



Build Better Vessel Performance Monitoring Platforms

with quality-checked vessel data



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Introduction

Today, the shipping industry simultaneously faces numerous significant challenges, including navigating new greenhouse gas (GHG) regulations, increasingly extreme weather conditions, inflating operational costs, and ongoing supply chain disruptions.

Better, more customized vessel performance management and analytics platforms can help by streamlining access to critical insights without the need to manage multiple connections with different data streams. And ensuring that the data is both quality-checked and delivered in real time is key to faster, more accurate, and more confident decisions.

These factors — as well as the many potential benefits — are driving accelerated digitalization in the shipping sector. Increased availability and advancements in operational datasets are delivering new levels of detail and precision. Armed with this intelligence, you can make better-informed decisions that can help reduce environmental impacts, enhance safety and performance, and deliver critical financial savings.

This guide shares how quality-checked performance data helps optimize vessels and fleets and meet regulatory compliance and decarbonization requirements.

Decarbonization: a key driver for digitalization

A recent research report, performed on behalf of DTN, revealed that decarbonization is the top industry pressure, closely followed by digitalization. This information may not be unexpected, but surprisingly, most respondents cited non-regulatory requirements — such as greenhouse initiatives, like Sea Cargo Charter, Poseidon Principles, etc., are as great a pressure as regulatory requirements for decarbonization. This suggests that the drive to reduce GHG emissions goes beyond mandatory actions and comes from multiple sources, including the company's own commitment, its stakeholders, and the general public.

Changing shipping regulations make it increasingly critical to manage vessel performance — not just track it. For example, the Carbon Intensity Indicator (CII) regulation requires performance improvements of specific percentage points each year. To systematically meet the requirements, you must actively track your CII while also planning to manage your performance improvement for the following year. However, according to our report, shipping professionals said the industry is lagging on its use of performance data — and they could potentially face compliance issues.

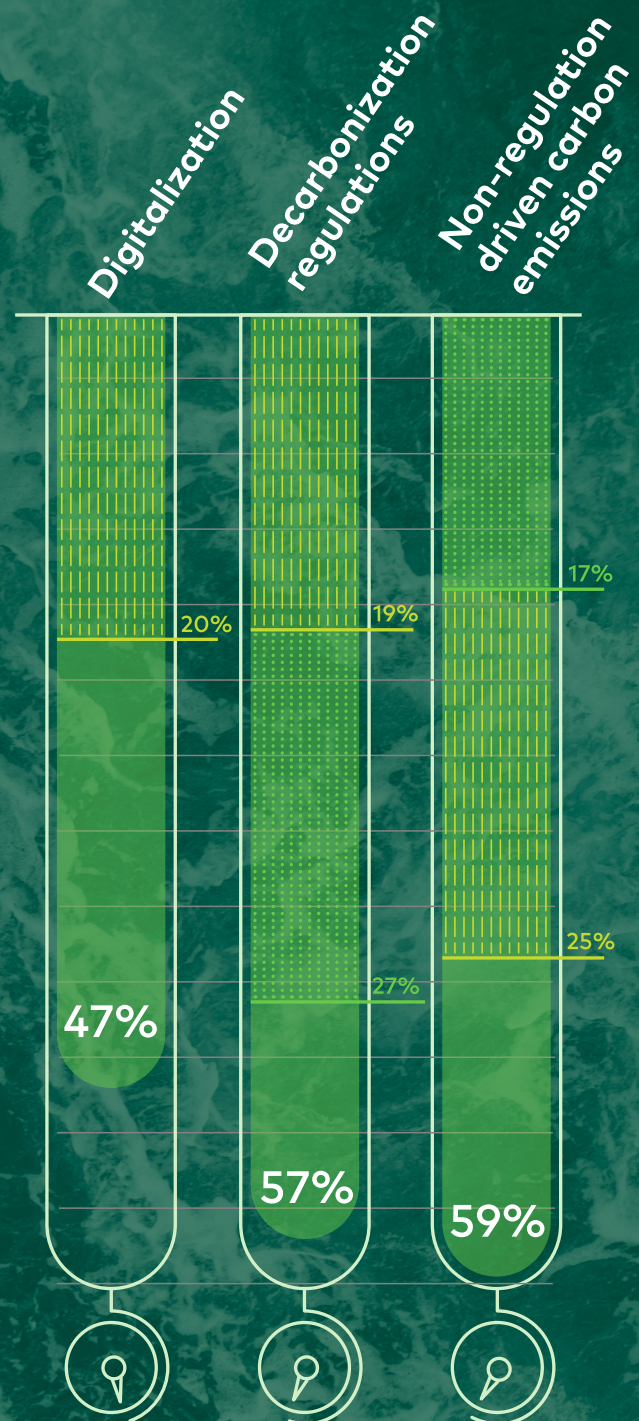
Only 61%

of vessel-owning respondents said they currently integrate performance data, compared to 42% that don't own vessels.

Regulatory changes also require a comprehensive data collection and reporting plan, which manually generated reports cannot support alone. With data becoming an increasingly core part of every operation, the quality of how data is gathered, stored, and consumed during various processes will determine your success now and in the future. You must record, monitor, and optimize data to excel in this tightening regulatory landscape. Those who don't will find it harder to meet requirements and risk falling behind.

Source: *Uncharted Waters: The Journey to Digitalization in Shipping*, An online survey conducted by DTN in partnership with alan. agency and iResearch.

Most significant pressures for shipping companies



Why vessel performance monitoring is increasingly important

While vessel performance data provides essential benefits for shipping and the larger supply chain, data is still not always integrated into key systems and decision-making tools. Typically, such integrations are part of broader digitalization projects, which are complex, costly, and time-consuming.

However, the increased availability of SaaS platforms is changing this dynamic, allowing shipping organizations to accelerate their digitalization journeys and integrate vessel-specific data into their performance and fleet management solutions, providing three key advantages.



“Ship owners and operators must continuously improve the efficiency and environmental performance to adhere to the compliance policies.”

~ DTN Product Executive

1 Better informed decisions

Providers of quality-checked operational data — including as weather and AIS data — and seamlessly integrate it into your solutions enable more advanced decisions and processes. And while there are many ways to gauge data quality, the most important are:

- It accurately represents real-world conditions
- It works for your intended purpose

It's important to recognize one need can be met and not the other. For example, if a vessel bunker or track master data record is appropriate for generating a report, it may work well for that purpose. But what if the data is insufficient, inaccurate, or not continuous? Then, likely not. On the other hand, the recorded data can be complete and continuous but lack the sufficient depth or detail necessary for informed decisions. Both instances can lead to incorrect decisions and possible business troubles.

Quality-checked data optimizes vessel performance: A noon reporting example

The sun shines over sparkling waves as the ship sails west towards a faraway destination. The crew is hard at work, and the weather is favorable. But what about the vessel's performance? Is it at its best?

In the shipping industry, services cost considerable money, yet strong competition thins profit margins. For ship owners, charterers, and shipping companies, vessel efficiency is critical for maximizing returns.

At DTN, our data quality team is indispensable in supporting fleet analysis and verifying the vessel data collected with EasyNoon. The process is part manual, part automated. After, they create a daily performance indicator (DPI) and send it to the charterer or ship owner. The report is in a fixed format that includes the ship's timing and position, fuel consumption since the previous report, and the amount of fuel remaining. The required data depends on agreements made in advance. Key elements, such as seagoing draught, type, amount of cargo (or ballast), speed, and weather conditions, are often included.

"Checking the EasyNoon report is complex. For example, a position may be incorrect due to a typographical error. We check whether the ship was at the location mentioned in the report by verifying on the AIS. Uncorrected typing errors anywhere in the received data can lead to erroneous analyses and must therefore be removed. Sometimes errors are simple to detect, such as a vessel covering 600 miles in a 24-hour period. However, it is often more complicated errors that are difficult to discover."

When it comes to reducing costs and improving sustainability, quality-checked performance data is key. The DPI makes it easier to spot time losses, overconsumption, or speed deviations, as well as opportunities for improvement. The data is also used in post-voyage analysis reports (PVARs), which cover the entire voyage for a much more complete overview.

"We notice that received data from vessels is gradually becoming higher in quality. Ultimately, it's all about the quality of the information. If you, as a shipping company, want to reduce costs and become more sustainable, then everything starts with a thorough analysis. And we love doing that for you."

“Our work consists of two parts, the first is to check all the information entered, and the second is to use that information to analyze the ship's performance. This concerns the performance according to the good weather stipulation in the agreed charter party. Actually, it is routing in retrospect.”

DTN quality specialist.

2 Support of green initiatives

New technologies for greener shipping is this year's [World Maritime theme](#), "reflecting the need to support a green transition of the maritime sector into a sustainable future, while leaving no one behind." That said, before you can plan, you first must know where you stand. To determine whether they have some leeway or need to cut immediately, ship operators require current emissions data. As new regulations arise and operators pivot their strategies, a deeper understanding is vital.

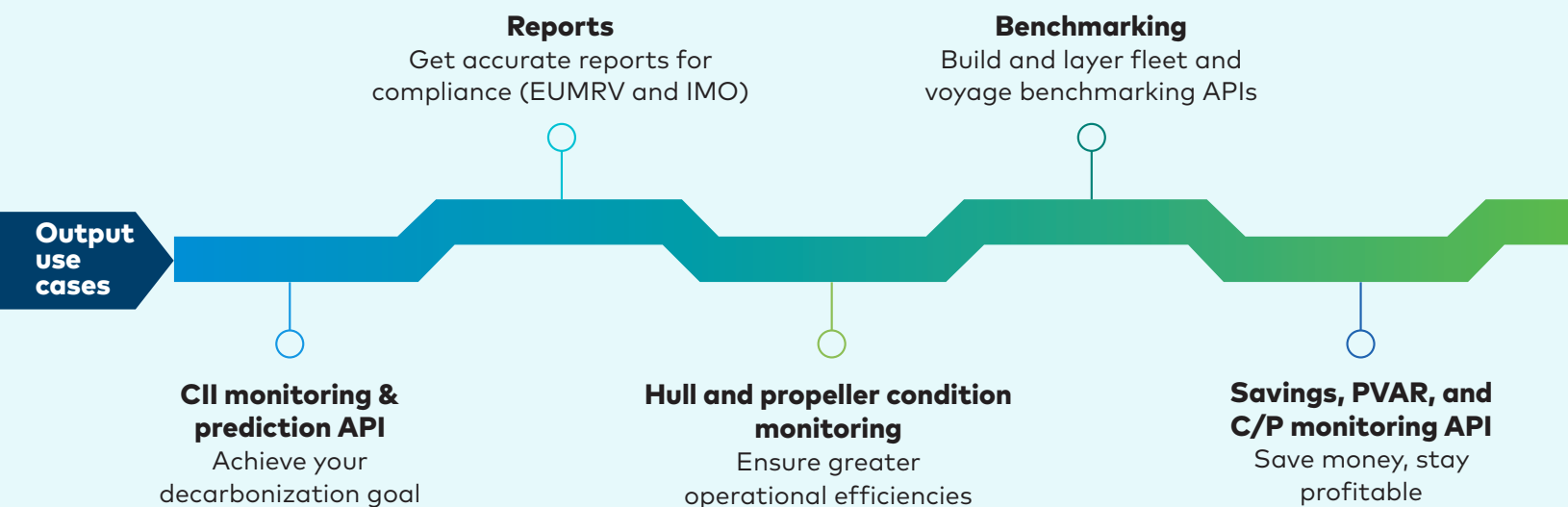
Regulatory changes make it increasingly critical to manage vessel performance vs. simply track it. Vessel operators must balance performance and profit goals with their emissions obligations. Besides day-to-day emissions rules, the maritime industry is also working towards upcoming IMO 2050, CII, and EU ETS regulations.

3 Improved benchmarking

To ensure fair comparisons, all operational data should be benchmarked against weather data. Performance benchmarking is essential for improved vessel operations. The process provides insights into how the ship's as-built performance characteristics compare and if retrofits are necessary to enhance energy efficiency.

Vessels underway often lack accurate performance data. This means high-value, quality-checked data, supported by precise weather information. This ensures superior data for decision-making and advanced analytics. Benchmarking allows ship owners and managers to identify opportunities to save energy and improve choices, from design to operation.

Use Vessel Insights API to build custom solution



The ship's annual CII rating ranges from A to E, with the thresholds becoming increasingly stringent towards 2030. Maintaining your preferred CII rating means corrective actions must be timely. For a reliable rating prediction, year-end forecasted CII must be constantly benchmarked with reliable actuals.

This is similar to agile software development, where development teams also perform frequent retrospectives to steer outcomes and mitigate risks. Knowing the future starts with thoroughly analyzing the recent past. Vessel insights can help build a key foundational data lake and enable on-top use cases (see image).

Technological advancements unlock new approaches

A recent research report, performed on behalf of DTN, revealed that understandably, shipping companies are focused on long-term solutions, like scrubbers, alternative fuels, and ship engine optimization. But as they attempt to navigate increasingly complex market conditions, combining these existing optimization approaches with insights on the weather's impact on vessel performance can provide an added operational and business edge.

Advancements in technology and computing power have enabled ship owners to choose single systems that offer immediate access to rich data through integration partnerships. For example, DTN works with a range of shipping SaaS platform developers to build weather-optimized use cases, including vessel routing and performance monitoring. The market for these SaaS platforms is growing fast, enabling shipping companies to implement integrated decision-making tools and accelerate digitalization more quickly and easily. As a result, this will expand clear benefits across the maritime sector.

Connect through APIs

Access vital data sets and powerful algorithms in your existing solutions

Digitalization

A key opportunity to collaborate with partners across all areas of your business and supply chain

Increase collaboration

Integrate APIs with third-party systems, platforms, and tools for better collaboration.

Use data-backed analysis

Plan better voyages based on unmatched data and analytics.

Make confident decisions

Turn insights into confident and timely actions that support your business.

SaaS platform providers

SaaS platform providers are offering new approaches to vessel performance monitoring and reporting. For example, the built-in digital twin model intelligence within our Vessel Insights API supports accurate comparisons of current vessel performance with baselines, greatly enriching datasets.

Shipping companies

Shipping companies often work with SaaS platform providers on monitoring performance-related KPIs, such as fuel consumption, a ship's CII, how the CII rating changes over time, and vessel emissions. Companies with available resources may also integrate a solution like our Vessel Insights API with their internal performance management systems.

Charterers

With solutions like Vessel Insights API, charterers can integrate data into their workflows, streamlining efforts like pre-charter assessments. They can also track EU ETS-relevant emissions from their fleet and align with owners on the CII performance of chartered vessels.

Seeing the big picture

While unlocking new approaches can be promising — particularly with benefits centered on meeting new regulations — it may also sound labor-intensive. However, integration into your business applications can be seamless and nearly effortless. For example, we back Vessel Insights API with decades of weather forecasting and voyage optimization experience. It provides the data needed for true vessel performance KPIs and assessments with data streams like AIS, noon reports, autolog, hindcast weather, and digital twin models.

Maximizing fleet performance is not only critical to regulatory compliance but also to profitability which leads to growth — and accurate, reliable information is key. The more detailed and comprehensive your datasets are, the more business and operational intelligence they can provide. Industry solutions, like the all-in-one Vessel Insights API, fuel optimal decisions at the ship or fleet level. It integrates with your current processes and collects and collates every bit of information relevant to enable true, intelligent, data-driven decisions. This allows you to reach your business goals faster while safeguarding your people and assets.

Make intelligent data driven decisions

Accurate reliable reports

Processes noon report data and automates quality checks to support confidence indicators in EasyNoon or third-party noon solutions.

A fuller data lake

Combines operational data, advanced vessel digital profiles, high-definition track information, and weather observations and forecasts.

Boosts weather benchmarking and green initiatives

Integrates accurate, high-value weather data to support advanced analytics and more environmentally-responsible decisions.

With quality-checked data, you can be more confident about your situations and chosen actions to support optimization. Better anticipating performance impacts sooner can lead to improved ETA accuracy, cost control measures, and prevention of excess fuel consumption. In addition, its insights can help you benchmark efficiencies, supporting your efforts toward energy savings and regulatory compliance.



Key essentials: The information you need when you need it

To maximize your data, first, simplify. Look for incompatible datasets and ways to assess the quality of complex data.

Our flexible Vessel Insights API can manage this for you, allowing you to get the most from your maritime assets through detailed, continuously updated, and quality-checked data that drives processes and decisions with greater precision. It also supports reporting commitments through our proprietary EasyNoon reporting tool or third-party solutions.

Incorporate weather benchmarking

Enhance your operational intelligence and keep your data centralized in one convenient location. At DTN, we don't just quality check your data — we also integrate our accurate, high-value weather information to support advanced analytics and greater decision-making confidence in the face of today's ever-increasing challenges.

Feed your data lake

By combining operational data, advanced vessel digital profiles, high-definition track information, and best-in-class weather observations and forecasts, Vessel Insights API raises your data lake. Deeper data can power numerous actions, from boosting fleet performance to helping you reach your sustainability goals.

Fuel better performance with purpose-driven datasets



Access complete, continuously quality-checked and cost-effective data with Vessel Insights API

Accelerate your digitalization journey with quality-checked vessel performance data.

Vessel Insights API collects data from various streams and generates a concise dataset along each vessel's track.

It then feeds highly-accurate data into your decision-support and back-office systems to fuel your KPIs and business goals.

Vessel Insights API builds and strengthens your...

Monitoring

Reporting

Benchmarking

Assessments

DTN manages all aspects of the data for you, freeing your team to focus on regulatory compliance and profits.

Conclusion

Today, performance monitoring is essential, not just for operational decisions but also from a business perspective, especially in light of skyrocketing costs and expanding environmental regulations.

As the amount of industry challenges and potential datasets continues to grow, it is increasingly important to capture and utilize this intelligence to drive better outcomes. From protecting people and assets in increasingly extreme metocean conditions

to predicting voyage timeframes and maintenance costs with greater accuracy and plotting more economical routes to optimize fuel consumption, data and digitalization are the keys to unlocking new opportunities for success.

To accelerate their journeys, shipping professionals need flexible tools from trusted partners. To make meaningful progress, they also need to be able to quickly turn information into action.

About DTN

Operational intelligence for confident decisions

As a data, analytics, and technology company, DTN delivers operational intelligence to organizations with complex supply chains around the world.

We are committed to breaking through the noise and providing operationally-critical, actionable intelligence that customers can depend on to drive confident decision-making. We have earned our customers' trust by delivering real-time insights that ensure decisions can be made quickly and confidently.

Together with our customers, we uncover new insights and create solutions that improve entire industries. And, we do so while maintaining our independence to ensure our customers can make the right decision for their bottom line, their customers, and their employees.

