Creating data visibility

to improve reliability in container shipping
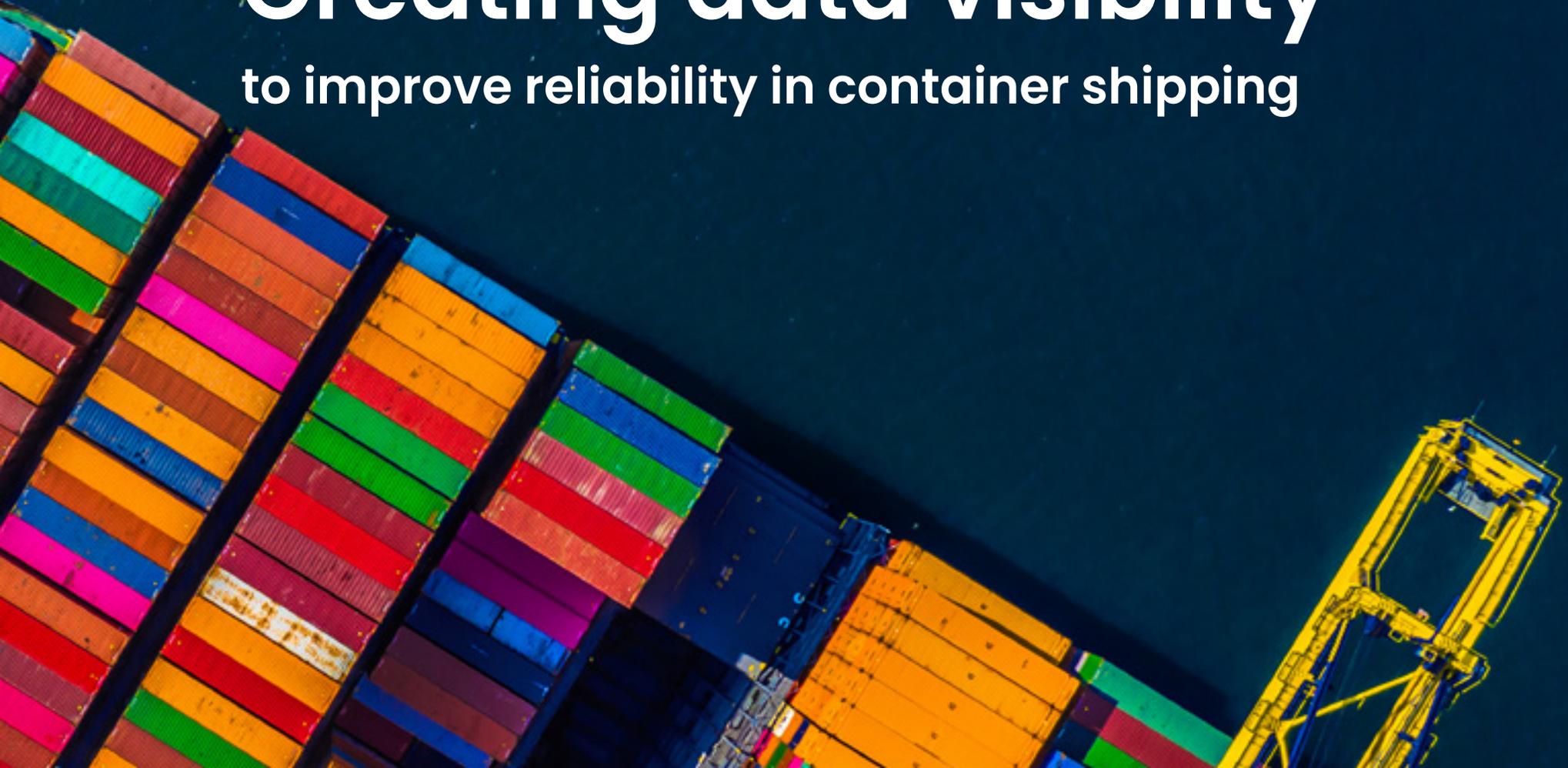
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Unexpected delays ripple across the supply chain

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What shipping can learn from more digitally advanced industries

90%
of world trade is carried out through ships

According to the International Chamber of Shipping, 90% of world trade is carried out through ships[1]. During the pandemic, the average global schedule reliability for container shipping dipped below 40%, which had a direct effect on the global economy. While delays can't be prevented entirely, the ability to proactively notify cargo owners of delays would enable shippers and their consignees to prepare for the "unexpected" by making alternative operational plans.

Enabling supply chain continuity means that shippers need to be informed and in control of what's happening to their shipments. DCSA conducted a survey[2] of North American logistics decisionmakers in shipper organisations who confirmed that visibility is key to deciding which carrier they will use. Over 80% of the respondents used multiple suppliers for ocean transport and 69% reported varying satisfaction levels with different shipping suppliers.

Over 70% of survey participants said they would likely switch to a carrier that offered:

• High schedule reliability
• Guaranteed arrival times
• Proactive communication around exceptions and better responsiveness

Survey respondents also said container shipping should emulate more digitally advanced industries such as airlines, banking, ecommerce and hotels, all of which provide a superior experience to customers as a baseline rather than as an exception to the rule.

Airlines
Customers are fully apprised of the exact price, route and schedule of a flight before they book. Flights can be tracked in near real time. In the event of delays, flights can be rescheduled on-the-fly to accommodate the customer's needs.

[1]   https://www.ics-shipping.org/wp-content/uploads/2014/08/shipping-world-trade-and-the-reduction-of-co2-emissions-min.pdf
[2]   DCSA survey of North American shippers; survey respondents comprised professionals involved in a broad range of supply chain management functions

Unexpected delays ripple across the supply chain (continued)

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over 70%

of survey participants

want a carrier that offers more

Banking

Customers have 24/7 online visibility into their accounts and quick access to their money for paying or investing through a host of web-based applications. Account features are clearly stipulated, and customers can count on accurate and timely information about their current balances and fees.

E-commerce

Online retailers have seen impressive growth in recent years, representing around 14.5% of total U.S. retail sales in the U.S[3]. This is in part due to their ability to offer a satisfying experience from end to end—from extensive product details during the purchase process to

online tracking and tracing of packages. Customers can even select when, how and where they want their purchases delivered and paid for.

Hotels

Hotels offer guaranteed availability, pricing and facilities based on dates of stay. Details about the stay can be altered based on the guest's needs. Every process from booking to cancellation can be managed online by the customer.

During the booking process, some even offer add-on services based on the customer profile to increase revenue and customer satisfaction.

DCSA envisions a digitally interconnected container shipping industry. Our mission is to be the industry's collective voice, setting the technological foundation for interoperable IT solutions. Together with our member carriers, DCSA creates vendor-neutral, technology-agnostic standards for IT and non-competitive business practices. By working towards the widespread adoption of these standards, our aim is to move the industry forward in terms of customer experience, efficiency, collaboration, innovation and respect for the environment.

Data visibility enables a better shipping experience

Interoperability is a requirement for end-to-end data visibility

Due to a lack of data visibility, it is a challenge for the container shipping industry to offer the kind of customer experience provided by fully digitalised industries. For example, track and trace data is not aligned or digitised across carriers and their logistics partners, which means that multi-modal transport chains often appear as "black boxes" to customers, and containers are lost from view until they arrive at certain points in their journeys.

This problem is compounded when event information is exchanged inconsistently through emails, online portals, faxes, text messages and so forth. These messages must be aggregated and analysed by users to get, for example, an accurate ETA. This makes day-to-day management labour intensive and time consuming, which slows down exception handling and prevents smooth operational transitions.

In November 2021, the US Federal Maritime Commission (FMC) launched the Maritime Transportation Data Initiative (MTDI) to help solve these data quality and communication issues. Over a 6-month period, the commission held 18 industry stakeholder meetings with 80 participants from every segment of the maritime transportation industry.

Findings from these sessions concluded that there is not a system in place to ensure that changes to shipping information are consistently and accurately conveyed to stakeholders. According to the FMC, this is not simply a transmission problem; it is an issue of having no consensus around how to best convey timely updates and who is responsible for that communication.

As a result, there are huge "blind spots" along the container journey that no proprietary solution can resolve.
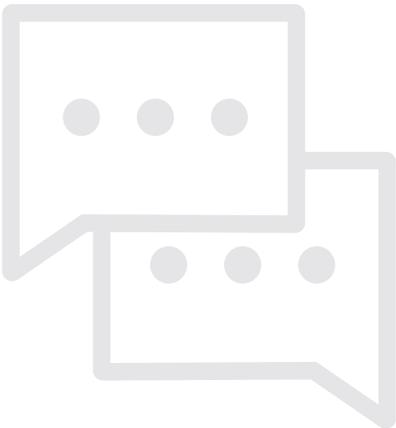
Barriers to interoperability

EDI wasn't designed to meet the needs of global trade today

Digitalisation has long been understood to bring value to maritime shipping operations. Currently, EDI is the dominant technology for transmitting digital data between supply chain partners.

Developed in the late 1960s, EDI replaced paper with structured electronic data transmission. It was designed to eliminate much of the human error that occurs with manual, paper-based processes, and it does so quite effectively. But like many 40-year-old technologies, EDI has some drawbacks in terms of keeping up with modern customer demands for visibility. It is also no longer taught in schools, making it difficult for organisations to find EDI developers.

EDI is unsuited for streamlining data exchange across the supply chain for the following reasons:

- First, it can take weeks for two businesses to set up and test an EDI connection. Stakeholders in an EDI-based trading ecosystem need to be "onboarded", meaning, their systems must be customized to communicate with other participants in the ecosystem.

- Second, EDI is not intended for "real-time" data exchange. It is structured to periodically transmit data in one direction. If schedules or other elements change, or there is an error in a data element, a supply chain partner won't know about it until the next scheduled transmission.

- Third, each EDI transmission can involve a great deal of data, not all of which may be needed by the receiving partner, and the unnecessary data must be eliminated, which is resource intensive.

An alternative to EDI is the application programming interface (API), which enables supply chain participants to exchange data in real time. APIs also enable stakeholders to automatically request and receive only the data elements they need. However, as the FMC points out, for APIs to effectively "fill gaps in existing transmissions", they must have accompanying standards that are widely adopted.

The modern standard for digital communication

Today's technology platforms can handle billions of real-time interactions per day

The API is the modern standard for interoperable digital communications. It is a set of programming instructions and data exchange standards that allow different web-based systems to communicate with each other in real time. APIs can handle billions of interactions every day.

The value of API technology is well recognised in business, and it has been a linchpin for digital transformation in digitally advanced industries. Think about when you use your credit card to purchase something online. The data needed to complete the transaction is exchanged and validated instantly over the web using APIs. Many standards organisations are embracing APIs as a way of improving information sharing and interoperability.

The 2-way, real-time data exchange enabled by APIs is what's needed to increase visibility into container shipping processes and events. Imagine the benefits for exception handling. With APIs, shippers can query the carrier's system or subscribe to automatically receive status updates for any relevant event. If there are delays or other types of exceptions, shippers can learn about them as they happen and work to resolve them immediately.

DCSA digital standards for container shipping

The collaborative path to visibility and a better customer experience

The purpose of DCSA is to establish digital standards that will enable the interoperability of technology solutions across the end-to-end supply chain. This will provide a foundation for industry-wide digitalisation along the lines of what exists in banking, telco and the airlines. By working towards the widespread adoption of standards, DCSA's aim is to advance the industry in terms of visibility, real-time responsiveness and as a result, greater reliability and a better customer experience.

With 9 of the top 10 carriers as members, DCSA is in a unique position to work with a broad range of industry stakeholders, including regulatory bodies and other standards organisations, to drive alignment at every connection point using APIs. An interoperable, API-based framework for the global supply chain will enable shippers to connect in real-time not only with carriers, but with freight forwarders, terminals, ports, regulators, banks, customs officials, etc. And these connections will have far fewer technology integration points and require much less maintenance than an EDI-based system would.

To date, DCSA has published API-based standards for some of the most urgent and impactful aspects of the container shipping industry including track and trace, the booking process and electronic bill of lading (eBL) (as the first steps towards digitalising trade documentation), operational vessel schedules and just-in-time port calls. For more information and links to ocean carriers' standards-based API portals, please refer to the web site **dcsa.org**.

DCSA digital standards for container shipping (continued)

Example: DCSA Standards for Track & Trace

DCSA Track & Trace standards provide common language, data definitions and processes that all stakeholders can use to help achieve end-to-end cargo visibility. The standards leverage modern, standards-based APIs, instead of EDI, to enable real-time, automated communication of event data. This allows customers to directly receive accurate, up-to-date exception notifications.

DCSA Track & Trace standards address a comprehensive set of events that cover the entire container journey, from booking status and pick up at the warehouse, to transportation over land and ocean, to customs and delivery at the customer location. They also cover multiple modes of transport—ships, rail, truck, barge—as well as operational events like vessel arrival and departure, and every move the container makes while at port. Every data element is consistent, enabling parties that have implemented the DCSA API to seamlessly exchange data from machine to machine.
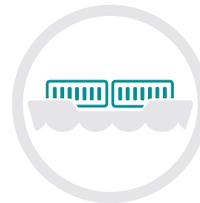
The drive towards standardisation

Digital transformation can only happen if everyone gets on board

Digital transformation is only possible through industry-wide collaboration, and that collaboration, involving both the private and public sectors, is starting to happen.

Earlier in 2022, DCSA participated in the launch of the Freight Logistics Optimization Works (FLOW) initiative by the White House and U.S. Department of Transportation, with the aim of easing supply chain congestion and creating transparency by strengthening the digital supply chain infrastructure in the US.

Along with numerous other industry stakeholders, DCSA has been an active participant in the FMC's MTDI to help clarify how current constraints on data communication impede the flow of ocean cargo and add to supply chain inefficiencies. DCSA standards are now being considered by the FMC as a basis for an emerging US national standard for maritime data exchange.

In the UK, the Electronic Trade Documents Bill is currently making its way through parliament with the aim of allowing digital trade documentation to be recognised as legally equivalent to paper by mid-2023. The bill paves the way for widespread adoption of eBL for all sectors and industries that use English law as a basis for international contracts, which includes 80% of bills of lading[4], much of world trade and several leading ocean carriers. DCSA has been recognised as the leading authority on digitisation of trade-related paperwork in press materials.

4 Source: UK Electronic Trade Documents Bill goes into Parliament; Chris Southworth, Secretary General ICC United Kingdom

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The drive towards standardisation (continued)

A new industry alliance, the Future International Trade (FIT) Alliance, comprised of DCSA, BIMCO, FIATA, the ICC and SWIFT, was established to further digitalise international trade by driving development and adoption of standards to facilitate the use of electronic bills of lading.

DCSA and the European Shippers' Council (ESC) have agreed to work together to accelerate the digital transformation of container shipping by driving adoption of DCSA standards among ESC members.

The Maritime and Port Authority of Singapore (MPA) and Port of Rotterdam have committed to establishing the world's longest Green and Digital Corridor for efficient and sustainable shipping.

DCSA is collaborating with the ports as well as other organisations involved to help achieve this ambitious goal through the adoption of digital standards.

These are just some examples of collaboration that will help shape the digital future of shipping. The time is now to take part in transforming the industry for significant gains in efficiency, customer experience and sustainability.

We invite you to engage with us by subscribing to DCSA updates and making contact through our website, www.dcsa.org.