

Shippers and ocean shipment visibility

Closing the gap between worsening carrier service and rising customer demands

WHITE PAPER | March 2021

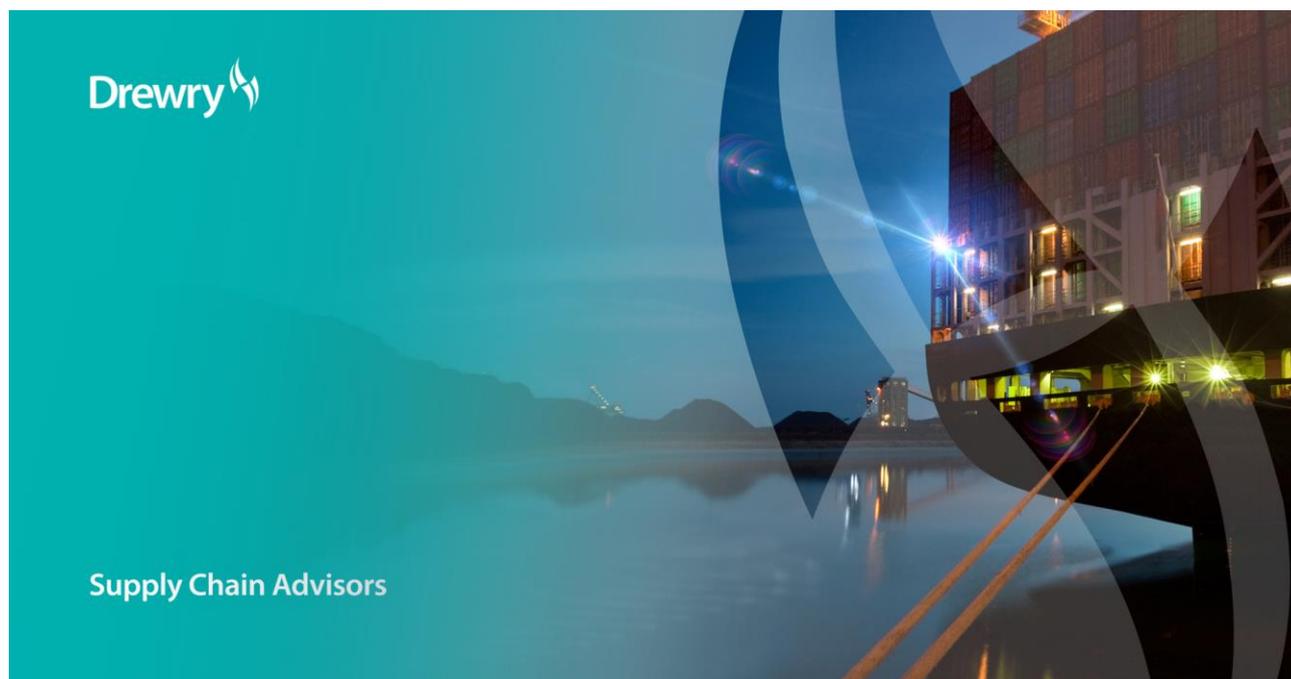
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About Drewry Supply Chain Advisors

We are the market leader in ocean freight market intelligence and cost benchmarking, providing an elite client base of retailers and manufacturers with tailored solutions that combine data, tools and advisor services to improve transport procurement and reduce cost.

Our professionals focus on advising users of international multi-modal transport services, taking our extensive understanding of the industry and applying it to all stages of your supply chain. Through our market understanding, industry knowledge and operational experience, we can help ocean freight procurement and logistics service teams reduce costs and more effectively manage their international transport network and supply chain service providers.



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1. Executive summary

The recent COVID-induced demand swings, container shortages and cancelled sailings are only the latest in a series of disruptions that have transformed the liner shipping market in the last five years. Also, consumer markets have only become more competitive and consumers more demanding. Consequently, the need for Beneficial Cargo Owners (BCOs) to know where their cargo is and when it will reach its destination has evolved from being a luxury feature for high-end supply chains to a necessity item in each BCO's competitive toolkit, albeit to varying degrees.

In this white paper, Drewry reports on the findings of its recent review of the 'visibility industry' and the different technologies and applications that are emerging. The advent of what we will refer to as 'advanced visibility platforms' together with numerous partnerships between data and technology providers can make it difficult for BCOs to differentiate the hype from reality and establish a solid business case for implementing their visibility programme.

The objective of this white paper is to provide the necessary concepts and insights to help BCOs assess, scope and plan the implementation of a shipment visibility programme that fits with their organisational capabilities and competitive needs.

2. Why is shipment visibility more critical than before?

Stuck between worsening shipping service conditions and increasing customer expectations, BCOs are forced to innovate

The ocean liner industry has consolidated dramatically over the past five years and the impact this is having on service and pricing levels is part of a 'new normal' in which supply chain teams of BCOs are forced to be more adaptive, agile and transparent to remain capable of delivering acceptable service levels to their internal and external stakeholders.

Figure 1: Opposing market trends force BCOs to innovate

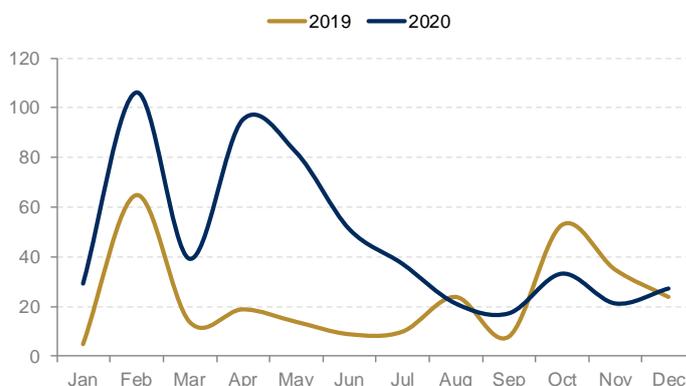


Worsening shipping service conditions

Non-transparent supply chains are exposed to the full impact of worsening shipping service conditions

- Less competitive liner shipping markets.** Since the collapse of Hanjin in August 2016, the liner industry has undergone consolidation. In less than 24 months, 8 large ocean carriers disappeared, reducing the top 20 of global liner operators to top 12 by 2018. The collapse of Hanjin also accelerated the formation of new mega-alliances. While 2M, the operational cooperation agreement between Maersk and MSC, had already started in 2015, the shock of the sudden collapse of one of their peers led other carriers to enter into similar agreements. The formation of these three mega-alliances enabled shipping lines to pursue a strategy of ‘lowest possible cost’ through vessel upscaling. That had the unintended consequences of reduced service frequency and increased peak container volumes at terminals and inland container distribution networks. Both types of consolidation have fundamentally changed the market. Shippers can no longer rely on getting the same cost and service levels when there are fewer competing carriers and even fewer “loops”.
- Capacity shortages across the supply chain.** After a decade when shipping lines were unable to earn their cost of capital, liner networks and the assets that enable them are stretched. The difficulty in gaining access to capacity increases the importance of accurate planning and sharing forecasts with providers. Even if those activities can make you a ‘preferred customer’, the stretched asset base brings with it an increased risk of disruption. BCOs need to be aware of any issues with their shipments in near real time to be able to make optimal adjustments. These adjustments are now no longer a matter of minimising the incremental cost, but of products remaining on the shelves and not losing the sale to a competitor.
- Liner reliability has been deteriorating drastically.** Drewry estimates that in 2019 nearly 40% of maritime container shipments had transport quality issues and that 25% of container shipment arrived late. But, as illustrated below, COVID-related uncertainty caused the number of blank sailings to skyrocket during the first half of 2020. Although the deployed vessel capacity normalised during the third quarter, the loss of terminal productivity and equipment shortages took over as the main drivers of disruption. Drewry has seen reports for 2021 where shippers incurred delays on 85% of their shipments and average shipment lead times had doubled.

Figure 2: Blank sailings on the main East-West headhaul trades



Source: Drewry Cancelled Sailing Tracker

Ocean freight selection becomes dynamic and performance-based

- **Need to monitor compliance for guaranteed services.** Following the collapse of ocean reliability, BCOs have turned to carriers or platforms, like NYSHEX, offering premium and money-back guaranteed services. To ensure that BCOs are getting what they are paying for, there is a requirement for cargo monitoring and visibility of carrier performance.
- **More carriers are promoting spot and short-term contracts.** Online Quote functionalities are now available across top tier carriers and have made the spot market more manageable from the carrier's side. The annual tender exercise and reviews may just not be enough to address fast-changing indicators as well as operational issues. BCOs need the ability to dynamically monitor and benchmark transport quality to support frequent changes of providers and contracts. This has led more BCOs to look for [Schedules>Quote>Booking>Tracking] transport management systems and visibility solutions that can provide such performance indicators.

Increasing customer expectations

Visibility is now an essential tool in every BCO's competitive toolkit

- **Technology upgrade.** New technology entrants are changing the competitive playing field. The rise of enhanced visibility platforms in the North American and European trucking markets has ripple effects on ocean freight. Successful US and European trucking visibility platforms have gained traction thanks to the expansion of haulier telematics like GPS-based technologies and truck Electronic Logging Devices (ELDs). Project44, Descartes Macropoint and Shippeo who now serve a large range of top retailers and manufacturers are changing the visibility landscape as a paid service, building partnerships with enterprise software such as SAP. BCOs are deciding to invest and subscribe to visibility solutions knowing the immediate value. For some, transport is no longer a cost but has become a source of potential competitive commercial advantage. Engineering real-time visibility and predictive logistics information are critical to achieving those goals.
- **Digital experience and generalised requirement for on-time delivery.** The last-mile logistics experience is pulling the entire chain where visibility is a prerequisite. Driven by eCommerce logistics, and the so-called "Amazon effect", the on-demand and customer-centric supply chain have changed many buyer/seller relationships. While five years ago order visibility and on-time delivery (OTD) were a feature in just-in-time supply chains, these have now become a must-have for many manufacturers and retailers, as well. The generalists like E2Open, Infor Nexus and Cargosmart have increased their features in this area and are being joined by specialists like Clearmetal and Ocean Insights. Shippers engage their inland visibility providers seeking to adapt the model to ocean shipping. The approach of Project44 or Fourkites concerning advanced visibility platforms is one of the main examples.
- **Environmental transport.** More BCOs are translating the increasing demand for sustainability into greener supply chains. They want to measure and control the environmental impact of their supply chains and are taking back control at more granular levels of the way their goods are transported. End-to-end visibility across transport modes is required for BCOs to shift to greener modes while retaining the required flexibility to limit the impact in terms of service delivery and reliability on their supply chain.

3. Understanding the complexity that shipment visibility initiatives have to overcome

Each supply chain is unique and there are no one-size-fits-all visibility solutions. Hence each visibility initiative has to be mapped out, starting from a blank piece of paper. Many projects have not made it past the first hurdle: the definition of detailed user requirement specifications. In a complex, continuously changing environment and without the support of even the most basic industry standards or definitions of essential execution milestones, the time required to run such analyses is typically non-existent among logistics management teams, let alone the required digital skills to bring the project to fruition. For those that have made it past the drawing board, the following are common obstacles.

Many 'visibility implementation' projects have not delivered the anticipated benefits

Upstream shipment execution often remains outside the BCO's control

The chain is often longer than one thinks

The booking request can be made by the vendor or a freight forwarder and contains many data fields that are unknown to the BCO. Drewry encourages BCOs to demand high-quality booking requests, if this is outsourced, as this means the most suitable service is booked, improving providers' ability to report back efficiently on the booking execution milestones.

Each party uses its own siloed system

Most logistics providers' systems are siloed and disconnected. They use different master data frameworks and formats. System disconnections amplify any operational shipment issues and limit the ability to handle exceptions swiftly. Connecting these siloed systems is costly and has an uncertain return on investment (ROI).

Supply chains have their own non-transparency factors

The general industry mindset remains cautious about sharing information even among shipment stakeholders. The connectivity divide may be widening between operators, and shipment visibility remains dependent on the weakest digital link. Consequently, it is the ability of BCOs to arrange data sharing among their logistics providers that determines the overall level of in-transit visibility. Drewry encourages BCOs to run a heat map of data quality leakage to be able to focus efforts on what are often a few essential process deficiencies.

Real-time shipment data is not easily consumed and translated into actions

The operational use of real-time data is not as straightforward. Shipment visibility data needs to be trusted as well as consumable, hence cleaned, enriched, analysed, and put into the business context of the transport order and plan. The predictive estimated time of arrival (ETA) of a container clearly speaks to an importer provided it is associated to its own business reference, whether Purchase Order (PO) numbers, warehouse location or own Distribution Centre (DC) codes.

Unlocking the ROI of enhanced shipment visibility is not a simple exercise; it opens the internal debate of transformation capability

There is no off-the-shelf easy solution. Enhanced visibility leads to changing practices and transformation costs. Change management capabilities as well as legacy systems can be an underestimated constraint when rolling out new

information flows and processes. Thus, many BCOs struggle launching their visibility programme as they face these internal complexities. Many have experienced the problem for several years moving from one visibility solution to another, without completing the full rollout or getting the anticipated results.

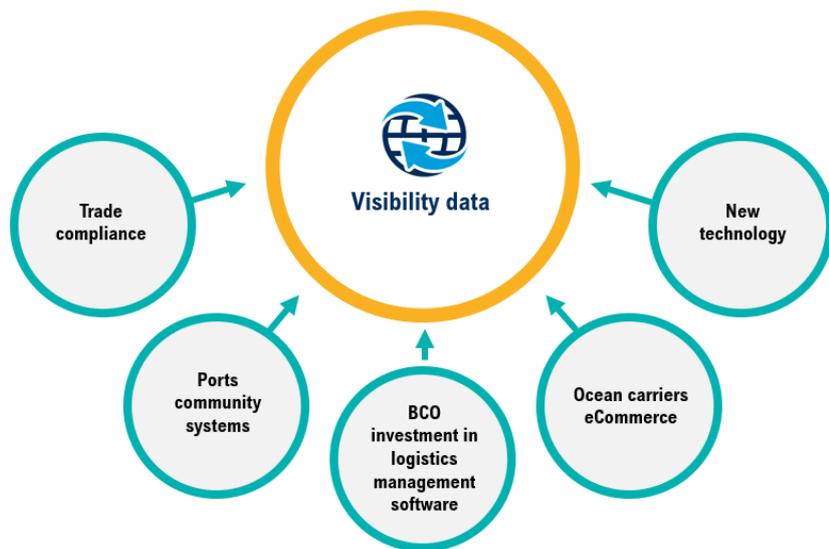
Figure 3: Visibility inhibitors



4. Why is shipment data now more accessible than ever before?

Visibility enablers which are unlocking data streams across shipment stakeholders

Figure 4: Visibility enablers



Software providers are equipping BCOs with light transport management systems (shippers TMS).

New players and applications enable

BCOs to make their own control tower

Transport management systems (TMS) have transformed and automated certain freight forwarder functions. One of the most prominent features is the Control Tower, marketed by many logistics service providers (LSPs.) More recently, TMS providers have expanded their solutions to directly address the shippers' needs, and BCOs can use these solutions irrespective of their forwarders. These "Shippers TMS" are structured around buy/sell/move order-centric collaborative applications where shipment visibility is at the platform's core and is interconnected to a variety of configurable modules, such as rate & minimum quantity commitment management, freight order, CO₂ calculator, doc-share messaging, or performance dashboards.

Ocean carriers are investing in digital services to support their integrated container logistics and BCO direct strategy

The recent investments made by large carriers in inland logistics and forwarding support more sophisticated visibility services. These can now provide end-to-end control of the equipment assets by connecting to smart container technology and offer a range of real-time visibility services to the BCO. Cool chain logistics is a good example with the launch of Maersk's Captain Peter application, which provides shippers with real-time container temperature, humidity and CO₂ levels, including customisable 24/7 interactions and collaborative functions.

Port systems are pivoting towards trusted data hub functions and extending visibility to their hinterland

Ports and hinterland digital connectivity have become a strategic national asset

Ports have accelerated their digitisation over the last decade. Generally speaking, hinterlands remain "digital blind spots", considered as technology laggards with an estimated 8% of locations currently using a yard management system (YMS). However, large ports have engaged significant technology investment to support their hinterland connectivity. Leading US ports are increasing their role of data hub which enables solutions like Cruxsystem to provide transparency on vessels and terminal operations. The port of Los Angeles has pledged to improve visibility to cargo stakeholders, with services like the Port Optimizer, Signal and Return Signal.

New platforms addressing the port-to-door container business are gaining traction. The recent partnership of Abu Dhabi Ports Community System (PCS) Maqta with the Trukker inland haulage marketplace is an example. The granular visibility brought by PCS enables to better control inbound and outbound container entry and handling at terminals, depots, on trucks, barges, or rail, as well as delivery order (DO) statuses, customs declarations or even container inspections. Sea/inland digital connectivity has now become a national priority in large shipping economies such as India and China.

Applications in trade finance illustrate that the visibility data ecosystem is growing, attracting investments

Enhanced shipment visibility benefits both physical and financial flows

Trade Finance services emphasise the value proposition of trusted visibility data solutions, thereby automating for banks the cumbersome labour-intensive tasks of checking the compliance of vessels and cargoes. Applications such as PoleStarGlobal have harnessed that task. Moving forward, the interest of financial institutions for in-transit cargo information is supporting the development of specific shipment visibility 'application programming interfaces' (APIs). These data feeds facilitate compliance screening, risk assessment (which can increase when several financed shipments are on board the same ship), controlling lead time deviations and estimating the impact on working capital, or be used to

trigger shipment financing or payment based on trusted events. For example, the financing of working capital is already supported by Arviem, an ‘internet of things’ (IoT) real-time cargo monitoring device provider.

The influx of new technologies is changing not only the nature of logistics data, but also mindsets

Technology is the enabler to enhanced visibility and collaboration

Shipment visibility API is touching a broad market

Cross-industry forums on data exchange standards are making progress

- Telematics, satellite positioning and IoT provide a range of sensors that not only enable near real-time monitoring of cargo and transport assets position, but also report events like stillness/motion, temperature, humidity and door opening.
- Data science and machine learning disciplines turn these datasets into operational insights. The best example is the predictive ETA which is “the” key feature of real-time visibility platforms, each working with its own proprietary algorithm.
- API technology enables systems to call each other and retrieve the data. It expands the capabilities for one application to add and emulate the features from another one. API technology is behind most of the recent partnerships among software providers. A range of API-driven Integration Platforms as a Service (IPaaS) are gaining traction, working as a connection powerhouse for many applications and operating a growing volume of container tracking data feeds.
- Blockchain or ‘digital ledger technology’ (DLT) has been tested in new cutting-edge visibility applications to create trust and access to the data by an entire ecosystem. TradeLens has invested in this domain with the support of leading ocean carriers, building an advanced event-based architecture platform. BCOs such as Walmart and P&G have started pioneering the initial application based on a set of carriers, terminals and customs data. One primary result of the introduction of blockchain in visibility is the mindset change towards data sharing and transparency by the participants, encouraging the collaborative work on data exchange standards.
- Technology is the new ground for neutral discussions where logistic players agree to join efforts without conflicting or infringing anti-competition regulations. It gives organisations such as UN-CEFACT, SMDG, BIC, IPCSA (International Port Community Association), DCSA (Digital Container Shipping Association) and BIMCO the ability to federate and get active stakeholders’ participation in their fora. Tech giants are joining this cross-industry forum for visibility. The Logistics Visibility Task Force, initiated by Alibaba (Cainiao) last year with the Chinese National Logistics Information Platform (LOGINK) and International Port Community System Association (IPCSA), signals how the container logistics is opening to e-commerce logistics and its data-driven model.

5. What benefits can visibility solutions really bring?

A set of benefits are identified which can be quantified as part of the ROI.

To improve transport execution planning and resilience to disruption:

- by having a complete view of the transport execution ETA/ETD calculation at each stage of the transportation segment;
- by identifying operational issues, whether internal or external (supplier, customer, logistics providers);
- by enabling efficient collaboration using the same data to handle proactively and minimise transportation litigations, make active decisions like rerouting, alternative carrier selection and excess cost prevention, especially on land logistics.

To reduce logistics cost:

- by decreasing detention & demurrage (D&D) charges through precise and real-time information which provides the ability to act on free time expiration time, check on terminals and yards gate in/out, and empty container pick-ups and returns to optimise the use of free time;
- by saving manual work and resources used for tracking shipments.

To control logistics providers' execution performances:

- by using insights on the carriers' performances at the booking stage;
- by better optimising transport capacity and freight spend;
- by identifying improvement factors to achieve on-time delivery.

To improve inventory management:

- by controlling in-transit consignments at PO and stock keeping unit (SKU) levels;
- by monitoring the cargo integrity (temperature, humidity, shock, acceleration) and excess transit time exposure;
- by identifying security risk factors (theft and incidents), unexpected stop and routing, door opening;
- by analysing detailed lead time patterns on plan/estimate/actual transport execution.

To improve customer satisfaction and retention rates through improved service delivery:

- by increasing on-time delivery;
- by enabling customer service notification in case of delivery issues;
- by mitigating customer claims.

To improve order-to-cash automation:

- By automating and checking transactions based on shipments' status such as carrier invoice, audit and payment, carrier self-billing or customer invoicing.

6. How to find the right solutions according to your expectations and budget?

Visibility programme is a 6-24-month journey

Visibility project times range from 6 months to 2 years, using off-the-shelf or more customised solutions and phases. Successful solution implementations should achieve an ROI after 12 months in full operation.

Drewry can help BCOs build the business case, plan the implementation and select the right set of vendors for their visibility project. We recommend two phases:

Phase 1: Initial solution scoping

Drewry helps BCOs match data to benefits whether outbound or inbound logistics

Figure 5: Visibility project phases



Step 1.1 - Assessing reasonably achievable benefits

BCOs need to be clear about the benefits they desire from their visibility programme. Drewry can help BCOs expectations mature from the initially desired benefits towards what can reasonably be assumed as being achievable benefits, by assisting with:

- Diagnostics of logistics planning processes (heat map, visibility disruption risk sheet) to identify quick wins – including route and vendor reliability analysis – and benchmarking with peers;
- Evaluating compatibility of the organisational structure with future visibility technologies.

Step 1.2 - Scoping and prioritisation of your visibility project

Visibility programmes are impactful and need to be phased-in with a measurable ROI. To kick-off the transformation project, BCOs need to identify the right pilot project in terms of:

- Routes: Trade route, Port to Port or Point to Point, with identified logistics nodes, transport mode and geographies;
- Carriers: ocean carriers, LSPs, truckers participating to the programme;
- Events: shipment status and milestones on target, ability to consume the data and validate the accuracy and latency;
- Teams: business units' locations, roles and processes have to be considered for teams involved in the business practices covering shipment order to logistics operations to customer service.

Phase 2: Functional solution scoping, project planning and procurement

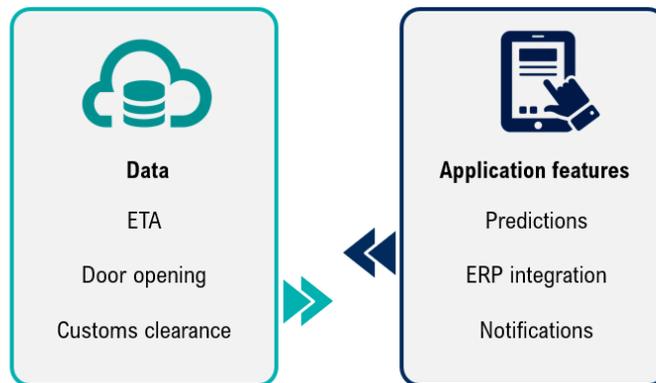
Figure 6: Visibility project phases



Step 2.1: Specifying data and application features

Next, the reasonably achievable benefits need to be translated into technical terms: what is the achievable desired level of information, how will that data be made available in the organisation, how will it be consumed and what actions will it trigger - all this needs to be clearly understood. Drewry refers to this as the mapping of data and application features (as illustrated in Figure 7).

Figure 7: Examples of data and application features



Step 2.2: Implementation planning and procurement

Drewry can help BCOs identify which visibility solution providers can match their data and application requirements.

Details matter. The complexity is to go through the details of each solution provider and check whether its real capabilities fit the BCO's supply chain specificities and strategy. Several applications could be suitable and can efficiently be combined using standard data streams. This enables BCOs to optimise visibility over different transport modes and geographies, getting the best in terms of data accuracy and costs.

Figure 8: Key dimensions to discover when evaluating visibility solutions are:



The visibility industry is clearly going through a phase of rapid growth and product diversification, which offers distinct opportunities for BCOs to improve their ability to navigate liner shipping markets. Drewry will continue to review this sector and work with BCOs to identify the appropriate visibility solutions and plan their implementation.

For discussions, workshops with or consultancy support from our team of ocean freight logistics and supply chain professionals, please contact us at enquiries@drewry.co.uk

Supply Chain Advisors



For further information regarding Drewry white papers and case studies or any other publications, please contact: Stijn Rubens at supplychains@drewry.co.uk

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