



LINER SHIPPING IN 2025

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With the turmoil of 2016 barely behind us, it could appear overly optimistic to attempt to forecast the industry's developments as far into the future as 2025. That is nonetheless the focus of my new book entitled *Liner Shipping 2025 – how to survive and thrive*. In this paper I will offer a review of some of the key elements of the book.

The industry is currently facing a fundamental transformation which will profoundly change the existing business models – and that this transformation will happen irrespective of the practical details, such as demand growth and freight rate developments. Let us contemplate four of the main driving forces: digitization, transparency, supply-chain dispersal and network optimization. The first two aspects will have overall ramifications for the industry, and the latter two aspects will have a significant impact on the container ports and terminals, where transshipment terminals will see material impact especially.

DIGITIZATION

Digitization will drive a development where the entire information flow related to a shipment becomes fully automated end-to-end, including the port and inland parts. The efficiency gains from this will be substantial, but are predicated on a more fundamental shift and results in the need to transform the business model. Shipping lines need

to realise that to successfully navigate this transformation, digitization cannot be seen as an IT project. Surely IT is involved, but - more importantly - this requires the entire organization to embrace process management as the core way of governing the business. Only with process management firmly in place will it be possible to digitize and automate efficiently.

However, in order to have a successful business, automation cannot stand alone. Automation in itself will serve to commoditise the industry even further, eroding competitive differentiation across the carriers. However, exceptions will always occur in the supply chain. We will continue to see weather-induced delays, port strikes, congestion, equipment malfunction and so forth. As such, carriers will have the possibility to use exception handling as a competitive differentiator. Doing this requires a transformation where standardized jobs in major service centers are eliminated due to the digitization and automation, but at the same time we will see an increased focus on having highly skilled customer service representatives in local offices to manage the exceptions.

By extension, this development will also be seen by ports and terminals. Not only from the perspective that a gradual automation will serve to reduce costs and improve efficiency, but equally so from the perspective

that terminals will be able to add value to the carriers by proactively providing information necessary to improve both carriers exception handling, as well as enabling them to offer locally differentiated services. Taking this a step further, some ports and terminals might be able to use this to create informational value to the cargo owners directly, in turn creating shipper or consignee preference directly for specific terminals.

The future successful carriers and terminals are thus the ones who recognise that automation and exception handling are each other's Siamese twin. Automation is necessary to achieve operational cost efficiency. Exception handling is necessary to achieve competitive differentiation in terms of customer service.

TRANSPARENCY

The second driving force we will contemplate here is transparency. An example of this is pricing transparency. We are currently seeing an increase in the availability of freight rate benchmarks in the market, and this development will continue to accelerate to the point where solid transparent benchmarks will be available in all major trades.

Over the past few years this has caused headaches for the carriers. As an example, the Shanghai spot index has on various occasions been accused of being a contributing factor

to the volatile rate environment. Whilst this argument can indeed be made, the underlying main factor is that the pricing and yield management models used by the carriers have not yet adapted to a transparent environment.

In the coming years, we will see carriers implement new, and more sophisticated pricing and yield management tools to successfully handle a more transparent rate environment for spot and contract rates.

Another example is supply chain visibility. As real-time visibility increases, a cargo owner is enabled to optimize his supply chain even further. A recent development is for example the introduction of live monitoring devices in reefer containers, allowing cargo owners to not only monitor where cargo is in real time, but also whether cargo remains within the necessary storage specifications.

A range of pilot tests have been executed in recent years with similar tracking functionalities on dry containers, and this is likely to become the standard by 2025. As carriers are increasing their service levels on these parameters, ports and terminals will increasingly be expected to also increase the transparency and real time data provision pertaining to the supply chain while the cargo is in port.

SUPPLY CHAIN DISPERSAL AND NETWORK OPTIMIZATION

The final two elements we will contemplate here are of paramount importance to ports and terminals in general, and especially for transshipment hubs.

The recent historical development of liner shipping networks has been dominated by the emergence of key east-west trunk routes, driven by manufacturing in Asia, particularly China, and demand in Europe and North America. However, this pattern is gradually changing.

On one hand, sourcing is becoming more distributed. Manufacturing is increasingly being placed in other Asian countries than China, and going forward, we are even seeing a gradual shift back to Europe and North America driven by an increased usage of robotics for manufacturing.

On the other hand, the demand is also becoming more dispersed. Populations in the main markets in Europe and North America are not growing as fast as they used to, and more importantly the population is aging which will tend to shift part of the consumption to services rather than physical goods. At the same time, the demographic changes in Asia and Africa will see the rapid rise of a middle class with a strong demand for physical goods.

All in all, this leads to dispersal in supply chain patterns as both the origins and the destinations for cargo transport becomes substantially more scattered than what is the case today. In order to manage this change in

cargo flow, the carriers will gradually begin to change the way they design their networks. To some degree, this is a change we have begun to see over the past 12-24 months.

Understanding network dynamics is quite complex, and in order to facilitate quantitative modelling, Copenhagen-based LinerGrid has used a mathematical algorithm to understand how these changes in flows will impact ports and terminals in general.

Understanding the flow, and hence value, in a liner shipping network requires the ability to simultaneously optimize the following three key aspects:

1. The total cost to operate the network, including the export/import and transshipment port and terminal costs incurred
2. The ability of the network to be able to accommodate the full flow of cargo demanded by the carrier's customers
3. The ability of the carrier to reposition empty containers to the needed areas without incurring excessive costs and without creating bottlenecks in the network.

The LinerGrid model optimizes on all three elements at the same time.

Simultaneously, carriers are forced to design their network under a set of constraints. One of the most important constraints they face is the necessity to utilise the vessels they own. This leads to a situation where it is imperative to design a network resulting in the efficient usage of the new generation of mega-vessels, in turn resulting in a cascading of tonnage to other trades. This development in itself leads to the inexorable conclusion that all ports and terminals will be facing increased vessels sizes in the coming years – no matter how small they are today.

Another aspect which emerges from network modelling is the value of direct port-port connectivity. Increasing the amount of direct port-port combinations will cause a carrier to obtain significant savings on feeders and transshipments. In the past 12-24 months we have seen an increase in the amount of slow swapping agreements even across alliances, and this is likely to continue. The implication is that the transshipment incidence is likely to be reduced, even though the portfolio of vessels is becoming skewed towards the mega-vessels. This is a negative indicator for transshipment-heavy terminals.

Perhaps most importantly for transshipment terminals are the results shown in LinerGrid's whitepaper from spring 2017. Therein it is analysed how the number of key transshipment hubs used by a carrier (or alliance) in a region impacts the network efficiency. The conclusions coming out from the study are clear. An efficient network design will inexorably lead towards a situation with fewer, but much larger, transshipment hubs. An example of this is shown in the figure where three different networks are

being compared using either a centralised setup with one hub in the middle of the region, a split setup with hubs at the east and west ends of the region and a diversified setup with three hubs (and hence shorter feeder distances) across the region. The savings associated with a stronger degree of network centralization are significant.

When this conclusion is combined with the consolidation from four to three main alliances, there is a clear pattern emerging for the container terminals in the coming years. Main transshipment hubs will face a situation where they will either be faced with a substantial increase in volume as they become selected as key hubs, or a situation wherein they might face an almost complete loss of their key transshipment volumes.

CONCLUSION

It is clear that a multitude of other fundamental changes will take place in parallel going forward. For the carriers and terminals, these are the formative years – especially as the transformation for any single stakeholder is a multi-year journey. This in turn means that the companies which manage to successfully navigate this transformation will be a strong position to not only survive, but thrive, in 2025. Companies which do not manage this transformation are unlikely to be part of the industry in the long run.

ABOUT THE AUTHOR

Lars Jensen is CEO of SeaIntelligence Consulting and has recently published the book *Liner Shipping 2025*. Additionally Lars is founder of CyberKeel which focuses on maritime cybersecurity, LinerGame, which provides training, and of LinerGrid which provides advanced tools to optimize network design for container carriers.

ABOUT THE ORGANISATION

SeaIntelligence Consulting is a leading consultancy in the container shipping industry focused on providing strategic analysis and decision support, as well as leading insights into maritime digitalization, process improvement, revenue management and the application of advanced mathematical modelling.

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