The Future Unfolds

"Tests have proven that the foldable container can save 25% of operational costs"

HCI's Peter Brouwer predicts big advances in the foldable container market.

Foldable containers – state of the market

Foldable containers are on the brink of making a revolutionary change in the worldwide container transport business. Several shipping lines and other transport companies have started to use foldable containers and interest is high following the introduction of HCI's 4FOLD unit at the Intermodal Expo in Rotterdam. The 4FOLD is the industry's only ISO certified foldable container.

The year 2015 will see a significant growth in the use of foldable containers, as well as an increasing number of parties using them in the logistics system. Trade imbalances around the world are still growing, and with that, the need to reposition empty containers. In the long run foldable containers have the potential to replace a large chunk of standard containers. On average 20.5% of global port handling consists of moving around empty containers. Out of a total 150 billion Euros spent a year on operating container assets (purchase, maintenance, repairs), ocean carriers spend an estimated 20 billion Euros on repositioning empty containers to the point of their next cargo. Calculations and tests have proven that the foldable container can save 25% of operational costs and that the profit margin can be three times as high as that of a standard box.

Cost savings is one of the reasons why a consortium of foldable container designers has teamed up to create a type code for foldable containers that will enable shippers to quickly identify foldable containers. The growing number of foldable containers and a special type code will firmly establish that the era of the foldable container has finally arrived.
Causes of empty transport

The total container fleet has grown to more than 34.5 million TEU (22 million in number of containers). Forecasts indicate that the container fleet size, as well as the vessel size, will continue to increase, as new builds are being added to the current fleets to accommodate the increase in trade demand. But a huge percentage of the world's container fleet is empty at any one time, introducing a major expense for the world’s container operators and a significant environmental cost as well.

There are two main causes of empty container problems:

- Trade imbalances. This is probably the most important source in the accumulation of empty containers in the global economy. A region that imports more than it exports will face the systematic accumulation of empty containers, while a region that exports more than it imports will face a shortage of containers. If this situation endures, a repositioning of large amounts of containers will be required between the two trade partners, involving higher transportation costs and tying up existing distribution capacities. The region in this case could be within a continent or country, but can be also between two or more continents.

- Usage preferences. A large number of shipping lines use containers as a way of branding the company name. This observation combined with the reluctance of shipping lines and leasing companies to share market information on container positions and quantities for competitive reasons, makes it very difficult to establish container pools.

These issues cause on average 20% of the containers transported on sea and 40% transported on land to be empty. Empty container repositioning costs are multiple and include handling and transshipping at the terminal, empty warehousing while waiting to be repositioned, inland repositioning by rail or trucking towards a maritime terminal and maritime repositioning.

Shipping and leasing companies often have contradictory strategies in the usage of their container assets. From the point of view of shipping companies, their containers are assets enabling a more efficient usage of their ships through a higher level of cargo control. Consequently, shipping companies aim to maximize their ship usage, which are their main assets, and the container is a tool for this purpose. From the point of view of leasing companies, containers are their main assets and the goal is to amortize their investments through leasing arrangements. These arrangements come into three major categories that differ in terms of length of the lease and who is responsible for the repositioning of empty containers.

Repositioning begins immediately after a container has been unloaded and it is important since it involves costs that must be assumed by the shippers and are thus reflected by the costs paid by producers and consumers.
Foldable containers save money and the environment

Savings for a shipping line made with a foldable container depend on the chosen route and the trade imbalance. A foldable container will result in lower transport costs for repositioning, storage and ship handling. Extra costs are mainly folding and unfolding, maintenance and initial investment. The most realistic and profitable way for operating the foldable container is achieved by folding at the inland depot. The highest savings on using foldable containers will be realized in transport between inland depot and seaport. As this backhaul distance increases, the total costs with standard containers will also rapidly increase. Shippers and/or shipping lines will achieve maximum costs reduction in trades where multiple empty containers movements in the supply chain are required.

Since there is shortage of storage space in many ports in the world, storage space becomes more and more critical. Empty containers are stored in order to wait for a modality to take them to a certain place. The storage space required for empty containers will strongly depend on the dwell time of each container. Apart from the economic, environmental and financial benefits, the foldable container also influences social aspects like noise pollution, aesthetics, urban development and employment.

The benefits can be summarized in economic as well as social terms.

Economic
(savings up to 25% on the operational costs)
• Reduction of empty transport movements
• Reduction of storage space needed for empties
• Faster handling of empties
• Less port congestion
• Lower canal fees

Social
• Reduction in emissions
• Reduction of traffic jams
• Reduction of storage space needed for empties close to inhabited areas

4FOLD: the first ISO certified foldable container

With a 4FOLD Foldable container in fully folded/collapsed condition, the containers' dimensions are only 25% of the volume of a standard container. With conventional methods, without use of special equipment and without loss of time, four empty containers can be stacked on top of each other and shipped or stored utilizing the space and volume of only one conventional container. Unfolded the container is exactly the same as a standard container. 4FOLD is the first and only foldable container to receive the ISO certificate, which means it is fully weather tight and strong enough. The unique selling proposition of a foldable container is its ability to reduce expensive transportation and handling cost of empty containers. Folding and stacking are the two distinctive and important features of foldable containers that make savings on transportation cost and time possible.

The folding process is fast, easy and safe and will take an experienced crew no more than five minutes for one container. The inland depot is the most suitable location for folding and unfolding to take place, which also offers possible scale advantages in folding and unfolding. And because the empty containers are bundled for just one route, i.e. from inland depot to seaport, it will be easier to bundle the folded containers into packages. Moreover, since shippers and consignees are not involved in folding and unfolding, there are no logistical barriers for these customers to use foldable containers: since the containers arrive at and leave from their
site erected, the customer should virtually notice no difference in using a standard box or a foldable container.

For deep-sea transport, handling is more than 11% of the total cost of the container transport and for short sea this is even more. This cost is made in less than 1% of the time a container is in the logistics chain. Since a bundle of four folded containers is transported as one container, saving for handling can be made at multiple points in the return leg; easily offsetting the extra costs made for folding and unfolding.

**Social aspects of foldable containers**

Reductions in empty container movements and handling will directly result in a reduction of greenhouse gas emissions. Reduction of environmental impact has long been a goal of the shipping industry, but has always been secondary to financial incentives. Foldable containers offer users the opportunity benefit on both fronts.

Container terminals and residential areas are sometimes located quite close to each other. The expanding port has absorbed old villages in port areas, what once was a quiet place to live, is now the center of the port industry. Apart from the noise pollution that is produced by the trucks and trains that transport goods to and from the hinterland, the inhabitants see piles of empty containers in front of their houses. This so-called horizon pollution is a major problem in these residential areas. This causes friction between inhabitants and the industry. Port cities around the world are pushing the shipping industry to reduce their environmental impact.

Peter Brouwer is Director of Operations at Holland Container Innovations. The company recently unveiled its 4FOLD unit, the industry’s first and only certified 40ft HC foldable container, at the Intermodal Europe Expo in Rotterdam. Peter can be reached at p.a.i.brouwer@hcinnovations.nl