



A COMPELLING CASE FOR COLLAPSIBLE CONTAINERS

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In 1956, Malcolm Mclean sought uniformity in the movement of goods and was one of the first pioneers of the intermodal shipping container.

At the time, almost all goods were transported around the world as breakbulk. This meant very little was packed, re-packed or stored in an orderly manner.

The lack of uniformity in the way cargo moved around the world until the 1960s meant that it took a longer amount of time to load, unload and re-package goods than to ship.

During this period, global trade amounted to just 22% of global GDP and was concentrated between North America and Europe with much smaller volumes flowing into and out of East Asia, primarily Japan¹.

Rejected at first, the shipping industry eventually came to grips with the idea of an intermodal container, and this simple innovation would go on to facilitate the seamless movement of goods between ships, trucks and trains without needing to unpack or re-pack.

By 1968, as the first purpose-built

container ship hit the seas, container technology was thought to have cut transport costs by 75%.

In turn, the proportion of world GDP generated by the global movement of merchandise has exploded from 22% of global GDP to 59% in 2015 – at a time when real global GDP has burgeoned from US\$17 trillion to US\$77 trillion².

Today, the intermodal container forms the foundation of global shipping.

DISRUPTING SHIPPING

Containerization tremendously changed the global economy and shaped the modern world.

In 2017, over 90% of goods were transported in intermodal containers across the seas, which equates to approximately \$4 trillion in value annually³.

When the International Convention for Safe Containers (CSC 1972) was initially drafted the world-wide fleet of containers was 145,000 TEUs however, the growth in trade has resulted in the global fleet growing to some 38.5 million TEUs by 2016⁴.

Based on this, this number will continue to rise each year and is estimated that to meet the global trade demands, the industry will approximately 76 million TEU by 2060.

Globalization has led to trade imbalances where regions import far more than they export and vice versa.

This trade imbalance is the biggest contributing factor to the millions of empty containers scattered worldwide that incur significant non-revenue generating costs.

As of 2016, shipping companies have spent an average \$110 billion on the management of container assets, \$16 billion of which is used for the repositioning of empty containers⁵.

Container inland repositioning places a significant burden on infrastructure.

In terms of critical routes and space, empty containers create a significant issue for many countries.

In fact, as recently as August 2017, a report⁶ tracking truck movements between the Port of Melbourne (Australia) and the Empty Container Parks found that more than 10,000 trucks were involved in moving



empty containers on a weekly basis.

This high number creates significant congestion for road users, adds to the degradation of roads and local infrastructure and has led to an urgent push by citizens for a new AUD \$2.4 billion rail line.

As a long-term solution to a continuously rising problem in the shipping industry, an evolution on the current design of the standard intermodal container was introduced.

Popularly known as collapsible containers, these new containers can be

collapsed and joined together to form a single container.

New designs and technology promises to significantly reduce the storage, handling and transportation costs of empties globally.

ENTHUSIASTIC KEY PLAYERS

Despite having a number of variations, the container design has remained as a solid steel box that occupies the same slot whether laden or empty until collapsible container designs came about.

And while the concept of collapsible

containers has been around for over 20 years, it is only in the last decade that the urgency to utilise them has become more popular.

Over the last few years the technical challenges associated with folding/unfolding, handling and stacking have in many cases been solved which has opened the door for owners and operators to integrate collapsible containers into their fleets alongside regular containers.

Years of high operating costs and consecutive losses is changing the industry's attitude towards collapsible containers.



In day-to-day port operations, collapsible containers offer increased storage space and reduced transportation requirement.

While there are a handful of varying collapsible container designs, we will be using our product, COLLAPSECON, as the example for accuracy.

COLLAPSECON is a collapsible economic container that collapses from the side, leaving its walls intact and resulting in a container a quarter of its width.

COLLAPSECON is designed to collapse and combine in under five minutes, and once combined, four foldable 40-foot containers can fit into two TEU slots (or one FEU slot) on vessels, depots or port terminal yards, where regular empties would require four times the space.

Currently, containers are handled the same way whether empty or laden, but by combining four collapsed containers into one, the loading and unloading of vessels at port can be reduced significantly with regards to empties.

When combined, these containers also reduce the number of trucks and rail carts required for haulage, reducing traffic in terminals, and subsequently decreases the time required to complete the gate-in and gate-out processes.

When collapsible containers are applied to inland shipper and/or consignee locations the benefits could be even greater, since carrier and lessors could save up to 75% on the inland repositioning of empties.

This significant reduction in ship, truck and train movements equates to lesser carbon footprint and lessens wear and tear on major transport infrastructure.

HIGH IMPORT-LOW EXPORT ROUTES

To cite a specific example of a high import-low export market, Australia’s biggest export product are empty containers, so much so that a quarter of the Australian container handling is dedicated to empties.

In 2015-16, Tasport’s annual report indicated that 104,917 empty TEUs came through Tasmania of which 68,264 were exported and the rest were stored in depots⁷.

Empty containers alone reportedly cost the Tasmanian freight industry \$34 million dollars that year⁸.

This year, Maersk Line Australia announced that they are implementing a new “return-to-terminal policy” as a move to cut down costs associated with empties.

However, this does not solve the problem, but could only potentially transfer the costs to the importers who would then pass it on to consumers.

Whilst Australia offers good examples of impact of the empty container problem, it is not the only region to suffer.

In other areas such as the Pacific Islands, the problems and costs can be even higher due to the even higher levels import export imbalances witnessed.

Empty containers will always exist but with the aid of collapsible containers such as COLLAPSECON, whereby four empty containers could be combined and are shipped, handled, stored and transported as one full 40-foot container, the ability to reduce the loss to an estimated USD \$7.5 billion represents a potential net annual saving for the global shipping industry of as much as USD \$22.5 billion.

COLLAPSECON and other collapsible container systems will be able to reduce vessel turnaround time due to faster loading/unloading of empties, increased capacity to carry empties, increased capacity at container parks, reduced storage costs and lower land transport costs to load empties on vessels.

Additionally, these systems would aid reduce land, air and sea traffic congestion, resulting to less wear and tear of infrastructure and reduced CO2 emissions.

SUMMARY

The shipping industry has been at the centre of the incredible growth since the 1950s as a result of increased global trade.

The containers’ introduction in 1956 provided simplicity and soon made it the method of choice for the transport of goods. In turn, consumers have benefited enormously as the real cost of transporting goods has been reduced.

However, the success of the container has not always meant the financial success of the industry.

Returns for the shipping industry have continued to decline as a result of many factors but one important are being rising operating costs.

As the industry moves to larger vessels for economies of scale, and digitalisation of back-end systems for accountability, focus should also be given to the container itself.

Collapsible containers provide a unique opportunity for the industry to reduce operating costs without fundamentally changing the nature in which it operates.

ABOUT THE AUTHOR

Nicholas Press has over 15 years’ experience in logistics, operations management and capability integration & sustainment. A graduate of the Royal Military College Duntroon, Nicholas started his career as a Logistics Officer in the Australian Regular Army, serving in East Timor, Kuwait, Afghanistan and the UAE. In 2010 Nicholas set up a consulting firm to support capability acquisition & integration of Defence systems, which he subsequently sold. In 2015, Nicholas established CEC Systems where he serves as Managing Director and CEO.

ABOUT THE ORGANIZATION

CEC Systems is an industrial technology company based in the Australian city of Sydney and Singapore. It creates integrated solutions to complex global challenges facing the shipping and logistics industries. Collaborating with industry stakeholders and experimenting with new concepts, CEC Systems continues to challenge conventional thinking in order to drive improvement and evolution by providing Simple, Efficient, Affordable and Safe systems and technologies.

ENQUIRIES

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