

Why investment in the pharmaceutical supply chain has never been more important

The pandemic has shown us how intrinsic technology has become to both our professional and personal lives. Whether it be video conferencing tools, or grocery ordering apps, without the technology, lockdowns around the world would have been a very different story.

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This goes well beyond just consumer technology though - optimising the pharmaceutical supply chain during a global health crisis was critical. People still needed general medicine, on top of the fact that the supply chain had to handle the rapid shipping of millions of vaccines. Making sure that life saving medicine and vaccines make it to their destinations in a safe, secure and sustainable way is pivotal.

With this rise in biologics - such as the Covid-19 vaccine - the global cold supply chain has required innovation in recent years of which investors are waking up to now. *The global cold chain market was valued at \$211B in 2020*, and this momentum is showing no signs of slowing down, with the market expected to grow at a compound annual growth rate of 14.8% from 2021 to 2028.

However, the pandemic exposed a technology deficit in the global cold supply chain, and investors from VCs to private equity are looking to capitalise on this untapped potential. This highly specialised market of international pharma shipments is served by few global companies, with

the likes of K+N or DHL in freight forwarding, Sensitech or Controlant in data logging or Envirotainer, Csafe and SkyCell on the airfreight container side. These global companies provide the pharma industry with global solutions, which pharma companies are relying on as they continue to focus on adopting new technologies.

Beyond just getting ahead of competitors, the reason why it is so important to invest in the pharmaceutical supply chain is one that affects us all: this industry, as mentioned, ships all our medicines around the world.

Beyond just the COVID-19 vaccine, treatments for diabetes, rheumatoid arthritis, cancer and Crohn's disease are other examples of biologics that use the cold supply chain. These products, while more effective, are harder to develop and are especially sensitive to temperature changes and other common disruptions during air transport, such as vibration. Because of this, the pharmaceutical industry has historically suffered failure rates of between two and 12% per shipment depending on the region and technology used.

Putting that into perspective, if a shipment of 10,000 diabetes vials was shipped with an accepted failure rate of 12%, then 1,200 vials would be lost. If we consider this statistic at scale, the wastage in the industry prevents millions, if not billions of medicines from reaching those who need them. Of course, this also costs pharmaceutical companies financially - to the tune of \$34.1B in 2019, according to an IATA report using data from the World Health Organisation, the Parenteral Drug Association, and other industry analysis.

Because of this, quality standards within the pharma industry - and its supply chain - are highly regulated, and for good reason. Syringes are loaded in factories rather than at unregulated vaccination sites, which was the case for COVID-19 vaccines in many cases, as the capacity was

lacking to preload syringes, for example. Covid-19 has accelerated the increase in demand from the global pharmaceutical industry for more innovative solutions to combat these temperature excursions and the need for retesting.

Innovative solutions like hybrid containers could be that answer. These containers are 'smarter' than their traditional predecessors - they protect temperature sensitive products between 120 hours and 240 hours, autonomously recharge in cold chain infrastructure, have a double-door system that makes them more difficult to tamper with as well as having shock absorbent feet and IoT sensors that monitor the temperature and other climate factors.

Crucially they are also more sustainable - being reusable and almost completely made from recycled material. Good for patients and good for the environment too.

Innovation is needed to ensure more people get the medicines they need in the most sustainable way possible. And the best way to ensure that is through active investment.

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