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[short report]

maritime  
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# *The Impact of Mega-Ships*

*by Olaf Merk<sup>1</sup>*

Container ships have grown bigger at a rapid pace over the last decades, faster than any other ship type. In one decade, the average capacity of a container ship has doubled. The largest container ship at this moment can carry 19,200 TEU, but ships with capacity of more than 21,000 TEUs have been ordered and will be operational in 2017. This development raises important questions: what are the impacts to the whole transport chain – and are these impacts still positive? Larger container ships have generated cost savings for carriers, decreased maritime transport costs and as such facilitated global trade in the past. However, larger ships require adaptations of infrastructure, equipment and cause larger peaks in container traffic in ports, which have increased the total transport costs.

The OECD/ITF (International Transport Forum) just released a report, entitled “*The Impact of Mega-Ships*”<sup>2</sup> that attempts to answer these questions. It assesses if the benefits of the current mega container ships still outweigh their costs to the whole transport chain. This article gives highlights from the report.

**There are cost savings of mega-ships, but these are decreasing and might not even be realized**

Doubling the maximum container ship size over the last decade has reduced total vessel costs per transported container by roughly a third. However, these cost savings are decreasing with size; the cost savings of the newest generation of containerships are four to six times smaller than the savings from the previous round of upsizing. Approximately 60% of the cost savings of the most recent container ships are related

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<sup>2</sup> Link to the report: [http://www.internationaltransportforum.org/Pub/pdf/15CSPA\\_Mega-Ships.pdf](http://www.internationaltransportforum.org/Pub/pdf/15CSPA_Mega-Ships.pdf)

to more efficient engines and not to scale. In addition, mega-ship development and the related container fleet capacity growth has taken place despite sluggish growth of world containerized seaborne trade. The massive ordering of new mega-ships has resulted in oversupply of container ships, which will most likely dampen some of the cost savings due to larger ships, as low demand results in fewer savings per transported container.

### **The transport costs due to larger ships could be substantial**

There are size-related fixes to existing infrastructure, such as bridge height, river width/depth, quay wall strengthening, berth deepening, canals/locks and port equipment (crane height, outreach). Mega-ships also require expansion of infrastructure to cater to the higher peaks related to mega-ships; as a result, more physical yard and berth capacity is needed. These annualised transport costs related to mega-ships could amount to US\$ 0.4 billion, according to our rough and tentative estimations. Roughly a third of the additional costs might be related to equipment, a third to dredging and another third to port infrastructure and port hinterland costs. A substantial share of the dredging, infrastructure and hinterland connection costs are costs to the public sector in many countries.

### **Supply chain risks related to bigger container ships are rising**

There are concerns about insurability of mega-ships and the costs of potential salvage in case of accidents. Mega-ships also lead to service and cargo concentration, reduced choice and more limited supply chain resilience, especially since bigger ships have coincided with increased cooperation of the main shipping lines in four alliances.

### **Further increase of maximum container ship size would raise transport costs**

So one could wonder if such increases would be desirable. The potential cost savings to carriers appear to be fairly marginal, but infrastructure upsizing costs could be phenomenal. Introduction of one hundred 24,000 TEU ships in 2020 would require substantial investments in those places where these ships would be first introduced (Far East, North Europe, Mediterranean), but would also - via cascading effects - result in introduction of 19,000 TEU ships in North America and 14,000 TEU ships in South America and Africa. This would imply additional investment requirements there as well.

### **Public policies need to better take account of this and act accordingly**

Key question is how the costs for the public sector imposed by mega-ships could be covered. Many ports and countries have, either accidentally or on purpose, encoura-

ged the development of mega-ships. More balanced decision-making would be needed, with clearer alignment of incentives to public interests, policy support to enhance supply chain productivity, more regional collaboration and the creation of an appropriate forum for a discussion between liner companies and all other relevant transport actors.

### **Make more balanced decisions on accommodating mega-ships**

Countries and ports frequently make decisions that seem positive on an individual level, but could be detrimental at a collective level. Countries and ports need to consider the costs of accommodating bigger ships in comparison to the overall economic benefits, including port income, savings to local shippers/importers/exporters, and whether such savings will be sufficient to pay for such costs.

### **Align incentives and costs to public interests and recover costs of mega-ships**

Correct any accidental subsidies or misaligned policies that encourage upsizing, or that provide public resources to container shipping without appropriate recovery of costs. Measures could include:

- Design port dues in such a way that they do not provide incentives for the largest ships. In addition, introduce mechanisms to recover dredging costs on users, for example via fairway dues and harbour maintenance fees related to ship size.
- Clarify application of state aid rules to the ports sector and increase financial transparency of the ports sector, to avoid that the public sector picks up the bill imposed by shipping lines.
- Link state aid to the shipping sector (such as the tonnage tax<sup>3</sup>) to commitments of the sector to contribute to covering costs related to mega-ships (such as additional dredging needs).

### **Provide policy support to ports to enhance supply chain productivity and innovation**

Policymakers should work with ports and terminal operators to enhance productivity, so as to make best use of their assets. This could include:

- Innovation, technical development, workforce training and skills upgrading. Where possible, public policies could reform labour practices and procedures to enhance workforce flexibility.

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<sup>3</sup> A tonnage tax is a favourable tax regime for shipping companies, based on tonnage of the fleet of the company, which can be imposed on shipping companies instead of a regular corporate tax.

- Optimise the use of infrastructure capacity, e.g. by truck appointment systems and incentives for port truck moves during night or at weekends.
- Release peaks at port terminals via dry ports, where space in ports is constrained.
- Consider upsizing of hinterland transport modes, such as allowing for larger trains, double stacking and larger trucks.

### **Consider collaboration at a regional and cross-port level**

As container shipping lines increasingly consolidate and cooperate, so could countries, port authorities and regulators at a strategic planning level. This could help strengthen the collective bargaining position of the landside supply chain. Regional or cross-port alignment and coordination on policy could help ensure proper allocation of resources while protecting the interest of the supply chain users. Such collaboration could take place with respect to the following areas:

- Regulation of competition and policy options, which could include whether or how to regulate ship size.
- More coordination between port authorities on future port development and investment, which could include port mergers in fragmented port systems to increase bargaining power, where this is possible without compromising competition.
- More port and freight planning at national and supra-national level, to focus investment in port hinterland links on a limited number of ports. In the case of the European Union this could mean reducing the number of core ports in the TEN-T network.

### **Stimulate an appropriate forum for discussion between liners and transport stakeholders**

Container lines have typically not consulted anyone on new mega-ships, before they ordered these. A constructive discussion would need to take place with the relevant transport stakeholders, including governments, regulators, port authorities and all interested constituents. The objective could be to facilitate an exchange of views, an understanding of objectives and plans, and ultimately better coordination to ensure optimum supply chain configurations, including optimized use of mega-ships.

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