



MARITIME SUPPLY CHAIN CHALLENGES

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As the world economy started gathering momentum in 2017 and 2018, the volume of sea-borne trade began trending upward, albeit from a low following the anemic recovery of the previous decade. While prospects for the industry are positive in the next few years, trade protectionism and the possibility of trade wars are still concerning.

In fact, while trade was growing at

thereby opening the door to third parties.

Several players in the maritime information eco-system have an opportunity to offer shipping customers what they need – door-to-door services with real-time information flow – and monetize the offering. The first ones out of the gate are third parties, including both traditional forwarders and a new crop of digital intermediaries.

The challenge here is the development of an efficient digital system for managing vessel movements, coordinated with terminal operations and land-side movements. Shipping lines that have invested in terminals are in a position to reap customer service and productivity benefits. Closer integration between links in the maritime supply chain can deliver

operators not affiliated with a shipping line. There was a belief that affiliated operators would abuse their position with services that favour affiliated shipping lines.

Originally, shipping lines invested in terminals because they needed to secure berthing on arrival. They typically added a vessel to a string so as to provide better frequency and better service to their customers on that string. However, if an expensive vessel ends up waiting for days to berth, either at an intermediate port or at the final destination, customer service does not improve and the investment in the additional vessel does not bring the expected returns. Later on, shipping lines realized that in addition to securing a berth, the business of container terminals is profitable in its own right. Furthermore, it is less volatile than the liner business and despite lower profitability, is more predictable and provides steady returns in the long term.

Following the 2008/2009 financial crisis, the public perception changed and authorities accepted the concept of terminals owned by shipping lines. The change was, in part, the result of recognizing that the terminal business offered stability to the ports. Furthermore, once the lines saw the terminals as a profitable business in its own right, serving competing lines stopped being an issue. Today, the largest shipping lines have ownership in terminals worldwide, and these facilities continue to service competing shipping lines.

MEETING THE CHALLENGE

Terminal development requires an appetite for long-term investment which today is taken on either by the shipping lines or governments – mainly in the form of sovereign wealth funds. Shipping lines that have made the hard investment in terminals (and some have invested in rail and logistics capabilities as well) have not yet made the effort to integrate the management of these elements into a seamless flow of

INTEGRATING AUTOMATION

Another element of the challenge is the move towards automation. With the development of automated warehouses, autonomous cars, and automated terminal operations, customer requirement for low cost and reliability will only increase – even for the maritime sector. Furthermore, these developments are already ushering in an era of advanced sensors and artificial intelligence software, increasing the pressure on the industry to automate.

Local automation already exists in pockets of the industry, but the integration of autonomous operations across the sector first requires an overall platform of operational excellence. The big mistake is to automate sub-par processes, which may be part of the reason why automation has not delivered the expected returns to date (the other reason is that, as mentioned above, it was implemented in pockets and not across the value chain). Operational excellence involves instilling discipline around core transactions and back office processes, as well as transforming business silos into a single digitized process platform to act as the operational backbone.

More significantly, Automation will require integration of the different system components in a terminal, and will also introduce a new “middleware” layer, which effectively will replace the traditional function of the dispatch and planning control room of today. The question is who will build it and, more importantly, who will assume the liability for the proper integration?

Naturally, the integration challenge is not just the initial building of the system, but its performance as demands increase, terminals get congested, and customers do not get the service they paid for. This can be achieved with a proper incentive system. For example, the lines may guarantee a minimum level of demand (and therefore a guaranteed compensation) for the integrator and pay it based on a service level agreement rooted in agreed-upon KPIs. This approach effectively makes the



that randomness and inefficiency cost them money. Inconsistent shipping times mean higher inventory carrying costs, more out-of-stock situations, stranded production lines, and obsolete inventory. As a result, the system – i.e. land transportation, terminal operations and maritime shipping – has to be integrated (and then automated) to deliver consistent travel time with real-time information flows. Although third parties or large shippers can perform some of this function, the shipping lines should also take on the challenge, especially as they may be the biggest beneficiaries of owning and operating a door-to-door system. This is even more important for shipping lines who own or operate terminal and land-side transportation. The benefits include better customer service, bypassing the third parties, owning the customer data, and more efficient operations.

ABOUT THE AUTHOR

Dr. Yossi Sheffi is Elisha Gray II Professor of Engineering Systems and Director of the MIT Center for Transportation and Logistics. Under his leadership, the CTL has launched many educational, research, and industry outreach programs. He has consulted with numerous organizations and founded five successful companies, all acquired by large enterprises. Dr. Sheffi has been recognized in numerous ways in academic and industry forums winning multiple awards and honors.