

How pharma 4.0 and logistics intelligence can improve product safety

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US\$35 billion is lost each year through healthcare products damaged by temperature deviation in transportation making logistics intelligence – through sensors, AI and robotics – a priority



Ask healthcare and biopharma industry leaders to list the biggest risks facing their global supply chain in the coming decade and they will invariably highlight one priority above all – product safety.

Safety is the beating heart of the entire value chain in healthcare. Transportation in the pharma supply chain is often seen as one of the weak links – 30% of scrapped pharmaceuticals can be attributed to logistics issues alone¹.

Despite the losses, healthcare logistics has evolved little since the 1990s. The industry continues to deal with a whole gamut of issues including theft, damage, spoilage, wastage, and expiration, often due to weak monitoring of pharma cargo. The growth of biologics, the creation of which is complex, time-consuming, costly and sensitive, has added to the urgency to improve safety.

With global biopharma cold chain logistics estimated to grow from \$15.7 billion in 2019² to almost \$17 billion by 2020³, the question is: how can we leverage technology and digital transformation to build a safety-first, quality control obsessed supply chain? Even more critically, how can we future-proof Asia's growing role in global pharma manufacturing in the 4.0 era?

Intelligence will power the next generation, safety-first supply chain

Intelligence is becoming the largest driving force for pharma and biopharma manufacturing under the Industry 4.0 model.

By changing *how* we combine the physical supply chain with technologies such as AI, big data and IOT, we can create a new and connected culture of supply chain safety.

The core value proposition is to protect the integrity of biologics and chemical compounds by tracking and monitoring the ingredients from supplier to factory. End-to-end visibility on temperature, time and location delivers numerous benefits:

- Reduction in the \$35 billion⁴ annual bill of healthcare products which are rendered worthless or harmful due to temperature deviation.
- Pinpointing the exact location of any deviation or waste. This data will help identify and solve potential risks along a complex supply chain that is far from straight.

Here's an example. We ship biologics for a research-based global pharma company from Singapore to their production facility in Japan. The shipments are heat sensitive and contamination prone, and particularly susceptible to the rigors of cross-border shipping, making full custodial control imperative.

We are building a future where innovation equals automatic compliance. Where full visibility becomes standard. Where knowledge and trust are empowered and speed is continually enhanced. And costs are lowered – but not at the detriment of compliance.

The future – Prevention is Still Far Better than Cure

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Data holds the future of *prevention* – it will increasingly be used to make pre-emptive decision-making around safety, spoilage, damage mitigation, and optimization of delivery routes in real time.

AI, in particular, has the potential to transform biopharma supply chain by crunching huge amounts of real-time data and making intelligent recommendations that incorporates weather, traffic conditions and so on, empowering businesses to react sooner rather than later.

Whatever the future, [logistics services](#) – once considered a tactical aspect of supply chain – are rapidly evolving due to the power of intelligence and data analytics.

Knowledge and information is not just good to know, it's actually good for you. For if there's one thing medical science has

taught us, it's that prevention is still far better than cure.

Learn more about [FedEx healthcare solutions](#).

[1] <https://www.iata.org/whatwedo/cargo/pharma/Documents/ceiv-pharma-specifications.pdf>

[2] <https://pharmaceuticalcommerce.com/cold-chain-focus/global-biopharma-cold-chain-logistics-will-hit-15-7-billion-in-2019/>

[3] <https://www.statista.com/statistics/725474/global-biopharma-cold-chain-logistics-spending/>

[4] <https://www.iata.org/whatwedo/cargo/pharma/Documents/ceiv-pharma-specifications.pdf>