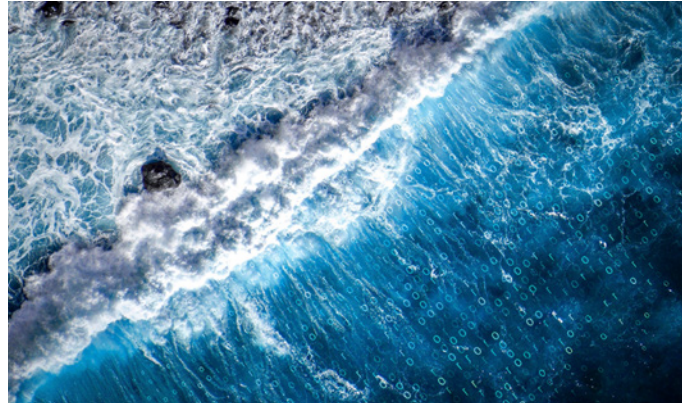


# **7 benefits of data-driven decision making in maritime**

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01

# Foreword



The sheer volume of data that we have at our fingertips today has never been greater. In 2021, the overall amount of data generated in the world was estimated to be around 79 zettabytes—equivalent to 79 trillion gigabytes. By 2025, this amount is expected to double.

The explosion of data is an exciting, but also often overwhelming reality for companies in connected global industries. As more data is generated, it becomes increasingly complex to store, manage, and analyse. Organisations sit on a wealth of knowledge, but often don't know what data they have, where it sits across the business, and who has access to it. Struggling to manage these basics makes it almost impossible to make good use of data, which is more important than ever in an increasingly competitive business landscape.

I have always been fascinated by data, even before everyone was talking about it. When I was studying for my degree, I picked a specialist module about data from remote sensing (satellite imagery) because I was intrigued by the outstanding visualisations that were created from it. This passion of mine led me down the path to eventually becoming a Chief Data Officer (CDO). Throughout my career, I've helped businesses in a wide range of industries define their data strategies and adapt a true data-driven culture for better performance and results.

The one thing all these businesses have in common—from utilities companies to financial services to consumer marketing—is that they've understood that the only way forward in today's fast-paced, highly competitive global economy is to embrace a data-driven approach to decision-making across the entire business.

The maritime industry is no different. Shipping has woken up to this reality and is on a path to digital transformation that requires the adoption of intelligent technologies. And yet, intelligent technologies alone will not get maritime to where it needs to be. Embracing digitalisation requires a paradigm shift that goes beyond simply deploying new technologies.

A digital transformation journey must start with people because it's the people working with the technologies and using the data who will truly make a difference. But for people to accept change, they must first buy into the why.

This paper offers an overview of the benefits to be reaped by embracing intelligent technologies that help connect the dots across the entire maritime ecosystem to utilise the data that's being collected. As with any industry that's pursuing digitalisation, the importance of educating all stakeholders cannot be underestimated. As a data evangelist and CDO, it is my pleasure to invite you to read on and discover some of the key benefits maritime stands to gain through a data-driven approach to decision-making.



Peter Jackson, Data Evangelist and Director  
Chief Data and Analytics Officer at Carruthers & Jackson.

# Untangling the maritime data web

Managing and analysing data is a skillset that is still emerging within maritime, despite the industry generating vast amounts of data from different sources every day, with even short voyages producing billions of data points. Knowing how to use that information to identify efficiencies or improve performance is still beyond the capabilities of most organisations. This results in businesses sitting on a gold mine of information that could make a real difference to their operations, without the ability to make these benefits a reality.

It doesn't have to be this way. Through intelligent, software-based solutions, we can untangle this complex web and generate tangible and actionable insights—and ultimately create the foundation for a wider cultural shift towards data-driven decision making within shipping.

Realising the true value of the data that your organisation collects opens the door to decision-making that combines traditional principles grounded in behavioural science, human expertise and intuition, with real-time, data-driven insight.

Much has been written about the principles of decision-making over the years, and whilst these pillars haven't necessarily changed, the tools that we can use to power up decision-making are changing at pace.

Navigating an evolving regulatory landscape, mounting fuel costs and complex people management are very real challenges for ship managers, owners and operators today. Shipping has survived—even thrived—on manual processes and procedures for more than a century. But data-based decision-making now gives the sector and its players the ability to chart compliant, efficient, and responsible futures for their fleet based on the full picture, spanning vessel, sea, and supply chain. Organisations can also create feedback loops by sharing and exporting data to other tools that simulate potential future scenarios. Crews can learn from past experiences and apply that knowledge to make better, more informed decisions in the future.



**On a purely theoretical level, decision-making is based on the following steps:**

1. Identify your purpose and goal
2. Gather all the relevant information
3. Consider the consequences, impacts and pros and cons
4. Make the decision
5. Review/evaluate your decision

But life isn't always experienced in perfect order, and whilst these principles provide guidance, data-based decision-making must augment every step of the process to reduce the considerable time and capital investments associated with making choices during the day to day of ship operations.

In simple terms, today's software solutions provide insights into multiple aspects of your organisation that can be used to make better-informed decisions. The volume, depth and quality of the data that these software solutions collate helps you to weigh up consequences and set a clear path for implementation.

This enables the user to make informed decisions rapidly, accountably, and in full alignment with business objectives.



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# Data: an asset for change

In maritime, data platforms bring a crucial component to the bridge that offers multiple, tangible benefits

## 1 Compliance and futureproofing

New regulation is never far off the horizon in shipping, and today we're looking ahead to CII and EEXI regulation that enters into force in 2023; both of which will kickstart long-lasting change within the industry.

While there are tools that help with calculating and submitting a CII rating, simply complying isn't enough. For some vessels, CII could require substantial corrective action—and, depending on industry reaction, a vessel's rating could effectively become its "licence to trade".

The seriousness of CII means that owners and operators need ways to make informed decisions to quickly and cost-effectively improve CII ratings in the short term, whilst also keeping a long-term view in mind ahead of the 2025 revision to the scale. Add on the inclusion of shipping into the EU's Emissions Trading Scheme, alongside whatever else the IMO decides to do to nudge the industry to meet its own targets, and it's clear that monitoring and altering environmental performance within the global fleet will only become more complex.

So, in the battle to decarbonise, data can be a huge ally, allowing proactive decision-making in alignment with compliance goals—and not at the expense of commercial ones.

## 2 Transparency and accountability

Data platforms unite multiple sources of information for the most accurate representation of the facts in any given situation, whether that's emissions monitoring, performance monitoring or weather data. Understanding and being aware of your data sources and their quality gives you a window into every area of your vessel, supply chain and team.

This is also a key lever when considering ESG, as all shipping companies now must, with their governance competencies being rated based on the transparency and accountability score of an organisation's management, operations and processes.

Meanwhile, as shipping becomes more interconnected within the global supply chain, and shipping companies realise their true roles as holistic logistics providers, transparency with counterparties and integrating with wider processes and procedures at ports, and with freight forwarders and service providers, will be essential. Standardised and shared data will go beyond a "nice to have" and will instead become business-critical as these forces tighten their grip on how the industry operates.



**Data can be  
a huge ally**

### 3 Timely decisions for optimum operations

No day is ever the same at sea. The changing world that we live in, including regulatory compliance, sanctions and frequently fluctuating fuel costs demands decision-making that can keep pace.

Unlike manual processes, data remains responsive to change—so if the priority for a vessel one week is boosting CII or ensuring it gets to port on time, but the next week the priority becomes fuel savings, it's critical that owners, operators and managers are able to take action accordingly and leverage data whilst it's relevant.

As shipping becomes more used to data-based decision-making, this way of working will become increasingly commonplace. What's most important is that data can be shaped and deployed to always support commercial goals; if maintaining a "C" CII rating is important for one vessel to not breach charter party agreements, it's critical that data can be used in service of that aim.

Meanwhile, if the rest of the fleet is more focused on fuel efficiency or just-in-time arrivals, it's vital that the same data can be used to make decisions based on those lines. We're now at the point where software can make these trade-offs and decisions not only possible, but commonplace.



### 4 Ability to track iterative change

As shipping and the wider world realises the shipping industry's central role within the global supply chain, it is also becoming considerably more sophisticated in how it measures progress. After all, one of the five steps of decision-making is reviewing and evaluating decisions.

For example, owners, operators and managers may want to assess fuel performance over time and identify where there are latent opportunities for improvement. On the other hand, data could be deployed to see which vessels are suited to clean technologies depending on their historic performance over a year. And most importantly of all, data will be a key tool in measuring iterative jumps or changes in environmental progress, both for CII compliance, but also for the industry's wider decarbonisation aims.



## 5 Feedback loops support shipping's data evolution

Data-based decision-making must include a feedback loop: with both platform and users becoming smarter and making progress towards their goals iteratively and over time.

Happily for the sector, this is a one way journey: the more data that platforms have and the more that people become skilled at asking the right questions in the right way, the better their recommendations become and the greater the quality of the data overall. This “rolling stone” has already been pushed down the hill; it’s up to the industry to tap into this iteratively improving feedback loop.



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The digitalization, currently underway in the shipping industry, is something we actively participate in, to raise the efficiency of our operations. We see Wärtsilä’s FOS as an important enabler in reaching our goals, and recognize the potential benefits it offers

Kaj S. Pilemand, Chief Technical Officer at UltraShip Aps

## 6 Teamwork makes the data dream work

The speed with which data is obtained, interpreted and acted on relies as much on the people involved as the systems and software in place. The collective experience, knowledge and collaboration of project managers, analysts, technology innovators and subject matter experts is crucial for success.

Although they may be working in varying roles—from ship managers to engineers and shore-based support—people must remain part of a broader decision-making process, augmenting their decisions with data insights.



## 7 Unlocking commercial upsides

Shipping's two currencies are time and money—and data-enabled decision-making holds the key to optimising every vessel and voyage. Data can find answers to questions about fuel consumption and help to generate efficiencies as a result.

In a competitive and capital-driven market, shipping needs to find every means possible to cut wastage and maximise efficiency. By using data to find cost savings, businesses can also free up money to reinvest in devices that will reap even further energy-saving benefits. Critically, though, we must also recognise that from shoreside staff to crew, shipping is a human-driven business.

The true power of today's software algorithms is that they make recommendations that can then be analysed and interpreted by the user to course-correct, blending software insights with human reasoning to chart the best course.



04

# Summary

Given incoming decarbonisation regulation, the urgent need to realise tangible and rapid commercial efficiencies, and the global supply chain's increasing focus on shipping when it comes to ESG, data-based decision making will play a crucial role in maritime's future.

Although still at a somewhat early stage for parts of the sector, with the right support and software platforms, data-based decision-making will become the norm for efficient and compliant vessel operation.

The ability to make fast, informed decisions demands access to accurate, real time, actionable data. Without it, companies will stay stuck in reactive mode, at the mercy of market change rather than adapting to it. With data-based decision-making, the industry can unlock competitive advantages and make itself more resilient: two things that shipping desperately needs in these extraordinary, rapidly evolving, and ceaselessly changing times.

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1. Compliance and futureproofing
  2. Transparency and accountability
  3. Timely decisions for optimum operations
  4. Ability to track iterative change
  5. Feedback loops support shipping's data evolution
  6. Teamwork makes the data dream work
  7. Unlocking commercial upsides



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