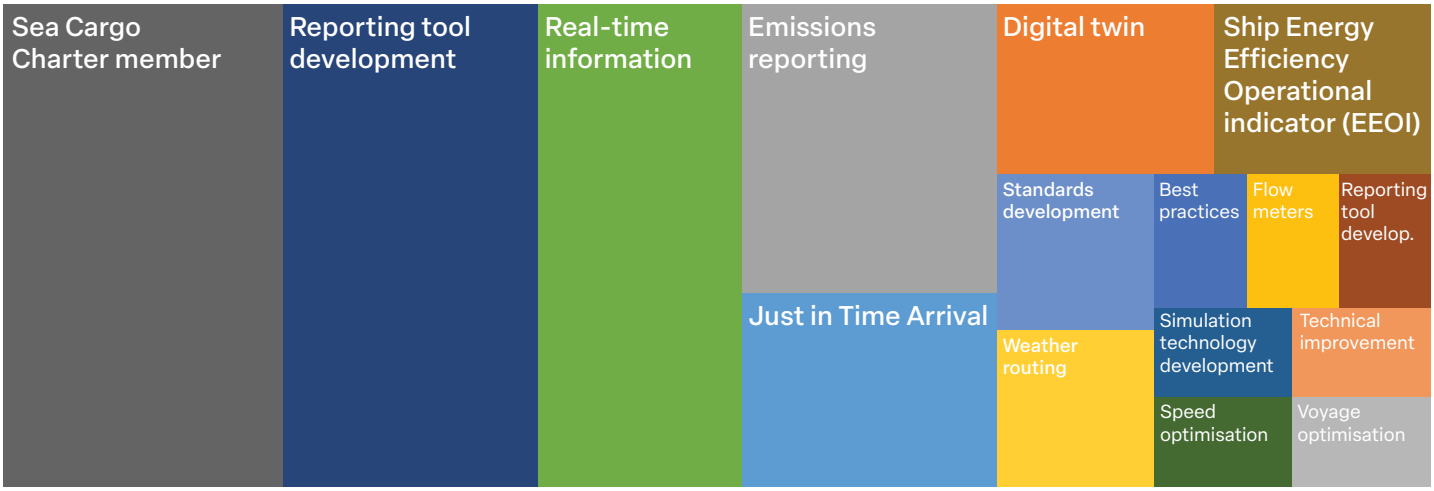

Figure 10: Treemap of keywords identified from the 30 submitted actions in data and transparency.

Beyond emissions reporting, a significant proportion of submissions in this action area relate to real-time information processing. Real-time monitoring of speed and fuel consumption, for example, is an important prerequisite to improving operational efficiency. Precise real-time measurements facilitate an overall modelling of vessel performance, thereby allowing for the analysis of opportunities for efficiency gains. Furthermore, sharing real-time data insights can enhance trust between vessel owners and charterers and between charterers and customers.[6]

Example:

Stena Bulk, a leading international tanker owner, is offering access to its operational platform, including performance data, to charterers who want to track their shipments live. This is done to encourage transparency and to push for commercial efficiency and contractual improvements.

Other submissions in the data and transparency action area relate to just-in-time arrival. Real-time data monitoring and sharing can facilitate just-in-time arrival at ports and terminals. With wider adoption across more liners, these collaborations will generate economic and environmental benefits at scale for the overall ecosystem.

Lastly, some companies mentioned the practice of establishing digital twins in order to simulate some voyage parameters and create performance models, which ultimately helps implement just-in-time arrival and virtual notice of readiness (NOR).

6 *Global Maritime Forum (2023). The role of data in maximising operational efficiency in shipping.*

Example:

Just-in-time arrival is exemplified by an action submitted by **PSA International Pte Ltd**, a Singapore-based port operator, whose Opt-E-Arrive programme enables just-in-time vessel arrivals at their terminals. Opt-E-Arrive allows 24/7 ship-to-port data exchange, anchored on stakeholder collaboration and using digital capabilities as an important enabler. The programme supports the matching of timely vessel arrivals with the availability of terminal resources, in the process also optimising vessel bunker consumption. A joint study with the classification society DNV has also demonstrated the potential to reduce the fuel consumption and carbon emissions of approaching vessels by up to 7%. As part of the Opt-E-Arrive programme onboarding process, PSA will work with identified liners to establish an application programming interface (API) linkage to facilitate real-time data exchange to further enhance operational collaboration and advanced berth planning.

Example:

Another example of the effective use of real-time data was provided by **Euronav**, a Belgian shipping company focusing on transporting oil. To manage a ship's energy efficiency, Euronav uses more than 400 data-capturing sensors to collect and automatically send ashore accurate and real-time information on the vessel's fuel consumption, performance, telemetry, cargo status, and control systems for processing through a performance management system. Furthermore, Euronav is evolving its weather routing capabilities to provide its fleet with accurate climate data to optimise voyage performance.

"Weather routing capabilities can support informed decision making both at sea and at shore and accelerate operational efficiencies and quick wins (i.e hull cleaning scheduling)."

Euronav

Example:

Another example of monitoring systems was provided by **Genco Shipping & Trading Limited**, who installed flow metres and performance-monitoring systems on their vessels to gather real-time fuel consumption data to optimise voyage efficiency. The flow metres have enabled around the clock monitoring of their vessels' performance. Measurement points that are not accessible or doable for analog/human-controlled measure are now provided in a digital product, which enhances accuracy and consistency. The consistent flow of accurate data enables their team to ensure engines perform at peak efficiency and thereby reduce consumption of fuel and lubes; enhance maintenance programs resulting in timely replacements of spare parts and reduced number of breakdowns; and enable machine learning to assist / improve processes over time.

Action area: Contractual changes

In total, companies submitted 12 actions relating to contractual changes, with most of them being submitted by charterers (33%), followed by shipowners/operators (25%) and service providers (25%). Commercial managers submitted 17% of the actions, while ports and terminals did not submit any actions within this area (Figure 12).

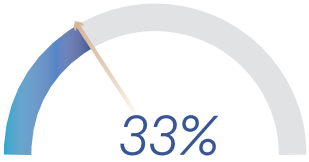

Figure 11: Collaboration metre for contractual changes.
Share of 'collaboration' keyword assigned to the submitted actions within contractual changes.

As Figure 11 shows, collaboration is strong also in this action area, with around one-third of the actions being collaborative.

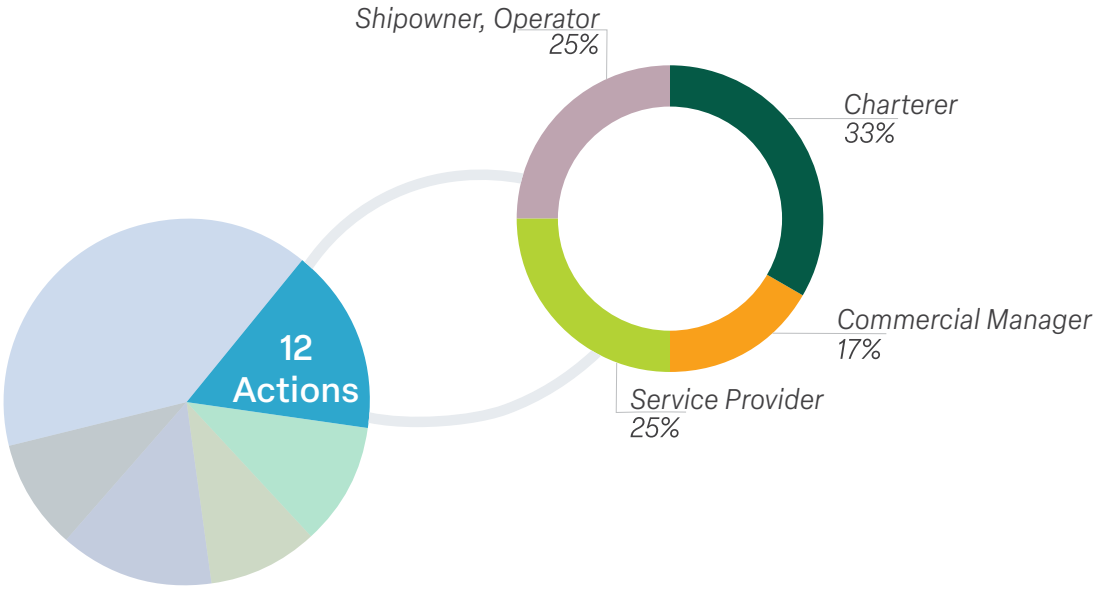

Figure 12: Left: number of actions submitted in contractual changes; Right: share of companies' categories regarding the number of actions submitted (i.e. 12 actions).

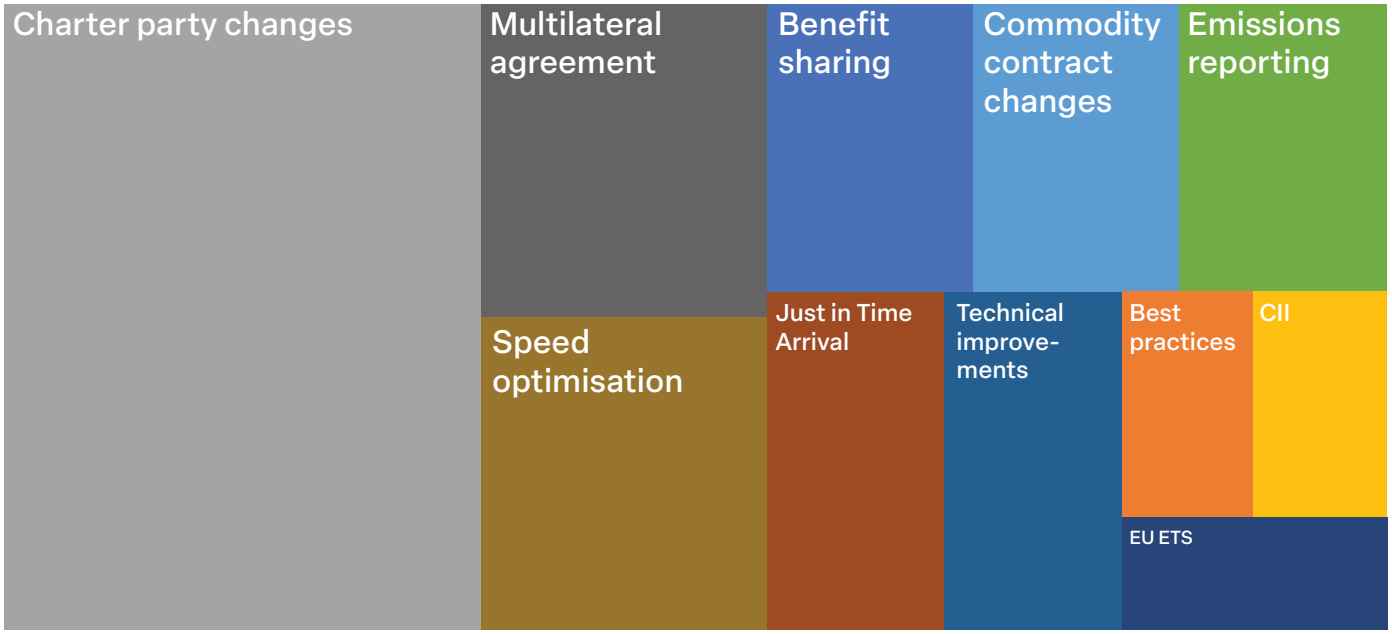

Figure 13: Treemap of keywords identified from the 12 submitted actions in contractual changes.

In terms of keywords (Figure 13), one can distinguish between the different types of contracts that are being changed and the subject of those changes. Three keywords are attributed to the type of contractual changes, with most of them being charter party changes. That shows that most of the submitted actions relating to contractual changes are adjustments to bilateral agreements. One example is the action submitted by Copenhagen Commercial Platform (CCP).

Example:

Copenhagen Commercial Platform (CCP), a Copenhagen-based ship operator, is working with two major charterers to implement a new charter party called eCP (e for emission). This is based on a new Recommended Practice (RP) by DNV, which offers a new, accurate and transparent method for measuring, evaluating, and verifying the technical performance of ships in service. The idea is to issue a dynamic decarbonisation incentive charter party for mutual benefit, as opposed to today's charterparties, where there is a split incentive. CCP wants to incentivise both parties towards a more collaborative approach in which charterers pay for what they get, in terms of speed and consumption, with the average accurate measured performance from the past three months being the base for the next three months. Charterers thereby lose the option for speed claims as they only pay for real performance. Owners are encouraged to install energy-saving devices, educate crew, and pay for better paint because the better the vessel performs, the higher the rate they get.

On top of charterparty changes, which are bilateral, some actions submitted relate to multilateral agreements. Multilateral agreements cover most of, or the full value chain instead of only two parties. An example of this is the Blue Visby Solution, a platform that aims to eliminate the practice of "sail fast then wait", through a focus on multilateral cooperation.

Example:

Exciting new technologies are a welcome development for the decarbonisation of maritime trade. But one of the obstacles to progress is the contractual architecture of maritime trade, with current contract structures promoting the high-emission practice of "Sail Fast, Then Wait." The **Blue Visby Solution** delivers GHG savings of about 15% and its holistic approach includes all the necessary changes to the charter party and sale contracts, as well as a multilateral agreement between the companies, to enable changes in the operational speed of a vessel during a voyage. The Blue Visby Solution contractual architecture includes a benefit-sharing mechanism, which incentivises participation and overcomes the obstacle of split incentives. The overview of the contractual changes is explained in the linked article, and the Blue Visby Solution will start having real-life impact in 2024.

Lastly, another type of action that companies submitted relates to changes to commodity contracts, which form an important cornerstone of the industry's contractual architecture. In general, it has become clear that changing contracts on multiple levels, if not across the full value chain, is instrumental to changing current inefficient practices.[7]

When it comes to the subject of the contractual changes submitted by the companies, keywords revolve around speed optimisation, just-in-time arrival, benefit sharing, emissions reporting, and technical improvement. One example was submitted by Cargill Ocean Transportation, which is aiming at implementing just-in-time arrival.

Example:

Cargill Ocean Transportation aims to implement virtual NOR/just-in-time arrival by tendering notice of readiness several days prior to the arrival of the vessel for the date that she originally would have arrived had she proceeded at due despatch. This allows the vessel to slow down to arrive closer to, or at, the requested time, saving fuel and optimising terminal logistics by allowing for better anticipation of the vessel's arrival.

"Our attempts to implement virtual NOR/just-in-time arrival at one of our terminals continue, as do our attempts to run pilots. We will continue striving to amend our contracts/ berthing terms as such to allow for the implementation of virtual NOR/ just-in-time arrival bearing in mind the required margin days for holds inspection/ failures."

Cargill Ocean Transportation

The above example shows how the different action areas are intertwined. For example, changing contracts is often trialled in the form of pilots. However, another example by Oldendorff Carriers, one of the largest dry bulk shipping companies, shows that contractual changes to improve operational efficiency already make their way into standard contracts.

Example:

Since the end of 2021, **Oldendorff Carriers** and Teck Resources have agreed to include emission reduction targets in their Contract of Affreightment (COA). The reductions are realised by employing energy-efficient bulk carriers for the shipments of Teck's cargo from Vancouver. The employed Oldendorff 'eco' bulk carriers achieve significant fuel savings owing to their energy-saving design, fuel-efficient engines, maximised cargo size, and advanced voyage optimisation. A cornerstone of this partnership is Oldendorff's commitment to support additional emission reductions through further investments in energy-saving technologies.

This example demonstrates once again the importance of collaboration across all action areas. Clearly, contracts are a matter of collaboration and including benefit-sharing mechanisms is important to increase the engagement of more stakeholders.

7 Global Maritime Forum (2023). Legal and contractual changes to enable operational efficiency.

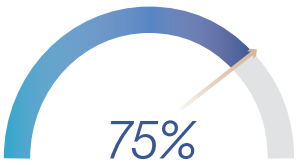

Figure 14: Collaboration-metre for pilot projects

Share of 'collaboration' keyword assigned to the submitted actions on the pilot projects area.

Action area: Pilot projects

Only eight actions were submitted within pilot projects, making it one of the areas with the fewest actions. Half of the submissions came from service providers, two from shipowners/operators, and one each from charterers and ports/terminals. The low number of submissions for this action area is a testament to the hurdles facing the uptake of operational efficiency pilots.

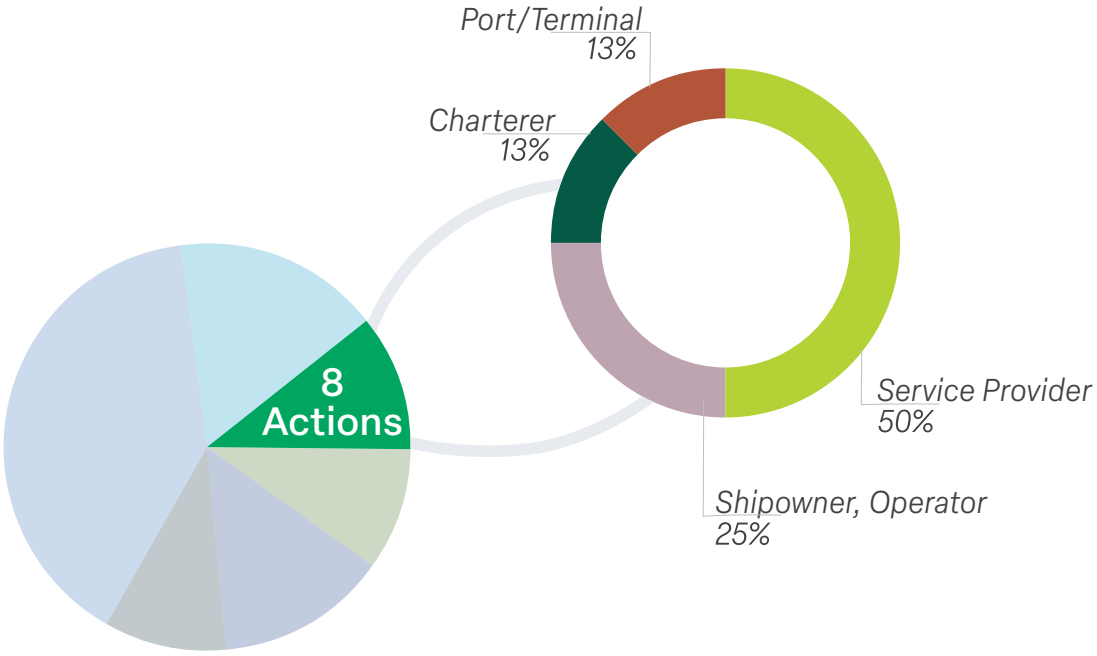

Figure 15: Left: number of actions submitted in pilot projects; Right: share of companies' categories regarding the number of actions submitted (i.e. eight actions).

As Figure 14 shows, pilots require more collaborative efforts than any other action area, with 75% of all submissions showing collaboration.

Collaboration is a basic prerequisite for setting up operational efficiency pilots. This collaboration can happen between charterers and shipowners and/or ports and terminals, but it can also happen between different business units within an organisation. For example, evidence suggests that internal alignment between a company's commodity desk and chartering desk is vital to adjusting speed or arrival times.[8] Another important form of collaboration is agreeing on relevant contractual terms that make speed adjustments or differing arrival times possible, which was reflected in the keyword "multilateral agreement" in Figure 16. A great example of this is a pilot provided by Euronav.

8 Global Maritime Forum (2023). Enablers and challenges to operational efficiency pilots.

Example:

Euronav performed a voyage of a Suezmax tanker with a reduced voyage speed and benefit-sharing provisions between shipowner and charterer, having included a relevant split incentive clause in the charter party. Just after leaving the loading port and ten days before reaching the discharge port (ETA), the charterer instructed Euronav to slow down the vessel and arrive later than agreed due to the low level of terminal readiness to commence unloading operations. The agreed speed reduction resulted in saving 43 metric tonnes (MT) of fuel and almost 130 MT of CO2.

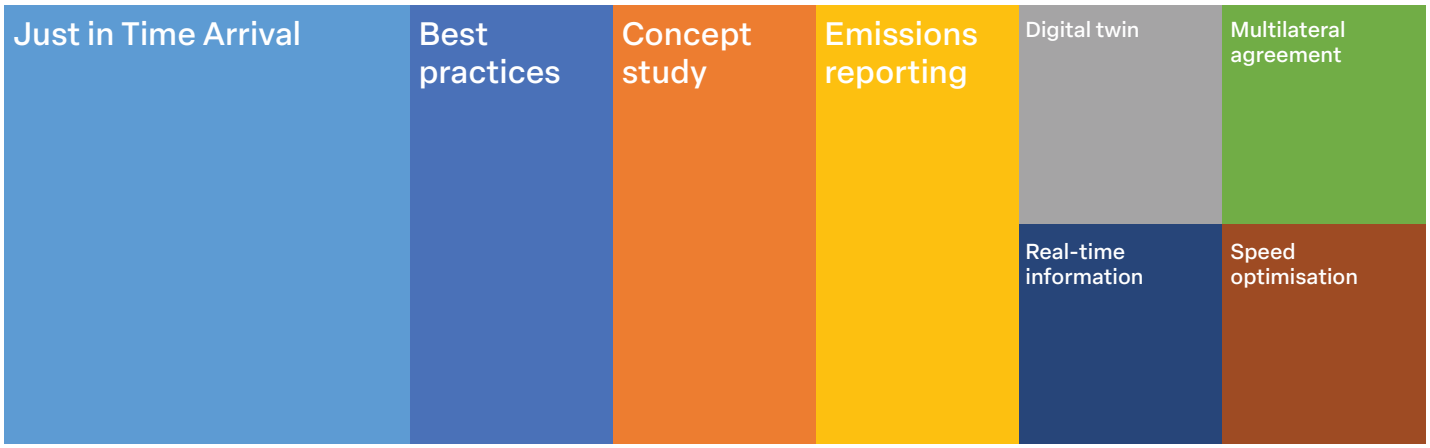

Figure 16: Treemap of keywords identified from the eight submitted actions in pilot projects.

While the Euronav example focuses on speed optimisation, other submissions focused on just-in-time arrival pilots, sharing best practices, and emissions reporting (Figure 16).

Example:

Chevron Shipping Company, a US-based shipping company and charterer transporting crude oil, LNG, and refined products, is looking to expand the use of the just-in-time arrival concept (and other best practices) that have been proven to reduce emissions on lightering and refinery supply programmes. Chevron reports that by utilising early loading and strategic bunkering, adjusting discharge dates, and slow steaming where possible, savings of approximately 2,500 MT of fuel (approx. 7,500 MT of CO2 equivalent) per year have been achieved on the lightering and Suezmax fleets.

Example:

Torvald Klaveness ZeroLab pilots operational efficiency projects with cargo owners. In one such project, Klaveness Chartering and ZeroLab together were able to help the charterer that took part in their pilot project, reduce emissions on a selected voyage by 27% per ton of cargo.

While most pilot submissions refer to singular voyages, routes or vessels, a pilot can also be a continued series of trials to improve operational efficiency. An interesting example of this was provided by Signol, a London-based service provider that focuses on behavioural change to reduce emissions in aviation and shipping.

Example:

Signol partnered with Bernhard Schulte Shipmanagement Deutschland (BSMD) on a four-month pilot to reduce carbon emissions on its managed ships through behavioural change alone. The partnership saw 30 masters and chief engineers across 23 BSMD-managed vessels receive personal targets and achievements via the Signol app and direct emails, nudging participants toward fuel-efficient behaviours and letting them review their voyages. Captains and chief engineers were measured on key metrics around auxiliary engine usage, main engine fuel consumption and cylinder oil consumption. The final raw dataset contained 25,000 reports spanning thirteen months, gathered from noon reports filed by participating ships. Signol saw positive results, with 13,900 metric tonnes of CO2 saved over the four-month trial.

Furthermore, as Figure 16 shows, pilots can also be concept studies, i.e. testing operational efficiency measures conceptually before implementing them on the ground. One example of this was provided by Blue Visby Services Ltd., which is using digital twins to demonstrate possible emission savings through JIT arrival, with the aim to transition from virtual pilots to real-life prototype applications during 2024.

Action area: Ports, terminals and value chains

Only 7 actions were submitted for the action area of ports, terminals & value chains, making it the action area with the least submissions. As expected, submissions came primarily from ports/ terminals, which submitted four of the area's seven actions. The remaining actions were submitted by charterers (two) and shipowners/operators (one) (Figure 18).

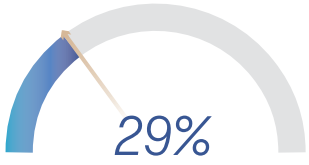

Figure 17: Collaboration metre for ports, terminals and value chains.

Share of 'collaboration' keyword assigned to the submitted actions within ports, terminals and value chains.

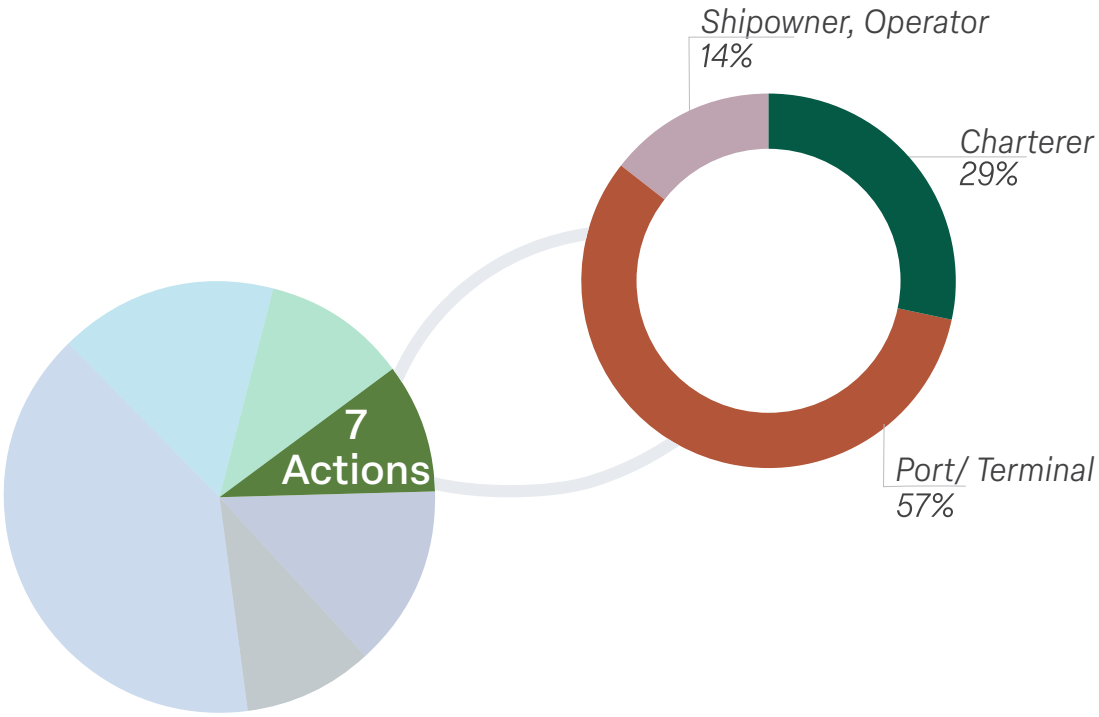

Figure 18 - Left: number of actions submitted in ports, terminals and value chains; Right: share of companies' categories regarding the number of actions submitted (i.e. 7).

The actions submitted for this action area related to just-in-time arrival, the development of standards, the sharing of best practices, and speed optimisation (Figure 19). The ports, terminals and value chains action area is inherently linked to collaboration as it involves bringing the value chain together to improve efficiency. As Figure 17 shows, 29% of the submitted actions mention collaboration. Collaboration within this area is exemplified by Bunge S.A., a global agribusiness and food company, which practises holistic supply chain management.

"Through holistic supply chain management, we actively manage vessel speeds – warranted and not – with the objective of achieving JIT arrivals and aiming to optimise our supply chains while reducing our associated CO2 footprint."

Bunge S.A.

There were only seven submissions in total for this action area, so the keywords are not as spread out as in the other areas (Figure 19).

Figure 19: Treemap of keywords identified from the seven submitted actions in ports, terminals and value chains.

NYK Line provided another example of optimising speed by involving the whole supply chain.

Example:

NYK Line tries to reduce GHG emissions by calculating and sailing at an optimal rate. The shipper, charterer, and shipowner are all united in implementing decelerated voyages to operate the vessels at optimal speeds, considering weather and sea conditions. Shipowners have evaluated the impact of the decelerated operation on the ship's equipment and are managing the ship properly from a safety perspective. There is also an aspect of discussing environmental regulations, and the shipper is adjusting the cargo handling and port scheduling to avoid vessel idling offshore to minimise GHG emissions.

"Through the decelerated operation of a capesize bulker and optimisation of the entire supply chain, we have reduced 50 tonnes of fuel consumption in a round trip between the Far East and South America compared to regular speed operation and have contributed to reducing GHG emissions."

NYK Line

A prime example of engagement and leadership by ports comes from Port of Açu, the largest deep-water and private industrial port complex in Latin America.

Example:

Through its innovation programme Cais Açu Lab, **Port of Açu** is aiming to transform Açu into an innovation platform by promoting efficiency and resilience in port, maritime, and industrial operations. The programme establishes the guidelines for research, development, and innovation on-site and in the region, connecting local initiatives to its strategy and leveraging projects through partnerships. The programme includes digital transformation, process improvement through increasing efficiency, energy transition through promoting sustainable businesses and low-carbon industrialisation, and new businesses using the port's ecosystem to develop new opportunities through intrapreneurship and circular economy.

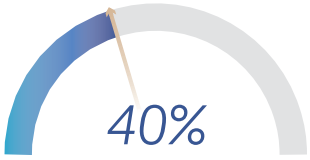

Figure 20: Collaboration metre for culture and leadership.

Share of 'collaboration' keyword assigned to the submitted actions within culture and leadership.

Action area: Culture and leadership

The ten actions in the area of culture and leadership are distributed almost equally among all sectors, with at least one submission by each (Figure 21). Forty percent of the actions are linked to collaboration (Figure 20).

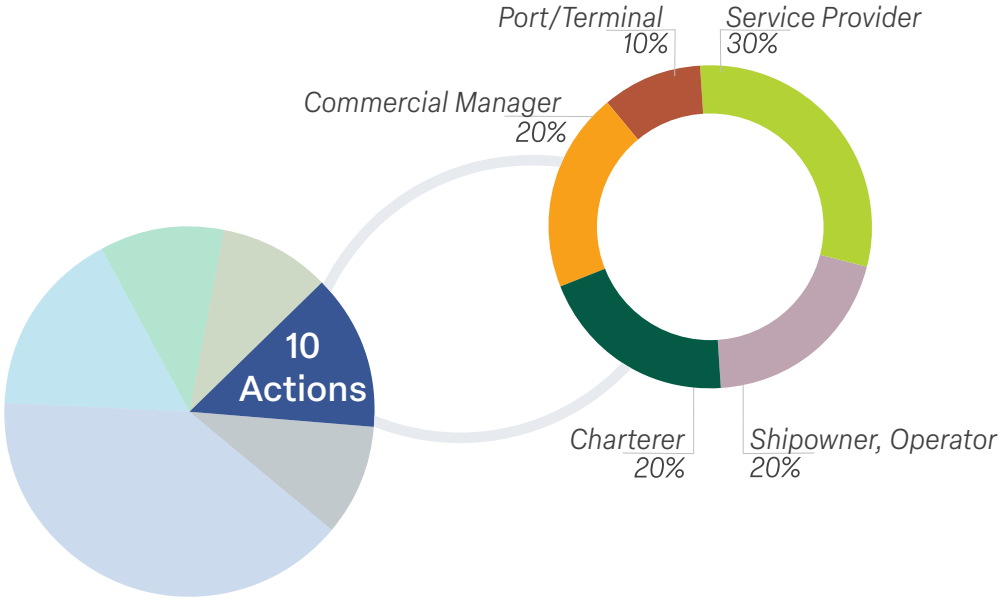

Figure 21: Left: number of actions submitted in culture and leadership; Right: share of companies' categories regarding the number of actions submitted (i.e. 10 actions).

Looking at the keywords, Figure 22 shows that most submissions in the culture and leadership action area relate to the sharing and implementation of best practices and the development of standards.

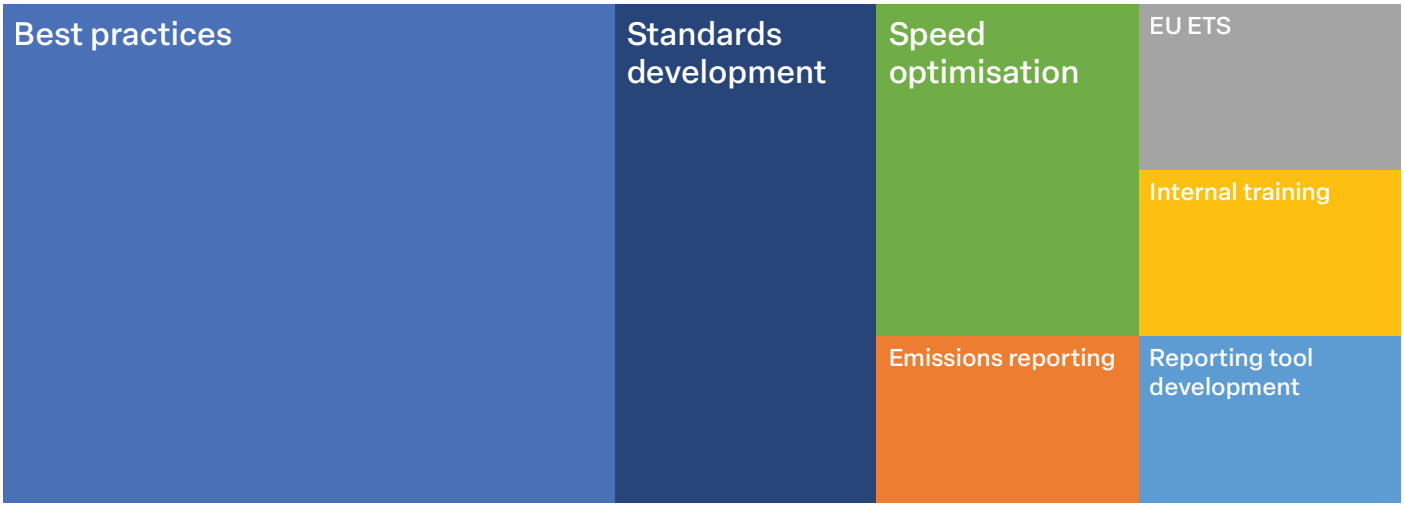

Figure 22: Treemap of keywords identified from the ten submitted actions in culture and leadership.

Culture and leadership was the only action area to have 'internal training' as a keyword. This is a crucial aspect as bold leadership and decisions need to trickle down into the day-to-day operations. Examples of this have been provided by Maersk Tankers and Viterra Chartering.

When looking for synergies with other action areas, it becomes clear that culture and leadership are connected to all of them. Establishing new pilots and changing contracts is an act of leadership in and of itself and collaboration across ports, terminals and the entire value chain fosters a culture of mutual trust and collective efforts.

"Transparency is an integral part of Maersk Tankers' operations. To ensure all stakeholders – owners, technical managers, and commercial managers – are on the same page, Maersk Tankers holds monthly meetings with vessel performance managers and operators to go over past voyages and identify areas for improvement in terms of vessel performance and fuel savings."

Maersk Tankers

Example:

Viterra Chartering B.V. has set up a decarbonisation working group to further understand initiatives in shipping that it may be able to adopt and integrate into its broader decarbonisation roadmap.

"Through this working group, we will not only develop the required expertise about current and future developments in respect of decarbonisation in shipping and beyond but will also be able to share this ever-increasing and evolving knowledge with the various business teams to create awareness throughout the entire organisation."

Viterra Chartering B.V.

Actions Insights

The above-mentioned examples and all other actions submitted by companies (see Annex) demonstrate that the industry is taking a diverse range of actions to improve operational efficiency. In order to meet the ambitions of the IMO, these will need to be replicated and scaled rapidly until the maximisation of operational efficiency becomes the industry norm.

That most of the submitted actions relate to data and transparency and that so many actions focus on collaboration are positive signs that the industry is moving in the right direction.

When it comes to the implementation of pilots, however, there are still gaps. This makes sense as, in order to run one pilot, efforts in different action areas – such as data and standards, value chain collaboration, and culture and leadership – are all prerequisites. Successful pilot projects require alignment on contractual adjustments, accurate and transparent data, and a willingness to lead by example and disrupt "business as usual". Thus, running pilots requires more significant levels of collaboration than actions in other areas. Further efforts to deliver on practical pilot projects are needed, something that additional support can potentially help catalyse.

When looking at industry representation, it is noteworthy that examples of pilots were generally shared by shipowners or operators, with very few coming from charterers or ports. While charterers often claim that their influence on the operations of a vessel is limited, they typically have control over the charterparty and therefore play an important role in mandating the way a vessel should be operated. For example, in the pilot submitted by Euronav, the instruction to slow down the vessel was given by the charterer. This demonstrates that both charterers and shipowners have essential roles to play and that collaboration is indispensable. Contractual adjustments like split incentive clauses are just one example of how this collaboration can be incentivised and facilitated.

Meanwhile, it is important not to underestimate the role of ports and terminals. The example of Port of Açu shows that ports and terminals can play a crucial role in facilitating virtual and just-in-time arrival. Ports can collaborate with shipping companies to gather real-time data on vessel schedules, weather conditions, berth availability, and port operations, which allows for better coordination and planning, and enables ships to adjust their speed or time of arrival to minimise waiting times.

Industry initiatives such as this one can only be truly successful if they are able to scale from the “emergence” to the “diffusion” phase, which can be facilitated by more ambitious policies.[9] This framing is often associated with the introduction of new fuels, but it applies equally to operations. In the emergence phase, initial research and adoption of best practices for operational efficiency begin, which then rapidly increase in the diffusion phase to become the new dominant practices in the reconfiguration phase.

Actions like the ones shared in these pages can help convince policymakers that the shipping industry is supportive of ambitious policies that level the playing field. Furthermore, more robust policies are required to allow the efforts being taken by leaders to have broader uptake by the industry. While the IMO has raised its targets for emissions cuts by 2030 and CII is increasing demands for transparency, specific regulations need to be sharper and clearer in order to deliver 30% emissions cuts in seven years. It is hoped that this collection of actions inspires policymakers to explore how these can become the default way of operating.

It is clear that there is no time to step back and let others take over. The work started by the signatories of the Operational Efficiency Ambition Statement is just the beginning. From what has been shared by participating companies, the more the topic of operational efficiency is explored, the more opportunities appear. Critically, while much of this report focuses on the role of collaboration in advancing best practice, there is much to do internally as well. Whether it is sharing more data on costs and emissions of voyages and end-to-end transactions, the alignment of internal KPIs or holistic systems that balance incentives across business units such as commodity trading and ocean freight, there is a clear opportunity for companies to start the journey to operational efficiency at home.

9 *Getting to Zero Coalition et al. (2023). Climate Action in Shipping. Progress towards shipping’s 2030 breakthrough.*

Conclusion

This report presented 73 practical actions by 26 companies that aim at improving operational efficiency and reducing emissions. While the sample size is relatively small, it is clear that action is being taken by companies across the value chain within dry and wet bulk shipping. While gaps remain, in particular when it comes to getting more pilot projects on the water, companies across the maritime industry are implementing actions that improve operational efficiency today. This should be celebrated while at the same time recognising that it is only a start. The actions shared in this report and the annexes need to become the industry norm.

Furthermore, the signatories of the Operational Efficiency Ambition Statement have not only shown a willingness to collaborate but have also begun to demonstrate how collaboration works in practice. Many of the signatories have engaged in collaborative dialogue over the past two years, working to draft the Ambition Statement and the five action areas. What's more, companies were willing to share their actions to improve operational efficiency with each other, through open discussions about barriers, enablers, and lessons learned. This behaviour sets a precedent to overcome a culture of secrecy and enter into a new phase of sharing and pre-competitive collaboration.

Building on the past work with this group of stakeholders, the Global Maritime Forum is looking forward to continuous engagement with the signatories of the Operational Efficiency Ambition Statement in 2024 and beyond. Our goal is to translate the fruitful and collaborative industry dialogue into even more concrete actions that improve operational efficiency this decade and pave the way for a more efficient, decarbonised shipping industry in the future.

Further reading

Global Maritime Forum (2023). Short-Term Action Opportunities.

Global Maritime Forum (2023). The role of data in maximising operational efficiency in shipping.

Global Maritime Forum (2023). Legal and contractual changes to enable operational efficiency.

Global Maritime Forum (2023). Enablers and challenges to operational efficiency pilots.

Global Maritime Forum (2023). Major maritime companies join forces to cut emissions through triple win of operational efficiency.

Annex

The annex reflects all companies' individual submissions and does not reflect the actions or views of other companies or the Global Maritime Forum. The Global Maritime Forum team added keywords to facilitate the data analysis and, in some instances, adapted the action area to reflect the action better but has otherwise not edited the companies' submissions.

Company	ADMIRALTY (UKHO)	Service provider
		United Kingdom

	Description	Area	Keywords
Specific action	Through ADMIRALTY, the UK Hydrographic Office (UKHO) will make data services available to enable Voyage Optimisation, working with solution providers, to offer greater granularity and veracity of optimisation techniques employed. Data types such as routing networks, bathymetry, important features such as environmental protection areas, and sensitive and precautionary areas, will all be made available so that the use of Voyage Optimisation can be more widespread, and so that Government sources and alike can have confidence in their use and endorsement.	Data collection & transparency	Voyage optimisation; Collaboration
Specific action	Through ADMIRALTY, the UKHO will make data services available to enable Just In Time Arrival. Working with the Blue Visby team as an example, the UKHO will be providing updated and official data along navigational corridors and focused on major ports, enabling connected stakeholders to share a common view of live situational awareness, and change their behaviours accordingly to realise optimal performance.	Data collection & transparency	Just in Time Arrival; Real-time information; Reporting tool development; Collaboration
Specific action	Through ADMIRALTY, the UKHO will make port data services available to optimise Port Operations such as detailed bathymetry enabling more accurate Under Keel Clearance calculations to be used to optimise loads transported, against fuel consumed for example. Other examples of optimisation from this data will be opportunities around displaying the availability of port services, such as future fuels, and enabling ports and terminal management to be more specific around arrival and departure times, again addressing JIT arrivals.	Data collection & transparency	Just in Time Arrival; Real-time information; Reporting tool development; Collaboration

Company	Amaggi SA	Charterer; dry bulk
		Switzerland

	Description	Area	Keywords
Specific action	Operational Efficiency measures: - Instruct economical speed at a higher threshold - Challenge instructions for full speed regardless of compensation. (In house or external business) - Avoidance of “steam fast and Wait” for in house contracts when commercially viable - Perform hull cleaning regardless of CP provisions	Contractual changes	Speed optimisation; Technical improvements; Charter party changes

Specific action	Amaggi joined Zero Lab in June 2022 in order to track and ensure a professional and independent monitoring and reporting of emissions to Sea Cargo Charter. All voyages are analysed internally and by Zero Lab in order to guarantee the relevance of the data. We hold regular meetings with Zero Lab to maintain engagement. Amaggi is a member of Sea Cargo Charter. We are 13% above the required Sea Cargo charter trajectory for 2022. - Consistent with the Sea Cargo Charter, we incorporate ballast journeys conducted before the start of our charters when calculating the EEOI. -We enforce the inclusion of the Sea Cargo Charter clause in all charter parties, voyage and TC. - We constantly chase the owners and/or operators for the data for voyage charters.	Data collection & transparency	Sea Cargo Charter member; Emissions reporting

Company	**Blue Visby Services Ltd.**	**Service provider; dry bulk, tanker.**
		United Kingdom

	Description	Area	Keywords
Specific action	"Exciting new technologies are a welcome development for the decarbonization of maritime trade. But one of the obstacles to progress is the contractual architecture of maritime trade, with current contract structures promoting the high-emission practice of "Sail Fast, Then Wait." Blue Visby Solution delivers GHG savings of about 15% and its holistic approach includes all the necessary changes to the charter party and sale contracts, as well as a multilateral agreement between the companies, to enable the changes in the operational speed of a vessel during a voyage. Indeed, the Blue Visby Solution contractual architecture includes a benefit sharing mechanism, which incentivises participation and overcomes the obstacle of split incentives. The overview of the contractual changes is explained in the linked article, and Blue Visby Solution is committed to bringing these to reality during 2024." Learn more here.	Contractual changes	Charter party changes; Multilateral agreement; Speed optimisation

Specific action	In an interview with Lloyd's List in September 2023, BIMCO's President, Mr. Nikolaus H. Schües, observed that "the shipping industry should do two things: adopt electronic bills of lading and adopt the Blue Visby Solution." This is in recognition of the unique potential impact of the Blue Visby Solution, as well as the painstaking work conducted over several years: studies, proofs of concept, community-building, virtual pilots, and now reaching the stage of prototype trials, aiming at operational deployment in 2024. Working with a rapidly expanding open Consortium of 30+ of the most prestigious companies and institutions in maritime trade, with the aim of reducing shipping GHG emissions by 15% from today's fleet through eradicating the practice of "Sail Fast, Then Wait", the largest single systemic carbon inefficiency in maritime trade. There is no other project with the same focus and depth. The Blue Visby Solution tackles SFTW by overcoming the weaknesses of virtual arrival and just-in-time berthing, through a multilateral neutral platform, integrating software, an operational system and contractual architecture, which presents a holistic solution to this carbon inefficiency.	Culture & Leadership	Collaboration

	In addition to its innovative approach, the Blue Visby Solution project presents a unique combination of two features: first, it's neutral and independent of all market participants and, secondly, it's practical and designed for immediate deployment, without the need for new regulations. The project has contributed to raising awareness about SFTW, with publications, seminars, conferences and webinars internationally. It has also attracted attention outside the maritime world, with coverage by Forbes and Bloomberg. BVS has been rigorously tested through studies, proofs of concepts, and pilot programs. Data from 150,000 voyages of 13,000 ships in real operating conditions show GHG savings of 14.1% for various routes and size dry bulk segments and 16.0% for crude oil and product/ chemical tankers. Such reductions are additional to any other reductions that are available through weather routing and voyage optimisation of individual ships. Various confirming company-specific estimations have been done together with the Consortium members, and the solution has been examined and certified by ClassNK. Three real-life prototypes are planned to begin in the coming months.		

Specific action	Extensive proof of concept studies involving thousands of voyages in real operating conditions and the use of digital twins demonstrate savings available through Just-in-Time and the Blue Visby Solution. During 2023, Blue Visby Solution has run virtual pilot voyages with digital twins for about a dozen participants. Blue Visby Solution is transitioning from virtual pilots to real-life prototype applications in three segments, aiming to be operational during 2024.	Pilots	Digital twin; Collaboration; Concept study; Just in Time Arrival

Company	Bunge S.A	Charterer; dry bulk
		Switzerland

	Description	Area	Keywords
Specific action	We endeavour to adapt internal contractual obligations, such as CP details or commodity contract wording, that would align and support the achievement of our Bunge's sustainable goals and supply chain optimization.	Contractual changes	Charter party changes; Commodity contract changes
Specific action	We endeavour to narrow the laycan of our in-house executions beyond the underline contractual obligation aiming to streamline line-ups & to reduce turn time of our ships globally. With a holistic E2E supply chain management, we commit to a continuous reassessment and re-planning ship allocation to loading ports with the objective to reduce the port stay and our carbon footprint.	Ports, terminals and value chain	Best practices
Specific action	Through a holistic Supply Chain management, we actively manage vessel speeds – warranted and not – with the objective of achieving JIT arrivals and aiming to optimise our Supply Chains together with reducing our associated CO2 footprint.	Ports, terminals and value chain	Just in Time Arrival; Speed optimisation
Specific action	Sea Cargo Charter Member	Data collection & transparency	Sea Cargo Charter Member

Company	Cargill Ocean Transportation	Charterer; dry bulk, tanker
		Switzerland

	Description	Area	Keywords
Specific action	Our attempts to implement virtual NOR/ just-in-time arrival at one of our terminals continue, as do our attempts to run pilots. We will continue striving to amend our contracts/ berthing terms as such to allow for the implementation of virtual NOR/ just-in-time arrival bearing in mind the required margin days for holds inspection/ failures. Tendering notice of readiness a number of days prior to the arrival of the vessel for the date that she originally would have arrived had she proceeded at due despatch. This will allow the vessel to slow down to arrive nearer or at the requested time, saving fuel and optimising terminal logistics as the terminal will have a better anticipation of vessel's arrival. The above will be executed within the boundaries of commercial viability.	Contractual changes	Just in Time Arrival; Charter party changes; Speed optimisation

Specific action	Cargill played a leading role in founding the Sea Cargo Charter (SCC). For the year 2022 we were approx. 4.5% misaligned. For the year 2023 (YTD until end June) we are approx. 1.5% misaligned. Year on year there has been a downward trend. We are applying the IMO guidelines for voluntary use of the Ship Energy Efficiency Operational indicator (EEOI) in our calculations. And in line with the Sea Cargo Charter, we take our ballast voyages prior to commencement of the laden chartered voyages and our ports stay into consideration whilst calculating. Although we are making sustained efforts to improve our EEOI by deploying a range of operational and technical efficiency improvement measures, the downward trend we see is mainly due to market conditions dictating lower average voyage speeds within the dry bulk fleet. Learn more here.	Data collection & transparency	Sea Cargo Charter member; Ship Energy Efficiency Operational indicator (EEOI)

Specific action	We have committed our entire operated fleet to using ZeroNorth's Optimise software, a voyage, vessel and bunker optimization tool. The software will provide instructions on optimal speeds, route and ETA for each vessel enabling real time efficiency and optimised CO2 emission reductions.	Data collection & transparency	Real-time information; voyage optimisation

Company	Chevron Shipping Company	Shipowner, Charterer; tanker
		United States

	Description	Area	Keywords
Specific action	Chevron will continue to focus on operational efficiency for our owned and bareboat fleet through our integrated operations centre. Achievable examples include development of standardised guidance for eco-speed steaming on low load baseline engine range for our VLCC fleet which has saved over 2,000 MTS CO2 equivalent ytd in this class of ship. Lessons learned will be expanded to other vessel classes.[as a shipowner].	Culture & Leadership	Standards development; Speed optimisation; Best practices
Specific action	Chevron is a member of the Sea Cargo Charter. In 2023, we are 15% below the required Sea Cargo Charter climate alignment trajectory and we apply the IMO Guidelines for Voluntary use of the Ship Energy Efficiency Operational Indicator (EEOI) within our assessment methodologies. Further, and in line with the Sea Cargo Charter, we include ballast voyages undertaken prior to commencement of our charters within the EEOI calculation.	Data collection & transparency	Sea Cargo Charter member; Ship Energy Efficiency Operational indicator (EEOI)
Specific action	Use of technology to develop a predictive and standardised process for cargo management in the LNG fleet. Creation of a digital twin to take real world operational data and simulate voyage parameters to develop an optimum voyage profile for heel and boil off gas management. Initial voyage optimisations have reduced boil off resulting in over 500 MTS CO2 equivalent saved per voyage. [as a shipowner]	Data collection & transparency	Reporting tool development; Digital twin; Standards development
Specific action	Chevron shipping company will continue using weather routing and speed optimisation software for vessels within our time charter fleet. This optimises laden/ ballast legs considering weather conditions, laycan and other relevant voyage dates. Use of 3rd party software has been rolled out across our time charter fleet across all vessel sectors in 2023, with a reduction of nearly 900 MTS CO2 equivalent at the end of August 2023. [as a charterer]	Data collection & transparency	Weather routing; Emissions reporting; Speed optimisation

Specific action	Trialling of cargo heating modules through 3rd party software with the goal to reduce consumptions / emissions further (heated fuel oil cargoes). Use of a third-party contractor for verification / validation of data feed quality to achieve full carbon awareness of time charter tonnage. [as a charterer]	Other	N/A

Specific action	Look to expand use of just in time arrival concepts (and other best practices) that have been proven to reduce emissions on USWC lightering and refinery supply programmes. By utilising early loading, strategic bunkering, adjusting discharge dates and running at eco speed where possible savings of approx. 2500 MTS of fuel (approx. 7500 MTS of CO2 equivalent) per year have been achieved on the lightering and Suezmax fleets. [Charterer/ Terminal operator].	Pilots	Just in Time Arrival; Best practices; Concept study

Company	COFCO International	Charterer; dry bulk
		Switzerland

	Description	Area	Keywords
Specific action	We are committed to amending our charter party clauses for voyage data reporting to ensure ship owners provide us with fuel emission reports. This increases the percentage of chartering activities inside the reporting scope of Sea Cargo Charter.	Contractual changes	Charter party changes; Emissions reporting
Specific action	Through the Sea Cargo Charter, we annually report our chartering activities' alignment to the industry's decarbonisation trajectory, as measured by carbon intensity, using the methodology established by the Charter.	Data collection & transparency	Sea Cargo Charter member
Specific action	We implement various steps to ensure that our vessels run as efficiently as possible and with decreased CO2 emissions, including verifying Energy Efficiency existing ship Indexes (EEXI) before fixing time-chartered vessels (something that became mandatory since 2023/01/01), fixing older tonnage for low-performing vessels and optimising our voyages.	Other	N/A

Company	**Copenhagen Commercial Platform**	**Commercial Manager; dry bulk**
		Denmark

	Description	Area	Keywords
Specific action	We are working with two major charterers implementing a new charter party (eCP) that is based on the newly Recommended Practice (RP) by DNV, which offers a new, accurate and transparent method for measuring, evaluating and verifying the technical performance of ships in service. The idea is to issue a dynamic decarbonization incentive charter party eCP (e for emission) for mutual benefit vs today's where there is a split incentive. We want to incentivise both parties towards a more collaborative approach in which charterers pay for what they get, in terms of speed and consumption – average accurate measured performance from the last 3 months is the base for the next 3 months. Charterers thereby lose the option for speed claims as the only pay for real performance. Owners are encouraged to install energy saving devices ESD, educate crew, and pay for better paint, because the better the vessel performs, the higher rate they get. Learn more here.	Contractual changes	Collaboration; Charter party changes; Benefit sharing

Specific action	Sea Cargo Charter Member	Data collection & transparency	Sea Cargo Charter member

Company	Euronav	Shipowner; tanker
		Belgium

	Description	Area	Keywords
Specific action	Euronav was listed 16th out of 64 shipping companies of various sectors (containers, bulk, tankers) in the Webber Research 2023 ESG Scorecard. Also, Euronav has scored 'B' – Management in the Carbon Disclosure Project (CDP) annual ESG assessment and doubled its score in the 2022 S&P corporate sustainability assessment. Euronav is also disclosing its Scope 1,2,3 emissions, AER and EEOI every year since 2019 through its Annual Report. These constitute examples of best practices regarding climate action, transparency and accountability demonstrating that not only does the Company take actions but it is open to share and disclose performance data.	Culture & Leadership	Best practices; Emissions reporting
Specific action	To manage a ship's energy efficiency, more than 400 data capturing sensors are used to collect and automatically send ashore accurate and real-time information on the vessel's fuel consumption, performance, telemetry, cargo status and control systems for processing through a performance management system. Next to that, we are evolving our weather routing capabilities to inform our fleet with accurate climate data so as to optimise voyage performance. Such capabilities can support informed decision making both at sea and at shore and accelerate operational efficiencies and quick wins (i.e hull cleaning scheduling). Learn more here.	Data collection & transparency	Real-time information; Weather routing
Specific action	Euronav performed a voyage of a Suezmax tanker with a reduced voyage speed and benefit sharing provisions between shipowner and charterer, having included a relevant split incentive clause in the charter party. Just after leaving the loading port and ten days before reaching the discharge port (ETA), the charterer instructed us to slow down the vessel and arrive later than agreed. The main reason has been the low level of terminal readiness to commence unloading operations. That agreed speed reduction finally resulted in saving 43 MT of fuel and almost 130 MT of CO2. Also, Euronav has bilaterally engaged with some of its clients and port authorities willing to collaborate on emission reduction practices in order to explore further opportunities to establish a consistent drive of operational efficiencies.	Pilots	Collaboration; Best practices; Just in Time Arrival; Speed optimisation; Multilateral agreement

Company	Genco Shipping & Trading Limited	Shipowner; dry bulk
		United States

	Description	Area	Keywords
Specific action	Genco has reduced annual GHG emissions by 15% since 2022 through cycling out of older tonnage and large scale investment in modern vessels drove these declines in CO2 emissions. Over the last 5 years, Genco has invested $435m in high specification, modern fuel efficient vessels, while divesting older, less fuel efficient ships (in reference to new 15 vessels). Specifically, in 2021, Genco invested $150m towards 6 Ultramaxes. These vessels are of larger carrying capacity and have 'eco' engines resulting in significantly less fuel consumption than a standard 'non-eco' type ship.	Other	N/A
Specific action	Flow metres and performance-monitoring systems installed on our vessels to gather real-time fuel consumption data to optimise voyage efficiency. The flow metres have enabled around the clock monitoring of our vessels' performance. Measurement points that are not accessible or doable for analog/human-controlled measure are now provided in a digital product which enhance accuracy and consistency.The consistent flow of accurate data enable our team to: Ensure engines perform at peak efficiency and thereby reduce consumption of fuel and lubes Enhance maintenance programs resulting in timely replacements of spare parts and reduced number of breakdowns Enable machine learning to assist / improve processes over time. Learn more here.	Data collection & transparency	Flow metres; Reporting tool development; Real-time information; Technical improvements
Specific action	Additionally, Genco has invested capital in the existing fleet by installing energy saving devices (ESDs), new props, and high performance paint systems on many of the vessels aimed at reducing fuel consumption. E.g. Mewis Ducts, new propellers, which are meant to reduce fuel consumptions and applied high performance paint systems that cause less resistance and saves fuel consumption as well. Learn more here.	Other	N/A

Company	Lloyd's Register	Classification Society
		United Kingdom

	Description	Area	Keywords
Specific action	Actions not submitted.	N/A	N/A

Company	Louis Dreyfus Company	Charterer; dry bulk, tanker
		Switzerland

	Description	Area	Keywords
Specific action	Sea Cargo Charter Membership. LDC is a founding member of SCC and a member of the Steering Committee. Over the past 3 years, LDC has contributed, together with other industry leaders, at improving the transparency and promoting data sharing on vessel emissions. LDC has collected, has had verified by a third party its results, and has made public the efficiency of its fleet for more than 2 years now. Data collection has been strongly supported by Charter Party clauses update adding a right for the Charterers to collect the relevant data. Learn more here.	Data collection & transparency	Sea Cargo Charter member
Specific action	ZeroNorth Partnership. LDC has signed and rolled out the ZeroNorth platform across its entire fleet in order to promote Fleet Efficiency, Data Collection & Transparency. This partnership is aiming at increasing the efficiency of all vessels in our fleet. It will increase the focus on optimum routing together with collecting always more accurate data to improve underperformance detection. Finally, data collected and shared with ZeroNorth will be anonymized and used together with other ZeroNorth clients' data to further improve everyone's vessel modelling capabilities. Learn more here.	Data collection & transparency	Reporting tool from third party; Collaboration
Specific action	Internal Trainings and External Advocacy. Over the past years, our management has conducted a number of internal training aiming at making our Chartering and Operations teams aware of the consequences of their decisions on carbon footprint, vessel efficiency, EU ETS and other upcoming Decarbonization Regulations. These internal trainings have been going hand in hand with participation in a number of conferences in order to advocate in favour of an acceleration of the transition, raising awareness on decarbonization topics and engaging with main stakeholders to partner around concrete projects. Learn more here.	Culture & leadership	Internal training; EU ETS; Best practices

Company	Maersk Tankers	Commercial Manager
		Denmark

	Description	Area	Keywords
Specific action	Transparency is an integral part of Maersk Tankers' operations. To ensure all stakeholders – owners, technical managers and commercial managers – are on the same page, Maersk Tankers holds monthly meetings with vessel performance managers and operators to go over past voyages and identify areas for improvement in terms of vessel performance and fuel savings	Culture & leadership	Collaboration; Standards development; Best practices
Specific action	Data has always been an integral part of decarbonisation. In order to enhance data collection and transparency Maersk Tankers and ZeroNorth collaborated to develop and launch the cloud based vessel reporting tool. The tool was developed with 300+ validations which would ensure data accuracy right from source. In order to align and reduce workloads of shore and vessel staff to aid decarbonisation, the tool was developed to be integrated with the commercial software so that all stakeholders would see a shared reality and the vessel could dispense with excel reporting sheets altogether.	Data & transparency	Best practices; Reporting tool development; Collaboration
Specific action	Currently Maersk Tankers is only working upon CII and EU ETS clauses to facilitate seamless operations, data management and EUA assessment for its pool partners. This of course ties in directly to enhancing the decarbonisation agenda and how closely and accurately it is being tracked and worked upon. This aspect will not only benefit pool partners but also work to enhance short term TC consumption tracking and optimisation.	Contractual changes	CII; EU ETS; Collaboration
Specific action	Sea Cargo Charter Member	Data collection & transparency	Sea Cargo Charter Member
Specific action	With the advent of new regulations like CII coming into play, it is apparent that hull coatings would play a major role in fuel savings. With more owners opting for premium hull coatings it became apparent that destructive cleaning methods like brushes cannot be always used. Maersk Tankers has partnered with various entities to trial and pilot waterjet cleaning techniques to safeguard hull coatings in order to ensure maximum gains in terms of fuel savings over the dry docking cycle of a vessel.	Other	N/A

Company	NAPA	Service provider
		Finland

	Description	Area	Keywords
Specific action	NAPA is aiming to innovate the contractual framework and break the legal barriers between stakeholders of each voyage by solving the problem of “split incentives”. NAPA is a member of Blue Visby Consortium as a technology provider with the goal to utilise its digital and voyage expertise to help optimise and stagger arrival times for groups of vessels travelling to the same port. Based on extensive analysis using shipping data from 150,000 voyages, it is estimated that the Blue Visby Solution will be enabling a reduction of about 15% of overall maritime CO2 emissions. During the next few years NAPA will continue to support Blue Visby on developing the technological platform. Learn more here.	Contractual changes	Collaboration; Charter party changes; Multilateral agreement

Specific action	NAPA helps the shipping industry meet its sustainability goals towards decarbonization by strengthening the business case for investing in wind-assisted technology. Using NAPA’s operational voyage simulation technology, NAPA brings critical insights and assurance to inform commercial and operational decisions as early as the design stage. NAPA Voyage Optimization solution delivers emissions reductions of 28% on average when combined with rotor sails. This performance data on the benefits of adopting clean technologies gives the industry the necessary confidence to invest in decarbonization. During 2024, NAPA aims to support more wind-assisted ships with Voyage Optimization solutions. Learn more here.	Data collection & transparency	Simulation technology development

Specific action	As ESG accountability becomes stringent, NAPA Logbook, goes beyond the traditional record-keeping role and acts as a multifaceted data collection tool that automates reporting as well as help optimise daily operations, both onboard and on shoreside: 1) Can collect standardised and captain-signed data on numerous processes – from fuel, water, waste and stability management to equipment safety and maintenance, and even heating ventilation and air conditioning (HVAC) efficiency, people and cargo flow onboard, and resource management – as per ship operator's needs. 2) Eases technical and environmental reporting, such as MARPOL, EU-MRV, ESG, CII, and more, with automation. 3) Integrates with cloud-platform for real-time data exchange with shoreside for further data analysis. 4) Custom reports to benchmark and improve performance on the vast data collected. Learn more here.	Data collection & transparency	Reporting tool development

Company	NYK Line	Shipowner; Dry bulk, Tanker
		Japan

	Description	Area	Keywords
Specific action	When operating vessels, we try to reduce GHG emissions by calculating and sailing at an optimal speed. The shipper, charterer, and shipowner are all united in implementing decelerated voyages to operate the vessels at optimal speeds, considering weather and sea conditions. Shipowners have evaluated the impact of the decelerated operation on the ship's equipment and are managing the ship properly from a safety perspective. There is also an aspect of discussing environmental regulations, and the shipper is adjusting the cargo handling and port scheduling to avoid vessel idling / waiting offshore to minimise GHG emissions. As a result, through decelerated operation of Cape size bulker and optimization of the entire supply chain, we have reduced 50 tons of fuel consumption in a round trip between Far East and South America compared to regular speed operation and have contributed to reducing GHG emissions.	Ports, terminals & value chains	Collaboration; Speed optimisation

Company	Oldendorff Carriers	Shipowner; Dry bulk
		Germany

	Description	Area	Keywords
Specific action	Since the end of 2021, Oldendorff Carriers and Teck Resources have agreed to include emission reduction targets in their Contract of Affreightment (COA). The reductions are being realised by employing energy efficient bulk carriers for the shipments of Teck's cargo from Vancouver BC. The employed Oldendorff 'eco' bulk carriers achieve significant fuel savings, owing to their energy-saving design, fuel-efficient engines, maximising cargo size and utilising advanced voyage optimization. A cornerstone of this partnership is Oldendorff's commitment to support additional emission reductions through further investments in energy-saving technologies. Learn more here.	Contractual changes	Charter party changes; Technical improvements; Best practices
Specific action	In February 2023, Oldendorff Carriers opened a Centre Of Excellence (COE), at its new office premises in Dubai. The COE includes a state-of-the art video wall, providing live information on the performance of our fleet of owned and time-chartered vessels. Visual displays of vessel position, speed, weather, consumption, emissions, and a host of additional performance data are continuously updated. The facility is designed to harness the power of real time data, generating information for faster decision making and helping optimise fuel efficiency, achieve cost effectiveness and lower emissions. Learn more here.	Data collection & transparency	Reporting tool development; Real-time information; Best practices
Specific action	Oldendorff Carriers is running various long-haul transshipment projects around the globe. The transshipment solutions create economies of scale, efficiency improvements and, as a result, reduced emissions compared to the base case scenario. As an example, our Arabian Gulf transshipment project is calculated to provide 27-31% less emissions because of smart fleet operations from transshipment. Oldendorff Carriers has also sought to have the positive impact from transshipment recognized by means of regulatory changes that encourage and accurately measure the emission reductions enabled by long-haul transshipment, referring to MEPC 80/6/3. Learn more here.	Other	N/A

Company	Port of Açu	Port/Terminal
		Brazil

	Description	Area	Keywords
Specific action	Port call optimization: Just-in-time arrival to be delivered by 2025 – the initiative is led by Port Administration and the trials are planned to take place in 2024 for dry bulk operations.	Pilots	Just in Time Arrival
Specific action	Innovation Platform: Through our Innovation Program, called Cais Açu Lab, aiming to transform Açu into an innovation platform, promoting efficiency and resilience in port, maritime, and industrial operations, increasing competitiveness, and contributing to local economic development. The program establishes the guidelines for R, D & I in our operations—in the complex and in the region, connecting local initiatives to our strategy and leveraging projects through partnerships, and it looks for: DIGITAL TRANSFORMATION - Develop Port of Açu as a Smart Port PROCESSES IMPROVEMENT – increase efficiency and positive impacts ENERGY TRANSITION - Promote sustainable business, low-carbon industrialization, and creation of shared value NEW BUSINESSES - Use the port's ecosystem to develop new opportunities through intrapreneurship and circular economy	Ports, terminals & value chains	Collaboration; Best practices
Specific action	The Port Administration developed a Decarbonization Plan, with "efficiency" being one of its pillars. The Decarbonization Plan looks to deliver solutions to logistic chains by integrating efforts and addressing inefficiencies. The plan was approved on board level and its implementation, that started in 2023, will deliver different solutions to contribute to maritime and port efficiency improvement and address cargo footprint reduction, such as digital solutions to improve cargo handling efficiency, arrival sequencing use of virtual arrival and virtual notice of readiness, dredging efficiency, electrification and energy efficiency optimizations, and port reception facilities logistics. The plan's guidelines were integrated into the strategic plan and it is in its first year of implementation.	Culture & leadership	Best practices; Speed optimisation

Company	Port of Rotterdam	Port/Terminal
		Netherlands

	Description	Area	Keywords
Specific action	The Port Authority is committed to implementing the International Hydrographic Organisation's (IHO) international standard for berths, which is based on the berth planning of the terminal. This ensures that the quality of berth information will improve for all chain partners. In line with the IMO ship number, berths are also given a unique Global Location Number (GLN). This number will not change if the berth changes dimension or ownership, allowing for a robust compatibility check between ship and berth. Learn more here.	Ports, terminals & value chains	Standards development; Just in Time Arrival
Specific action	The Port Authority is committed to implementing the International Maritime Organization's (IMO) standards for times, which are based on terminal practices, logbook entries of ships, Statement Of Facts (SOFs) and the definitions in the convention on the international regulations for preventing collisions at sea. The standards are used respecting the current notification and declaration requirements, ordering procedures of nautical services and roles and responsibilities of all actors in the port of Rotterdam. Learn more here.	Ports, terminals & value chains	Standards development; Just in Time Arrival
Specific action	The Port Authority is committed to implementing the International Hydrographic Organisation's (IHO) international nautical standards for depths and tides, which is based on the publications used by shipping to navigate berth to berth worldwide. This ensures that the quality of depth information will improve for all chain partners. Learn more here.	Ports, terminals & value chains	Standards development; Just in Time Arrival

Company	PSA International Pte Ltd	Port/Terminal
		Singapore

	Description	Area	Keywords
Specific action	With a commitment to green our ecosystem and provide unique value-added services to our customers, PSA's Opt-E-Arrive programme enables Just-In-Time vessel arrivals at our terminals. Facilitated by transparent real-time activity synchronisation on vessel locations and berth availability, Opt-E-Arrive allows 24/7 ship-to-port data exchange. Anchored on stakeholder collaboration and using digital capabilities as an important enabler, the programme supports the matching of timely vessel arrivals with the availability of terminal resources, in the process also optimising vessel bunker consumption. A joint study with DNV has also demonstrated that Opt-E-Arrive can enable most vessels approaching Singapore port to have less variability in speed profiles, with the potential to reduce their fuel consumption and carbon emissions by up to 7%. As part of the Opt-E-Arrive programme onboarding process, PSA will be working with identified liners to establish an API linkage to facilitate real-time data exchange to further enhance operational collaboration and advanced berth planning. With wider adoption across more liners, these collaborations will generate economic and environmental benefits at scale for the overall ecosystem. Learn more here.	Data collection & transparency	Real-time information; Collaboration; Just in Time Arrival

Company	Rubis Energie	Charterer; Tanker
		France

	Description	Area	Keywords
Specific action	Rubis has made an analysis and a tool to optimise the supply of fuels to Corsica island, based on number of rotations, quantity on board, choose between 2 port of discharge vs 1 port of discharge. This analysis made Rubis realise what the best option is in terms of GHG savings, that could go up to 7%.	Data collection & transparency	Reporting tool development

Specific action	Rubis Energie is a member of the Sea Cargo Charter and has published its first report for 2022. Rubis managed for this first year of reporting to collect 100% of the voyage data, i.e. emissions/miles/cargo on board. All trading offices are involved in this process and very focused on this initiative to reduce GHG within the company. This is a key tool to understand our emissions pattern and look for specific actions for each type of vessel/voyage area. Learn more here.	Data collection & transparency	Sea Cargo Charter member

Company	Siglar Carbon AS	Service provider
		Norway

	Description	Area	Keywords
Specific action	There is a lack of references to what constitutes a strong or weak emissions performance in shipping programs or a fleet. At Siglar Carbon we will add transparency to the shipping and trading industry by producing and publishing emissions performance references across different ship types and segments, trades, and commodities. Learn more here.	Culture and leadership	Standards development
Specific action	Siglar Carbon provides emissions insight to commercial stakeholders as traders, charterers, ship owners and ship brokers to support their commercial decarbonization. Our products and services enable our clients to embed emissions performance in their commercial decision, both in commodity trading and in the chartering process. We enable our clients to comply with emissions reporting requirements from regulations and industry initiatives such as the Sea Cargo Charter and Poseidon Principles. At Siglar Carbons we will: Continue to expand our products and services to facilitate all major ship types and trade segments. Continuously expand our products and services to facilitate the evolving global and regional regulations and initiatives that targets emissions reductions in shipping and trading. Extend our products and services to other stakeholders in the industry, including the financial sector to enable and support their commercial decarbonization. Learn more here.	Data collection & transparency	Emissions reporting
Specific action	We will support the shipping and trading industry with emissions performance clauses that govern performance targets, responsibilities, and required processes for the use in charter parties, sale and purchase agreements and other commercial contracts.	Contractual changes	Collaboration; Charter party changes; Commodity contract changes; Multilateral agreement; Emissions reporting

Company	Stena Bulk	Shipowner; Tanker
		Sweden

	Description	Area	Keywords
Specific action	Stena Bulk is committed to use JIT and Virtual NOR and have performed several voyages with shared benefits between charterer and shipowner, resulting in lower costs and reduced emissions.	Contractual changes	Just in Time Arrival; Benefit sharing
Specific action	Stena Bulk has been using an inhouse performance monitoring platform for many years, and is now adding performance models/digital twins to support more widespread implementation of data driven JIT Arrival and Virtual NOR for use in the broader industry.	Data collection & transparency	Real-time information; Digital twin; Just in Time Arrival
Specific action	Stena Bulk is offering access to its operational platform, including performance data, to charterers who want to track their shipments live. This is to open for transparency to customers and to push for commercial efficiency and contractual improvements.	Data collection & transparency	Reporting tool development; Real-time information; Collaboration

Company	Torvald Klaveness	Shipowner, operator; Dry bulk, tanker
		Norway

	Description	Area	Keywords
Specific action	Klaveness Combination Carriers has piloted the use of a Carbon Adjustment Factor in contracts to commercially incentivize emission reductions in the absence of a global carbon price.	Contractual changes	Charter party changes
Specific action	Klaveness ZeroLab pilots operational efficiency projects with cargo owners. In one such project, Klaveness Chartering and ZeroLab together were able to help the charterer reduce emissions on a selected voyage with 27% per ton cargo.	Pilots	Collaboration
Specific action	Klaveness was a founding signatory of the Sea Cargo Charter and continues to support the initiative through disclosure as well as active advocacy to increase the membership. The entities disclosing alignment are KCC and Klaveness Chartering.	Data collection & transparency	Sea Cargo Charter member; Emissions reporting

Company	Viterra Chartering B.V.	Charterer, Dry bulk
		Netherlands

	Description	Area	Keywords
Specific action	We have set up a decarbonisation working group to further understand initiatives in shipping that we may be able to adopt and integrate into our broader decarbonisation roadmap. Through this working group we will not only develop the required expertise about current and future developments in respect of decarbonisation in shipping and beyond, but we also share this ever increasing and evolving knowledge with the various business teams to create awareness throughout the entire organisation.	Culture & leadership	Collaboration; Best practices

Specific action	Viterra Chartering is a signatory of the Sea Cargo Charter (SCC). We deem transparency of emission measurements as a fundamental condition for a structured decarbonisation pathway. We apply the IMO Guidelines for voluntary use of the Ship Energy Efficiency Operational Indicator (EEOI) within our methodologies. We include ballast voyages undertaken prior to commencement of loading within the EEOI calculation. Our reported data is verified by an independent classified third party. This data is used both in the SCC reporting as in Viterra B.V. ESG reporting. Learn more here.	Data collection & transparency	Sea Cargo Charter member; Ship Energy Efficiency Operational indicator (EEOI); Emissions reporting

Specific action	Our chartering network covers the globe. In 2023 we visited 340 ports across 68 countries with our fleet of dry bulk carriers. Further voyage optimisation processes based upon digital data modelling is the most apparent short term action available in which not only GHG emissions can be lowered but financial margins can be increased. This is an immediate action. We are rapidly developing, testing and deploying optimisation tools for port turnaround times, as well as voyage routing as well as vessel (speed and fuel consumption) performance. Big data sets like vessel satellite data, port operational data, weather data, ocean data etc. are combined with actual data to create the most realistic models. Cooperation with all participants and stakeholders in the process is crucial.	Data collection & transparency	Reporting tool development; Collaboration; Digital twin

Company	Wisdom Marine Group	Shipowner, Dry bulk
		Taiwan

	Description	Area	Keywords
Specific action	Actions not submitted.	N/A	N/A

Company	ZeroNorth	Service Provider
		Denmark

	Description	Area	Keywords
Specific action	Spearhead working group that brings customers and industry leaders together to create data standardisations for emissions reporting daily data requirements for tankers (done together with Energy Leap) and dry bulk (to come) to enable regulatory and voluntary reporting. Learn more here.	Data collection & transparency	Collaboration; Standards development; Emissions reporting

Specific action	Support bold leaders' choice of green technologies to reduce immediate emissions through software and data driven recommendations for operational efficiencies. Learn more here.	Culture & leadership	Reporting tool development; Collaboration

Specific action	We worked on the development of an electronic bunker delivery note with Singapore MPA. We now have an approved solution for the market which we will offer through pilot programs with more ports to drive digitalisation of the bunker industry. Learn more here.	Pilots	Collaboration