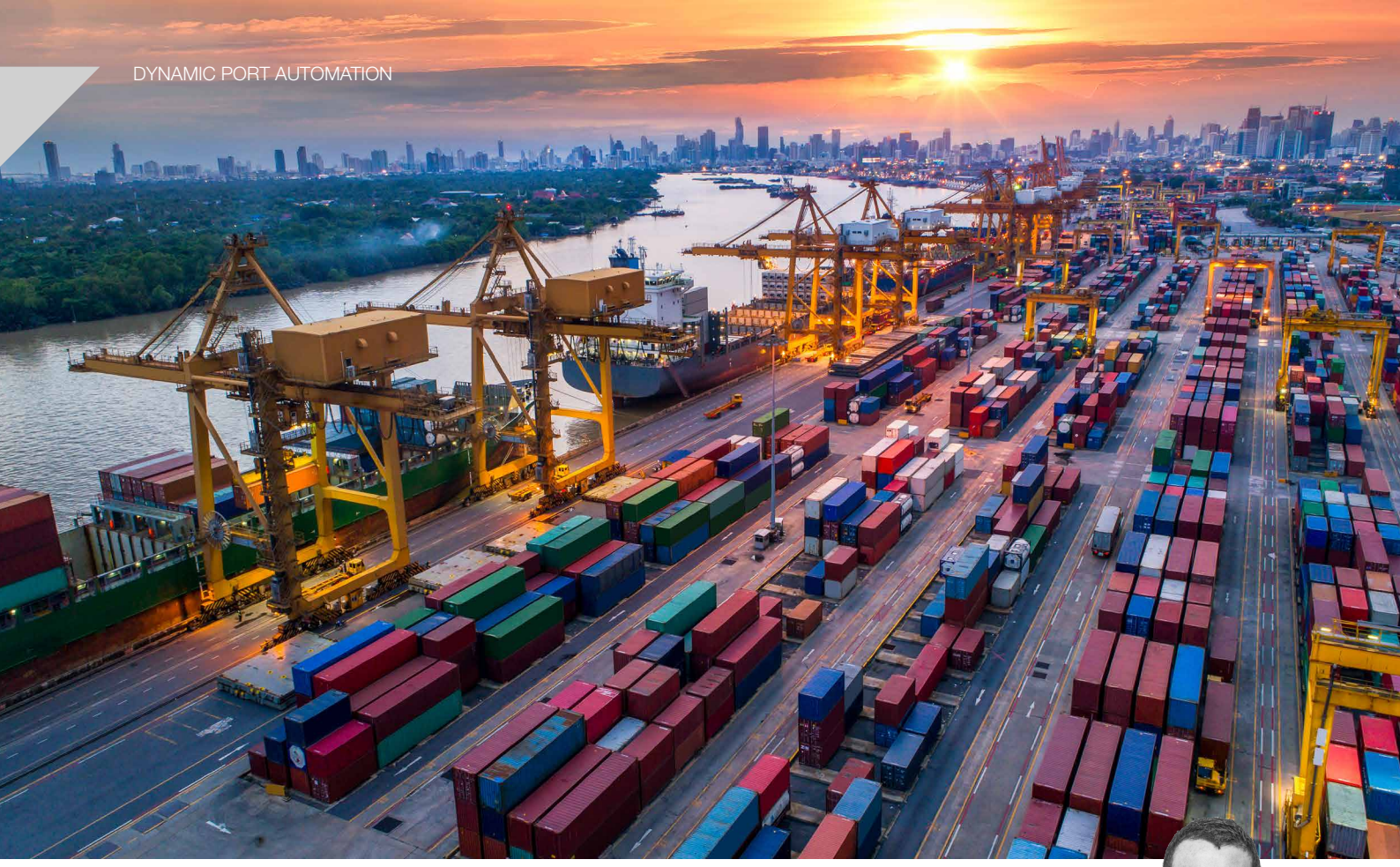


REAL-TIME CONTAINER VISIBILITY: FROM THE SHIP TO THE RAIL INTERMODAL YARD

Tom Forbes, Head of Rail, Navis Rail

International container traffic has recently reached record volumes as traffic ramped up through much of the pandemic and container movements continue to grow. In North American ports, there are huge delays in working the ships arriving from Asia and the inbound/outbound container imbalance is creating container shortages for export shipments.

Throughout this rapid business expansion, there remains a strong focus on supply chain visibility among ship and port operators, railroads and truckers. Shippers and beneficial cargo owners want better tools to see and track shipments from release to delivery, in the same way consumers track Amazon or FedEx shipments. As consumers become more accustomed to better tracking and service standards, these capabilities are needed at every stage of the transportation and handling process.

FROM THE SHIP TO THE INTERMODAL YARD

The greatest need for supporting advanced supply chain visibility will take us beyond the domestic tracking of shipments. This would be the full integration of planning and operational systems, and data across multiple transport modes. For example, if a single planning application (and set of data) extended from the ship, to the container terminal, to the on-dock rail, to the rail intermodal yard, the carriers would have more opportunities to optimise and track this extended process.

One critical area of system and data interfaces is in intermodal movements, and the related data. This deserves more examination from logistics specialists. The macro technical environment for improving intermodal planning and management is very good since devices, software and APIs from transport providers and third parties, for tracking cars, containers and individual shipments, are becoming available and affordable. Additionally, the integration of data feeds across systems is rapidly evolving and data is more easily shared among multiple transport modes. But is intermodal data available at all transport stages and for all interested parties?

DATA AND TOOL AVAILABILITY

Based on our observations and discussion with clients, railroads do not always directly exchange data with ocean carriers. Currently, there is sharing between the ocean carrier and the ocean terminal operator, but not necessarily enough for the benefit of the railroad and the beneficial cargo owner. This means that there is an opportunity for more data to be exchanged between vessel operators and rail companies, most likely through the terminal operating system (TOS), which already needs to "understand" what is being offloaded from the vessel and what is being loaded

onto trains. This TOS intersection between the ocean carrier and the railroad could provide the common interface for all downstream transport modes.

Some software tools are being developed that support this data interface among the ocean carriers, terminals and intermodal service providers. Much of this information is currently shared via electronic data interchange (EDI) or phone and email, but more efficient technologies are developing. Navis's RailEye, a part of the N4 software platform, provides real-time visibility of rail network status, accurate train ETA for terminals, and train loading progress for railroads.

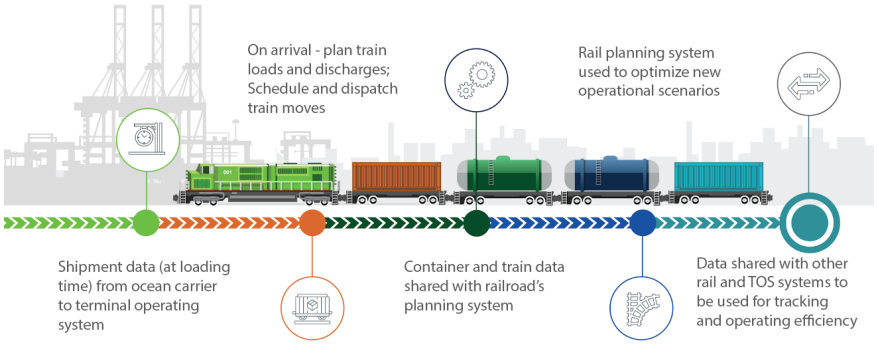
These ocean-terminal oriented systems are a key component in efforts to capture and control information regarding terminal and train interaction. Other key information usually flows with the containers. For example, for containers arriving on a vessel, terminals using N4 will receive container information (weight, customs etc.) from the ocean carrier and as the boxes are loaded and departed on a train, the container detail can be forwarded from the terminal to the railroad. From a planning and data visibility perspective, the container-oriented information should be made available to the railroad as early in the process as possible.

There have been developments among some of the large ports to improve data availability. Late last year, the Port of Los Angeles announced the launch of The Signal, which is designed to provide information on how many shipments will be arriving at the port over the next three weeks. The data is reported to be broken down by container type and includes details on the mode of transportation (rail or truck) that will be used once the containers arrive in LA. This sort of advancement is critical for reducing congestion, but also for handing off data to other systems such as rail planning and operational systems.

Another initiative that could impact multimodal data availability is Rail Pulse, where the objective is to upgrade all North American rail cars to GPS and other new tracking devices, to give railways the type of visibility seen in trucking and package delivery. Pulse is designed to provide telematics capabilities, which will include data capture to support real-time track-level visibility. The program is focused on the owners of the assets using a GPS transceiver for tracking individual cars in real time, and not just at yards. This project currently includes many influential companies including Norfolk Southern, Genesee & Wyoming, GATX, Watco, TrinityRail and others.

PLANNING AND ANALYSIS

It's clear that rapid intermodal turnaround in late 2020 and early 2021 has been difficult for railroad planners to manage. If rail planners had been informed two to three weeks before the loaded ships started to arrive at west coast North American ports, the railroads might have been able to have crew, power and other assets in place. This data would form the basis of tracking the containers at every stage in the movement – international and domestic.



It would be a massive improvement for ports, truckers and the railroads to know the volume and types of containers that they would be receiving when a ship sets sail from Asia. Rail Planners would then be able to have the rolling stock, crews and network capacity in place when the containers hit the pier. Additionally, more complete rail data would be available to share with the customer, earlier in the supply chain.

In the container terminal, the container and stowage data will be used to create, view, and manage the intermodal train work. Systems such as Navis's N4 can enter and manage full train visit detail information, including the train identification, location, service, direction of the train, various arrival and departure times and weight limits. This data is stored and made available to other Navis tools and for export to other systems.

At this point, the detailed container/rail information can be shared with railroad planning and operational systems. This will seamlessly provide the shipment status throughout the movement of the intermodal train from the container terminal, through the freight rail network, to the intermodal terminus.

Software, such as the Navis Rail planning platform, can use the data for immediate analysis and optimisation of rapidly changing planning scenarios, such as the impact of the spike in intermodal activity on the west coast. The same data can also be communicated to rail and trucking operational systems through APIs, EDI, and other methods of data transfer, or sharing of business objectives.

CONCLUSION

Many railroads have tools in place to provide real-time, or near real-time, cargo status to their clients, and more tools are now being developed by the carriers and third parties to take this to a more granular level. The expansion of this view to include detailed information on incoming or outbound international containers would dramatically improve this visibility. But this information is not currently or readily available to all segments of the transportation process.

Transportation providers and software developers should take the immediate step of making sure that international shipment information is made available to the complete supply chain. This could start at the time of the cargo booking, but should be validated as the containers are tendered to the ocean carrier for loading. The availability of this data would close one of the largest remaining gaps in shipment visibility for all stakeholders.

ABOUT THE AUTHOR

Tom Forbes is head of rail for Navis and brings decades of experience working with rail operators to improve efficiencies through the use of advanced software solutions and algorithms. He has lived in North America, Australia and Europe and worked with many freight rail operators in these regions. Tom came to Navis through the acquisition of Biarri Rail, where he was CEO. Prior to Navis he was Managing Director of a Boeing subsidiary in Australia, where he sat on the board of Boeing Australia. He holds an MBA from the Queensland University of Technology and currently lives in Chicago.

ABOUT THE ORGANISATION

Navis, a part of Cargotec Corporation, is a provider of operational technologies and services that unlock greater performance and efficiency for the world's leading organisations across the cargo supply chain. Navis combines industry best practices with innovative technology and world-class services, to provide comprehensive management of the supply chain for safer, smarter and more efficient cargo operations. Navis Rail offers a SaaS suite for the planning and optimisation of freight railroads including the network, schedule, traffic cars, locomotives and crew. www.navis.com