



THE NEW ERA OF CONTAINER SHIPPING

CHALLENGES AND OPPORTUNITIES



navis[®]

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The ocean container shipping is now sailing through uncharted waters, with shipping line and terminal mergers and acquisitions, bankruptcies and alliance restructuring, and declining revenue and profitability. Terminals are investing heavily in automation and physical infrastructure projects, such as deepening quay walls and buying and retrofitting cranes to meet the demands of increasing numbers of mega vessels. All of these challenges are occurring simultaneously, with a double whammy of weakening demand and oversupply of slots.

While we may feel somewhat helpless dealing with these issues - challenges such as surplus capacity will take a long time to be resolved and others such as weakening demand are exogenous to the industry - there is also a lot that we can do together to increase efficiency and restore profitability to the industry. In order for us to articulate and realise these changes, we need to zoom out and visualise a new era.

After all, we can't be what we can't see.

In the new era we see, collaboration between the various stakeholders in the ocean value chain is the norm. Various operational processes, especially ones that require two or more stakeholders to work together, are engineered and tuned for excellence, and efficiency of all parties involved. When tradeoffs have to be made, they are made collaboratively, looking at costs and benefits holistically.

In the new era we see, vendors of solutions will dare to venture out of their niches and look for solutions that connect and interchange information in real time to provide actionable visibility and enable efficient decision making. These solutions will be possible because new standards for information exchange and a set of common semantics have evolved. Ubiquitous standardised and cleansed data will enable emerging technologies such as machine

"THE POWER OF IMAGINATION IS INCREDIBLE. OFTEN WE SEE ATHLETES ACHIEVING UNBELIEVABLE RESULTS AND WONDER HOW THEY DID IT. ONE OF THE TOOLS THEY USE IS VISUALIZATION OR MENTAL IMAGERY... THEY MADE THE CHOICE TO CREATE THEIR DESTINIES AND VISUALIZED THEIR ACHIEVEMENTS BEFORE THEY ULTIMATELY SUCCEEDED."

George Kohlrieser, Psychologist, Hostage Negotiator, Professor of Leadership

learning and artificial intelligence to create more transparency and data driven decisions.

However, imagination without execution is hallucination. Creating a bold new order requires a lot of hard work. The first and the hardest is changing the way we think about the issues we face today and our ability to challenge the status quo. We must establish a new mode of thinking about fundamental operational processes, such as vessel capacity and allocation, stowage planning, berth management and vessel port call, and how those processes, and the people and technology involved, interlock and impact each other.

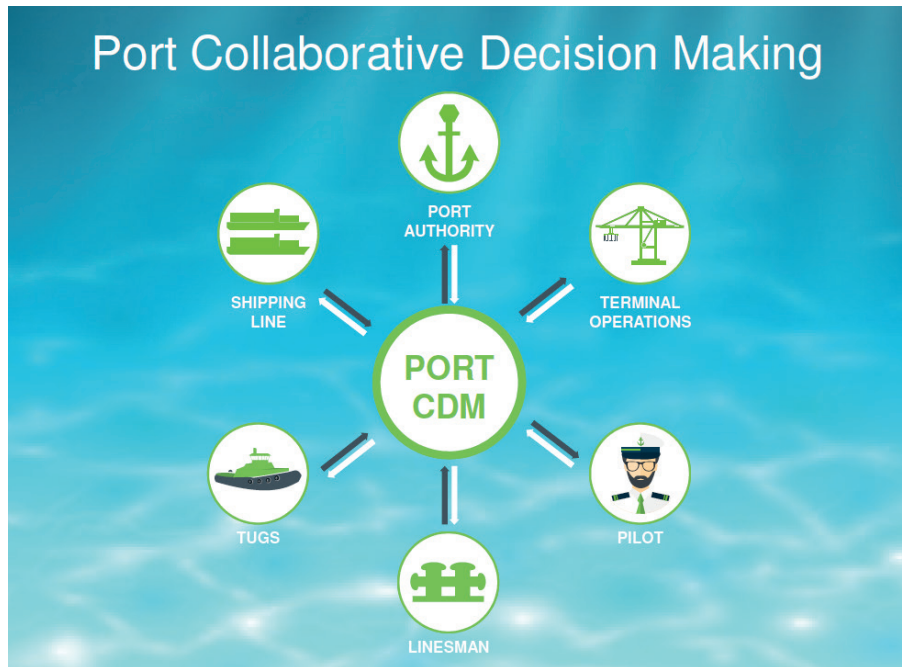
“IT’S JUST LIKE THE AIRLINES”

Container shipping lags other industries in terms of connectivity among operational processes and data standardisation. Fortunately, we can look to the airline industry for inspiration in this regard.

Before we make the case that the two industries are more similar than not, let us first acknowledge some of the differences between the two which are clearly determined by the nature of the markets they serve. Airports enjoy a high share of revenues from passenger transport, and are of greater interest to the private sector due to the higher revenue potential of the associated services (kiosks, malls, communication & connectivity). Sea ports on the other hand (for historical, geographical and economic reasons) have a greater public sector and government involvement, leaving very little for private enterprise.

Beyond that, the trends and challenges between these two industries are very similar. Government involvement for oversight, monitoring and regulation is common for both. Market dynamics are also comparable. Like shipping lines, the airlines also suffer from slim profit margins, forcing carriers to focus on both cost reduction and revenue growth through better customer experience and data driven decisions. Efficiency, reliability, asset utilisation and overall performance are crucial for competitiveness of both industries. Not too long ago, airlines in the United States suffered from the same market dynamics that shipping lines deal with today – over capacity and consequently falling revenue and profitability, existential crises, mergers, acquisitions and restructuring. The airlines have since taken several measures, and many are either already profitable or well on the path to profitability.

Players in the airline industry have achieved a state-of-the-art system where real-time visibility and transparency are inherent to all operational processes. Standardised data is enabling automatic



connectivity across different systems addressing efficiency, security and safety. For example, Schiphol in Amsterdam has implemented Collaborative Decision Making (CDM) systems to centralise different operational processes supported by consistent and accurate information.

The key principles driving Airport CDM are:

- Consistent and accurate information across the different operational processes resulting in optimal use of airport assets & resources
- Clear timelines and milestone definition for accurate prediction, trade-offs alignment and visibility across conflicts and alerts
- Connectivity across operational processes and subsequent systems, enabling the different stakeholders to make the best decisions and providing flexibility to deal with congestion and disruptions in real-time

Can the ocean supply chain of the future work as the air travel industry does today? We believe the answer is absolutely yes!

Learning from the airline industry's progress will take our industry to a higher level. For instance, if the principles of Airport CDM are implemented in a seaport, shipping lines have the potential to reduce port stays, terminals will increase berth utilisation, and port service providers like pilots, tugs, linesmen etc. can be more efficient and increase the return on assets.

CONNECTING SILOS THROUGH COLLABORATION

In the process of a container flowing from 'A' to 'B', information about the flow is handled by a dozen software systems, if not more. Data about the container

and the flow are often replicated across these systems and not kept synchronised, resulting in each stakeholder working with and making decisions on their own versions of truth. To make matters worse, when the stakeholders need to communicate, they are using archaic methods and interfaces. Part of the reason is historical – “this is how we have always worked”. When some stakeholders are willing to explore new possibilities, they have to go to inordinate trouble to enable collaboration due to the lack of data standardisation and software vendors focusing on their niches.

Take the case of vessel stowage. It has been noted by Maersk line (in their Capital Markets Day, 2016) that a 15% increase in throughput has been achieved as a result of joint operations by APMT and Maersk line. This significant increase in productivity could be the shot in the arm that terminals are looking for. For the shipping line, efficient cargo operations result in faster vessel turnaround time, which then opens up slow steaming opportunities and bunker savings. Collaboration in this case has resulted in win-win outcomes for both parties involved.

Berth window management is yet another area where the terminal and shipping line can both benefit from collaboration. On the ocean voyage, shipping lines often adjust the sailing speed (many times burning fuel unnecessarily) to meet berth windows, only to find long wait times at port. On the other side of the coin, terminal operators hold berth windows (which may be more profitably used) only to find the shipping line delayed. A smarter solution would be to estimate time of arrival at berth using live vessel tracking data and for shipping lines, terminal and

port service providers to collaborate, so all parties enjoy best outcomes and maximize their return on investments.

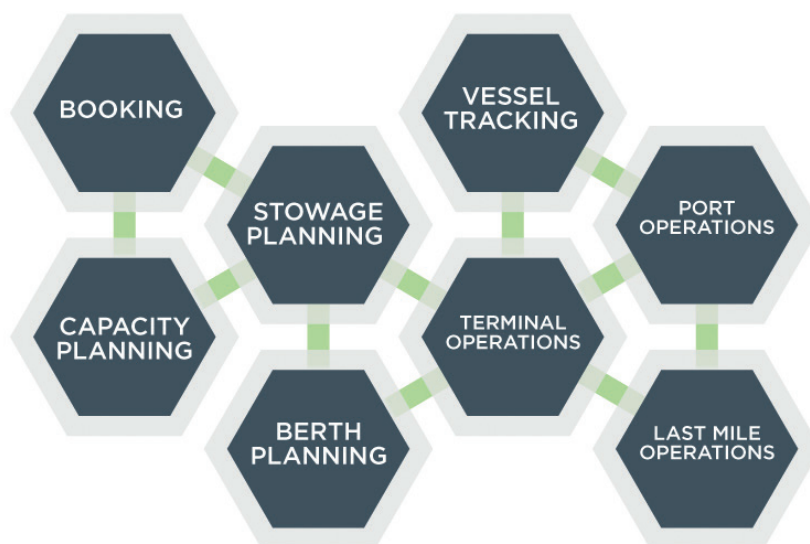
To collaborate and achieve favorable outcomes for all players requires a mindset change. The stakeholders should not view the industry as a zero sum game. To enable collaboration, we also need systems that can communicate with one another using standard interfaces and data formats. And the industry as a whole has to align on the semantics. For instance, carriers and terminals compute their own versions of 'schedule reliability' based on their own definition of ETA. The industry and all the stakeholders need to align on a standard definition of ETA.

THE POWER OF DATA TO OPTIMISE THE CONTAINER FLOW

Data and analytics have the power to unlock new levels of efficiency. By analysing the various operational processes in the industry using a data driven approach, several millions of dollars of process inefficiencies can be eliminated, directly contributing to the stakeholders' bottom line.

Let us start with the container booking process. Today, the market conditions allow shippers to book the same cargo with multiple shipping lines with no associated penalties (although some shipping lines have been talking about introducing penalties for no-show). Shipping lines have instituted KPIs such as down-fall ratio that they use as a counterbalance in their planning process. However, these are estimates that not only often suffer a margin of error, but are highly variable depending on the shipper, the trade lane, etc. In the future, if there are no commercial changes, the power of data and machine learning can be employed to predict and forecast to a great degree of accuracy the probability of a booking that will be realised. This enables smarter planning and commercial decisions for the shipping line opening new revenue potential.

In the terminal front, equipment automation holds the promise of reliable, consistent and highly productive operations. Mountains of data are generated by the Terminal Operating System, Equipment Control System and various other process automation systems. While traditional BI and data analytics are useful to view historical performance and track KPIs, what is needed are predictive and prescriptive insights that enhance the quality of decisions. Critical operational decisions along the entire value chain continue to be taken in isolation. Real-time data transparency and visibility will challenge many current operational practices which are often the core source of inefficiencies. Data can 'connect the



dots' across operational areas and time horizons. The most sophisticated and best performing of the algorithms will not produce an effective decision unless the data that is fed into the algorithms is clean and meaningful. Users on the frontline need to understand and empathise with automated decisions. Conversely, the systems that take or enable sophisticated decisions have to communicate the decision in an intuitive and coherent manner to the user.

CONCLUSION

The biggest challenge ahead of us is not on the technology or toolset front. In several innovation hubs across the world, we see a healthy startup scene and excited entrepreneurs ready to tackle the biggest problems using bleeding edge technology.

The issues tackled span the entire gamut of the chain- from technology driven freight forwarding to predictive empty container repositioning and intermodal and inland optimization and everything in between. Private equity and venture capital is flowing at an exponential rate to fuel this innovation scene.

The challenge of our times is the ability for us to disrupt the status quo by reexamining operational processes and imagining new possibilities given the capabilities of technology today and those that are emerging. We must then begin the hard work required to create that future. Instead of reeling in the doom and gloom that is all too easy to identify with, we can harness the power of our collective imaginations to enhance the industry's efficiency and profitability.

ABOUT THE AUTHOR

Sumitha Sampath is the Senior Director of Product Strategy at Navis. In her current role, she has the privilege and responsibility of combining broad macro industry trends with her in depth knowledge of the Navis solutions to help craft and execute their strategy. Sumitha joined Navis 15 years ago as an engineer working on the SPARCS product from the chaotic world of Silicon Valley startup companies. She has stayed with Navis because of the impact the industry has on improving the quality of lives and livelihood of millions of people around the world. She is fascinated by the global impact of the industry and deeply appreciative of the opportunities to work with a truly international group of people on big problems. Sumitha believes that the while a lot has been done to solve challenges in verticals, the next leap in efficiency and profitability will come by horizontally connecting across the various

silos and verticals. Sumitha holds a Master's degree in Computer Applications and a Master's in Business Administration from the University of California, Berkeley.

ABOUT THE ORGANISATION

Navis understands that as operational processes become more complex, efficiency, collaboration and productivity are essential. As a trusted technology partner, Navis offered the tools and personnel necessary to meet the requirements of a new, and ever-evolving, global supply system. The Navis N4 terminal operation system is a platform that can integrate partner technologies, enabling terminal to optimise productivity and enhance the service delivered to its customers.

ENQUIRIES

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