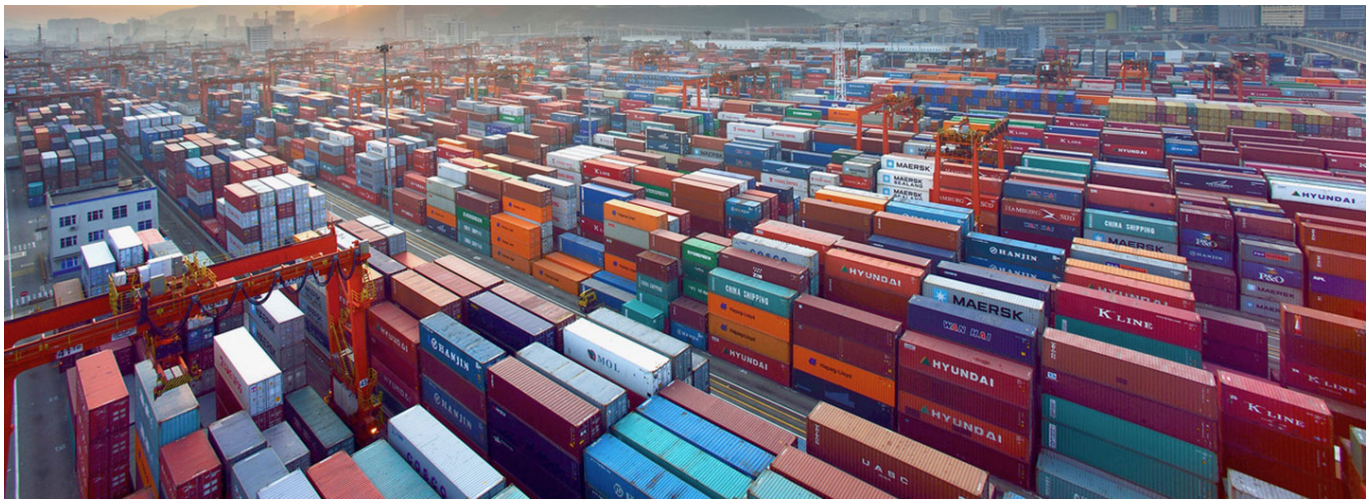
OPPORTUNITY. 機匯

Oct 2024

THINKING OUTSIDE THE BOX

Winter 2024 / Big Picture



When the container revolution began in the 1950s, visionary inventor Malcolm McLean likely never imagined his simple metal box evolving into a high-tech communications tool. Today's containers are equipped with advanced technology for real-time tracking, enhanced security, and precise temperature monitoring.

With safety and security now becoming major concerns for shippers and carriers, the use of smart containers is growing.

The past couple of years have seen an increase in the number of smart containers deployed and in all sectors of the industry – dry freight, reefer, tanks and swap bodies.

Drewry's latest smart container research published in the Container Census & Leasing Annual Review and Forecast of the Container Equipment Fleet 2024/25 indicates that the global pool of smart containers grew by 9.2 percent during 2023 to an estimated 2.93 million smart containers up from previous year's growth of only 5 percent.

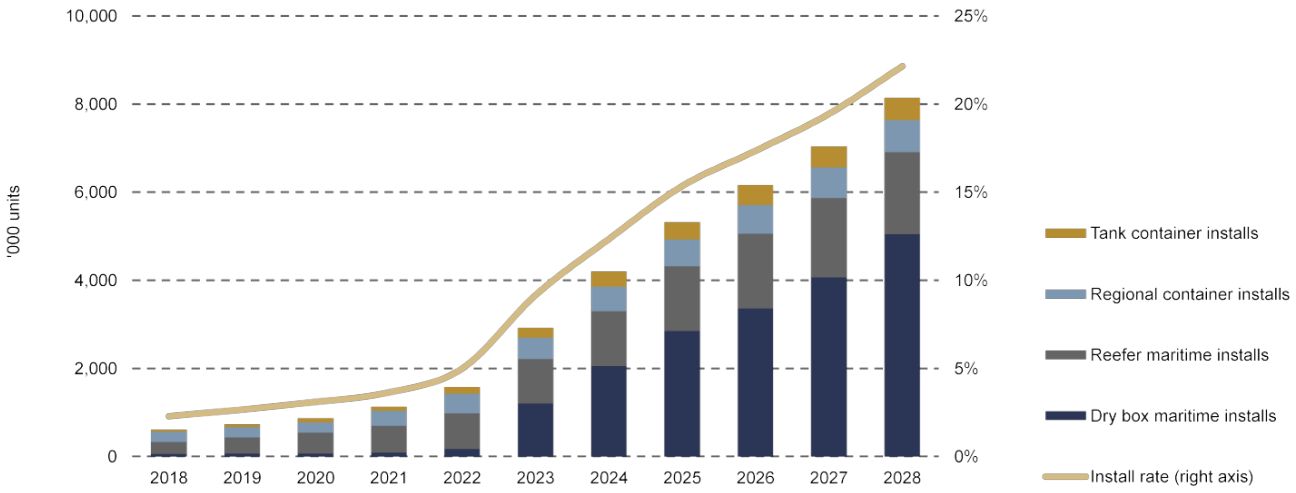
Most of the 2023 expansion was mainly driven by the telematic devices installed in standard dry freight containers principally initiated by shipping lines' smart container programme to digitalise its dry and reefer container fleet.

Drewry expects the global telematic-enabled container equipment fleet to expand four-fold over the next five years to more than 8.2 million containers, nearly 22 percent of the global pool of containers in service today.

The below chart illustrates that penetration levels at present varied greatly between container types, from

just 4.4 percent for the dry fleet to above 50 percent for the reefer and regional segments of the fleet in 2023. However, Drewry anticipates dry freight containers will increase in the global smart container pool and dominate market share by about 60 percent by the end of the five-year forecast period.

Courtesy of Drewry Maritime Research



Courtesy of Drewry Maritime Research

GET ON TRACK

So, what are the key drivers behind the transition and why are container shipping lines accelerating the move to install the technology?

- The need to improve equipment utilisation, turn-times and condition
- Ability to improve carriers' internal processes and systems management
- Scope to enable dwell-time monitoring at ports/terminals
- Increasing pressure to cut operating costs through process automation
- Growing demands from beneficial cargo owners (BCOs) for better supply chain integrity and cargo-carrying conditions
- Increasing pressure from insurance companies to cut the incidences of cargo claims

LOOKING LONG TERM

First of all, the investment is long-term, once the container has been fitted with trackers and sensors the technology can used for many years.

The main benefits of smart containers are that they can be tracked if there is a deviation from its pre-defined route or if there is a delay in the arrival or departure which is pre-set in the container shipping plan.

From a security perspective, a sensor will send out an alert when the container is opened or if there is an attempt to break into the box in a location not included in the pre-determined route plan.

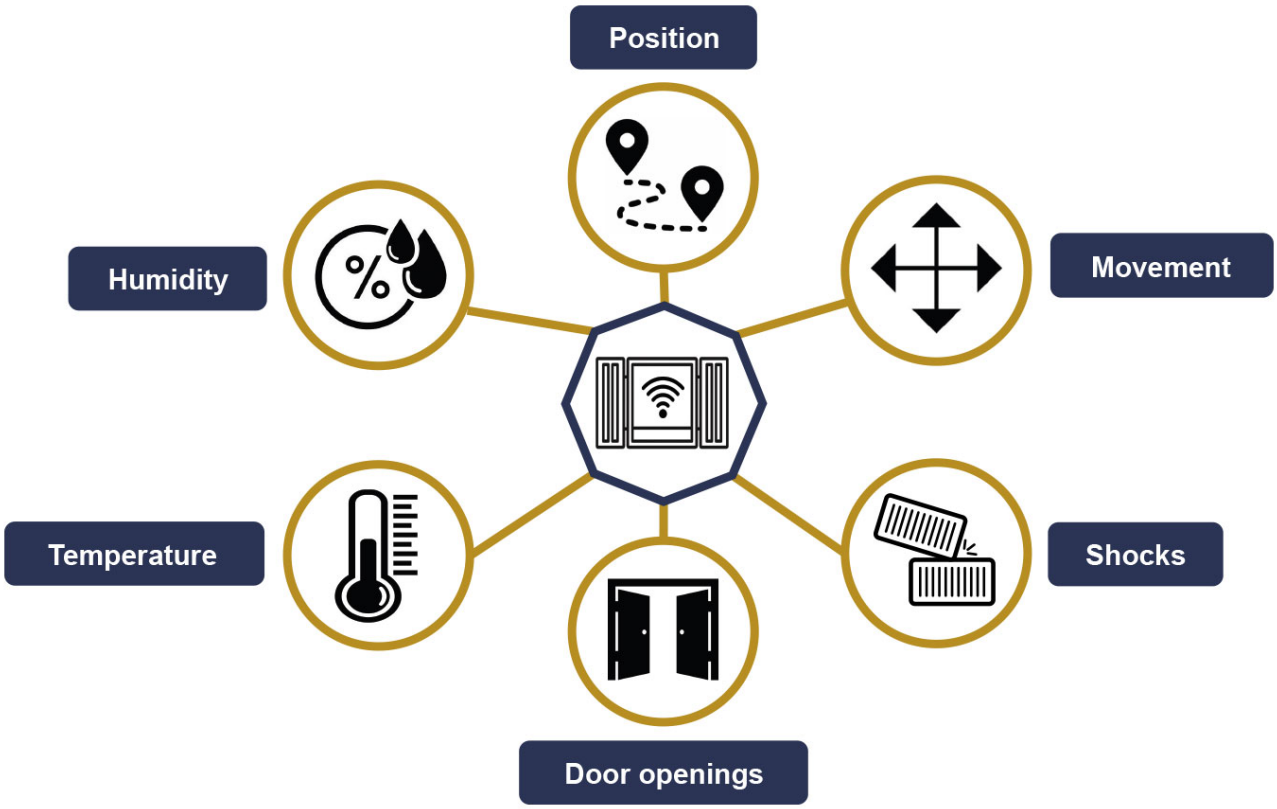
If the temperature inside the box exceeds a predefined threshold or in the case of a reefer, the power source fails. An alert notification will be sent to the carrier's control room and action can be taken. For a range of temperature-sensitive goods, this sensor can prevent food spoils or contaminants or in some

circumstances fire.

Major shocks or vibrations can also result in damage to cargo inside a box and once the threshold is set by the carrier, this can also alert the carrier to a problem.

Early detection of these events can reduce or prevent loss and alert the authorities to an attempted criminal act.

Smart containers can also help to expedite Customs clearance, as cross-border officials can access data from the box in advance and determine whether a physical check is required, thanks to Internet of Things (IoT). This increased transparency, visibility and quality of data means there is potential to accelerate Customs clearance and reduce delays.



Courtesy of Drewry Maritime Research

COST BENEFITS

The main benefit is that smart containers allow ocean carriers to manage their equipment more efficiently, potentially saving significant amounts of money on empty repositioning costs and improving yield management returns.

Smart containers should allow carriers to transport cargo more safely and securely, potentially allowing them to charge shippers/consignees premium freight rates. The ability to track containers digitally at congested ports, rail terminals and depots enables carriers to make better decisions and adjust future routings in a more cost-effective manner.

Smart boxes can be used by operators to help optimise trips, again saving costs, including saving fuel consumption and contributing to lower emissions. Moreover, any improvement in schedule reliability and management of the supply chain is likely to attract additional cargo volumes from customers/new customers, boosting revenues and reliability.

In general, the real-time tracking and transparency provided by smart containers offer customers greater visibility into their shipments and this enhances trust and satisfaction with the service provider. It is particularly important for those customers shipping time-sensitive cargo as regular updates on the status of their cargo can enable them to adjust their supply chains if needed. If cargo claims due to damage and theft are reduced, the premiums charged by insurance companies should also be lower. This can save considerable cost over time.

TAKE COVER

Data generated by loss or damage of freight can also be of use in cargo claims for both the insurer and the claimant. This is achieved as trip data can track the exact location of the container and whether the equipment transited through areas of political risk, countries not covered in the insurance policy and piracy risk regions.

The time-stamped location of the container will help define where the loss occurred during transit and whether the cargo policy covers the loss.

Data generated by smart containers will also provide insurers with further insights to evaluate price risks more accurately, offering clarity on which party in the supply chain will bear responsibility for an incident and potentially providing information that can settle a claim.

The marine risk insurance market could benefit greatly as causes of cargo loss during shipping from delays, damages and theft data can be detected and identified easily and efficiently. This could prove to be valuable information if made easily available to various interested parties by trade, cargo types and incidents. In fact, many providers of marine insurance coverage may look to impose the use of smart containers on particular trades, cargo types with high cargo loss records, driving insurance premiums higher, if high-risk or high-value cargoes are left untracked.

TIPPING POINT

The main areas that carriers will look at when they decide to transition to smart containers are cost and benefits. The world of shipping is becoming more volatile as geopolitical tensions rise and unpredictable weather conditions caused by climate change, which means that increased connectivity and transparency are becoming more important to protect assets.

Advancements are being made in digital communication technology and Cloud computing as well as IoT, sensors and 5G. This niche sector will attract innovative developers looking to enter the fast-growing smart container market, leading to increased availability of components and the lowering of unit costs.

Reefer containers carrying higher value perishable and temperature-sensitive goods will also be a primary focus for smart container technology suppliers as well as Dangerous Goods freight. These niche market segments provide fertile ground for entrepreneurial software developers to design applications to serve the cold chain and DG sectors.

As market demand increases, the cost of smart container technology will fall and the likelihood is that incentives such as lower insurance premiums and shippers demanding improved supply chain transparency will tip the scales towards carriers making the investment.

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