

Modern shipping is challenged more than ever today. In this article we address three of the most important challenges:

Quality – Quantity – Sustainability



Container ships in the port of Hamburg (Germany) / Photography: private

Challenge # 1 – Quality

Nowadays it is hard to imagine our shops without the rich selection of tropical fruits on their shelves. For the customers, fruits should always be available, fresh and offered at a good price. Take a bunch of bananas, for example. Until it reaches its final destination in Europe from the plantation in South America, it needs a sophisticated transport chain that is precisely scheduled.

The main challenges in terms of quality are:

1. Timely harvesting
2. Good packaging for safe transport
3. No interruption in the cooling chain

“From collection at the production site, through transport to the warehouse and handling / packaging, to delivery - every operation requires the utmost care to preserve the condition of the product and thus its quality and value.” (*Source: MSC*)

Since the bananas are on the ship for about 3 weeks, they are put into a deep sleep mode at 14 degrees Celsius. This stops the ripening process. As soon as the cargo arrives in Europe, it is lifted onto a truck together with the refrigerated container. The next stop is a warehouse in which the bananas are ripened. Since the ripening process takes place in Europe, wholesalers can control exactly how many bananas must be ripe at what time. This guarantees the best quality. The result are perfectly ripened yellow bananas for the customers.

Challenge # 2 – Quantity

There are more than 6000 container ships that operate daily on the world's oceans. Ships are one of the most basic cargo components for global freight transport. 90% of goods are transported by container ships. Around 530 million containers are carried annually. The largest ports with the largest transshipment capacity are Shanghai and Singapore.

The main challenges in terms of quantity are:

1. Geographical restrictions due to narrow channels
2. Capacity limits of ports for mega ships
3. Unused container spaces on ships (utilization risk)

In order to reduce costs, ships are being built ever larger and wider. This increases the number of containers that can be transported on a mega ship. The largest ship in the world is the "MSC Gülsun". It can load over 23'000 containers. It's 400 meters long and 61.5 meters wide. The advantages of mega ships include navigation at lower speeds. Also of interest are the decreasing sea transport costs per loading unit.

In the construction of mega ships, the above-mentioned challenges play a significant role. The narrow canals (Panama and Suez) do not permit unlimited expansion in the width of the ships. Ports in Europe, too, are not (yet) ready everywhere to handle the transshipment of large ships. As a final challenge, it must be noted that a ship can only operate cost-effectively if it is fully booked down to the last possible container space.

The statistics of the largest ports in the world show an astonishing result. For one thing, the ten largest ports in the world are all located in Asia. It shows how important Asia is for the rest of the world. Another aspect is that China has seven of the top ten ports. This can be explained by the great influence of China on the world market and the good location on the ocean. Because the Middle Kingdom is so big, many goods are shipped around China instead of by truck.

If you take a closer look at the most important ports in Europe, you will quickly see that no port can match the size of Rotterdam. This confirms the importance of the port of Rotterdam for the whole of Europe.

[embed]<https://vimeo.com/381759147>[/embed]

Challenge # 3 - Sustainability

We live in a time where everyone is called upon to take care of the environment. In this regard the newspapers have a keen eye on the intensively operated global container shipping. The shipbuilders and shipping companies are challenged to meet today's sustainability requirements.

The main challenges in terms of sustainability are:

1. Environmental regulations
2. Higher costs due to switch to sustainable fuels
3. Recycling of ships

In a new regulation, the International Maritime Organization (a specialized agency of the United Nations) has determined that from 1 January 2020 the sulphur content of ship exhaust gases may only be 0.5 percent.

"The good news is that thanks to the regulations, the industry will become much greener. The question now is how to comply with the new rules and how much they will cost. Shipowners will have to decide whether to switch to combustion of the more expensive low sulphur fuel or to exhaust gas cleaning systems (EGCS) or to liquefied natural gas (LNG) ships." [\(Source: Hapag-Lloyd\)](#)

Another challenge is the unsolved problem of recycling disused cargo ships. Ten years ago in 2009, the Hong Kong Convention was an important step in the right direction. Unfortunately, the convention has not yet come into force because not enough states have ratified it. Around 70 percent of the disused ships land on the beaches of Bangladesh, India and Pakistan. The ship cemeteries are unsafe for people and nature.

However, the European Parliament has now become active and has adopted the following regulation: *"From 31 December 2018, large commercial seagoing vessels flying the flag of an EU Member State may be recycled only in safe and sound ship recycling facilities included in the European List of ship recycling facilities ('the European List')."* [\(Source: European Commission\)](#)

[embed]<https://vimeo.com/381824859>[/embed]

Check out our interviews:

Interview with the **Mediterranean Shipping Agency**

[Interview MSC Deutsch](#)

[Interview MSC English](#)

Interview with the **Contargo AG**

[Interview ContargoAG Deutsch](#)

[Interview ContargoAG English](#)

Find some interesting statistics here:

[Statistics of the Ports \(PDF\)](#)
[Port of Hamburg \(Germany\)](#)

Interesting Sites:

Link to the [Marine Traffic](#) website.

Link to the [MSC](#) website.

Link to the [Contargo AG](#) website.

Reflexion

The project gave us the opportunity to see ship transport from another side. We were initially impressed by the size of the ships and the amount of cargo on the ship. It was very interesting to see what difficulties arise in shipping. It is astonishing how much attention has to be paid so that the ship can get safely from A to B. Fortunately, we were able to count on two very friendly companies who stood by our side and answered questions about less or more critical issues without any problems. We noticed how important the ship is in the transport chain. Without this ingenious invention, fewer people in the world could benefit from globalization. It is an elementary part of human care.

Other interesting projects on don't waste my energy:

[Sustainable Flights](#)

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