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CONNECTING THE WORLD'S ASSETS

CASE STUDY

Traceable, foldable containers stack up the benefits for reduced transport costs and lower environmental impact

Holland Container Innovations is on a mission to tackle the wasteful cost and environmental impact of empty container transport with its 4FOLD foldable container. And ORBCOMM telematics are now an integral part of the solution.

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Holland Container Innovations (HCI) was founded in 2008 as a spin-off from Delft University of Technology (TU Delft) in The Netherlands, with a vision to develop a commercially and operationally viable folding container. Folding and collapsible containers have long been viewed as a logical solution to help tackle the estimated USD 25 billion annual cost of repositioning empty ISO ocean containers around the world due to trade imbalances. But previous attempts have fallen short of success, not least due to design and operational limitations. After extensive research, development and trials, HCI believes that it has come up with the answer.

The Company and Concept

The genesis of the project came back in 2006 when a group of four engineering students at Delft University of Technology (TU Delft) discovered that an existing patent for a folding container was already held by the university and decided to pursue its further development, explains Rob Buskermolen, Operations Manager at HCI and a member of the founding team.

A lengthy design, build and test process followed, starting with construction of the first proof-of-concept unit in a workshop at TU Delft, using an old second-hand container. This was followed by successive redesigns to secure the crucial CSC (Convention for Safe Containers) certification, which happened in 2011. The team then went out to China – home to the majority of the world's container builders – to produce a working, commercial version. The resulting

engineering efforts led to the production of the world's first - and still the only - ISO certified and CSC compliant 40ft high cube folding container.

The 4FOLD container – which as the name implies, allows four empty units to be folded into the same footprint as one single standard 40ft high cube – is watertight and fulfils all the racking and stacking performance requirements of a conventional ISO container. The design has also received UIC and AAR approval for rail operations. This is important, because "the biggest saving is on the landside," explains Mr. Buskermolen.

The HCI initiative has secured public and private funding and since 2016 has been co-funded by the European Union's Horizon 2020 research and innovation programme. The design was introduced to the market in 2014 and is now fully fit for use. The next goal is to scale up production and drive down costs. The aim is for a 4FOLD to be no more than double the price of a standard dry container - no mean feat given the amount of engineering involved and a more complex and costly production process.

The Journey

In the last two years, the unit has been undergoing extensive trials with a variety of regional and global ocean and overland carriers, leasing companies and forwarders. Units have been piloted in diverse regions and trade lanes. Among others, specialist reefer carrier Seatrade, also a transporter of dry goods, has been using the 4FOLD between Europe and the Caribbean, yielding an estimated 32% cost saving.

Global carrier APL, now part of the CMA CGM group, has deployed 4FOLD units on the Atlantic trade between Rotterdam/Hamburg and New York/Virginia/Charleston, and the Pacific trade from Shanghai to Los Angeles and onto Chicago, seeing cost savings up to 20%. Moving away from the ocean, Chinese state-owned logistics giant Sinotrans has used 4FOLD for exports from China to Kazakhstan by truck and rail. As the Kazakhstan market is 100% imports, there are huge cost savings to be made folding containers for export back out, says Mr Buskermolen.

The need for traceability

"To ensure return on investment from the 4FOLD, our customers need to get the turns," Mr. Buskermolen

explains. “It is therefore vital that four units are shipped together and properly identified in ports/depots, so they can be folded, locked and shipped together when empty. Otherwise the economics don’t stack up, so to speak. To ensure this, we need to know where our containers are. And this is where ORBCOMM steps in.”

HCI realised that it need a tracking solution that would enable it – and its customers - not only to identify where its units were located around the world, but also if they were folded or erect. “After some research and discussion, we identified that the answer to our needs came in the form of ORBCOMM’s GT 1100,” says Mr. Buskermolen.

The GT 1100 is a rugged, low-profile wireless telematics device initially developed for - and well proven on - road trailers. The device is self-powered, using solar-recharging technology for low power consumption and long service life and eliminating the need for frequent battery changes. “The solar element is critical,” explains Mr Buskermolen. “The tracking system we put on our containers needs to last a lifetime and we can’t rely on battery power alone. Solar makes this a viable option for us.”
The units are fitted into the top side rail of the container so that they maintain line of sight for GSM communications networks whether the unit is erect or folded. The system also includes a magnetic switch between the roof and side wall to detect whether it is in erect or folded mode. Available in cellular and dual-mode satellite-cellular configurations, the GT 1100 also integrates with ORBCOMM’s CargoWatch® cloud portal, where any authorized user can view the real-time status, location and history of telematics-equipped assets.

“The only place the units go ‘dark’ is on a vessel, but when I can’t see the unit I know it’s on a ship,” notes Mr. Buskermolen. Advances in on-water telematics, including ORBCOMM’s new VesselConnect solution, may fill that traceability gap in the future. But for now, the landside visibility, especially in ports and depots, is the critical challenge that has been fulfilled by ORBCOMM’s technology, strengthening the case for folding containers as a real and workable solution to the enduring problem of shipping only air.

Contact us today at sales@orbcomm.com or 1-800-ORBCOMM to see how our solutions portfolio can enhance the way you do business, or visit us at www.orbcomm.com for more information.

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