Carrying the Cold Chain

PART 4: Hot Trends in the Cold Chain

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Carrying the Cold Chain

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Hot Trends in the Cold Chain

2023 and beyond

From global shortages to last-mile challenges, what happens in the supply chain has a ripple effect on the rest of the economy. To give you a head start on future-proofing your profits, we're highlighting the top industry trends for 2023. Here are our predictions for the hottest topics in the cold chain next year.

Automation

AI, robotics, machine learning — combining big data and tech is increasingly important to the supply chain in general, and the cold chain in particular.

Take machine learning, for example. According to IBM, "machine learning is a branch of artificial intelligence (AI) and computer science which focuses on the use of data and algorithms to imitate the way that humans learn, gradually improving its accuracy."[i]

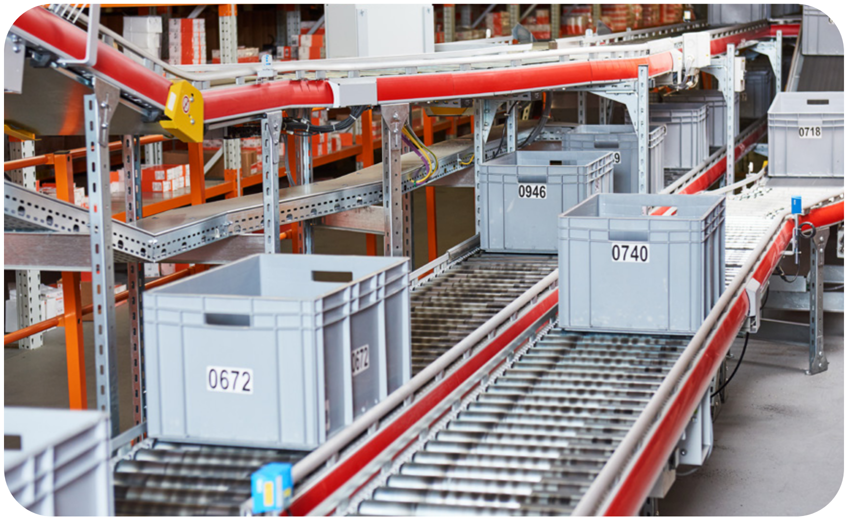
Data, analyzed more efficiently, by machines that are constantly improving algorithms with each new input, offers far-reaching benefits. Businesses are empowered to make critical decisions more quickly, improving efficiency. In practice, companies can use machine learning to predict which routes are more likely to experience seasonal delays based on historical weather data. Knowing that info beforehand lets the business adjust routes before issues occur. These proactive measures can be the difference between a medication delivered safely versus a medication stuck at port, delayed to the point of inefficacy.

"Robotics technology will continue to drive the cold chain. The robotics market is expected to grow at a compound annual growth rate of 10%, reaching almost 70.6 billion U.S. dollars by 2028."[2]

Efficiencies from machine learning can also be leveraged to manage inventory and predict demand.

Automation offers other advantages for the reusable packaging industry. The durability required of reusable containers is an advantage in the world of automation because there is little to no variability. Robotics work best when the form and material of the packaging handled is consistent (as is the case with most reusable packaging), whereas single-use packaging can be altered by a range of variables like moisture and pallet damage.

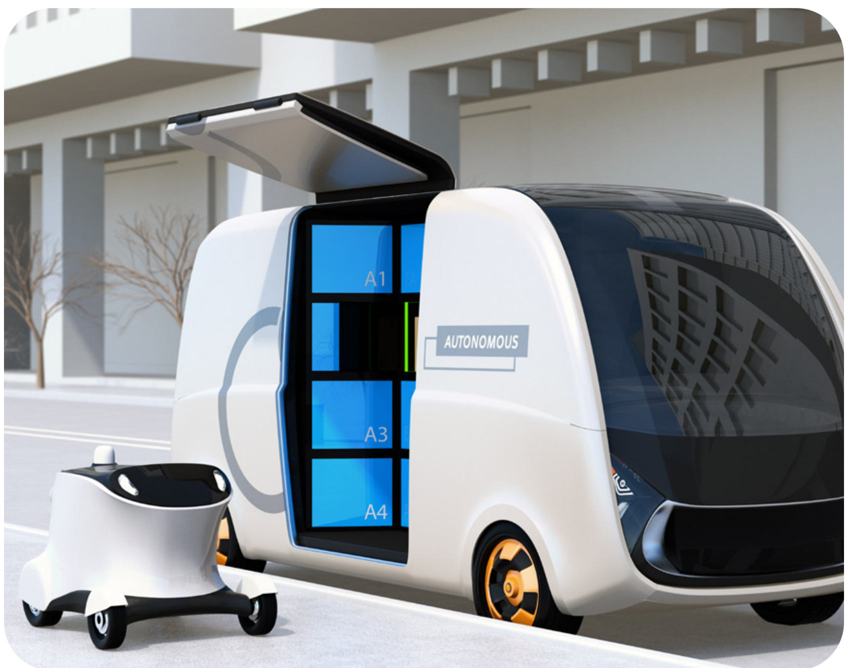
So what does that mean for the cold chain in 2023? As more companies leverage these technological advantages, the result is more accurate route planning, product fulfillment and delivery. Warehouses incorporating automation can also anticipate fewer interruptions caused by labor shortages, lack of warehouse space and compromised packaging materials.



Delivery management technology

Whether it's e-vehicles or streamlined logistics, optimized delivery systems will drive profits in 2023.

Through its BrightDrop startup launched in 2021, GM developed two commercial electric vehicles as well as the EP1, a container on wheels with a built-in electric motor. After testing the vehicles in a Toronto-based pilot program, "FedEx Express reported couriers were able to effectively handle 25% more packages per day when it replaced standard hand trucks with the EP1."[ii]



But it's not all smooth sailing once you opt to go electric. One hurdle facing companies is the lack of charging infrastructure to support e-vehicles. Another issue is the growing demand — the e-vehicle supply chain is experiencing the same delays impacting traditional automotive suppliers. Even with these challenges, whether it's due to government regulations or corporate social responsibility objectives, e-vehicles are an attractive prospect for businesses looking to make positive impact on the environment and on their bottom lines.

While e-vehicles are here to stay, delivery management starts well before a product is loaded on a truck — it begins when you open your computer every morning. Route planning software lets companies optimize delivery routes by setting up guidelines for everything from vehicle weights to drive time, maximizing efficiency. Another important piece of tech for the cold chain is the proof-of-delivery app. Because these apps can be integrated to track drivers' exact locations, shippers and customers feel secure knowing precisely where their product is at all times.

Packaging regulations

Staying compliant with local, state, Federal and international regulations is a full-time job. With the constantly shifting landscape, being one step ahead can mean the difference between uninterrupted business and costly delays.

While it can take years for new regs to pass and go into effect, preparation to meet those requirements can be equally lengthy. One such law is California's Plastic Pollution Prevention and Packaging Producer Responsibility Act. California joins states like Oregon, Maine and Colorado with this extended producer responsibility (EPR) legislation, which transfers the cost of recycling plastic packaging materials from the consumer back to the producer. The Act covers "single-use plastic packaging and plastic single-use food service ware by requiring all covered material sold in or imported into California to be recyclable or compostable by 2032. The Act also requires a 25% reduction in the use of plastic packaging by 2032 and a 65% recycling rate of the remaining single-use plastic packaging by the same year."[iii] In order to meet that goal, businesses must start planning now.

In June 2021, President Biden established the Supply Chain Disruption Task Force. In the year and a half since its inception, the task force focused on addressing immediate supply chain issues like port congestion, driver retention and creating a data sharing effort with Target, FedEx, UPS, True Value, ocean shippers, ports and other stakeholders to reduce shipping and consumer costs.

It's too soon to tell what new regulations may evolve out of the task force efforts but monitoring its progress could help companies stay ahead of the game.

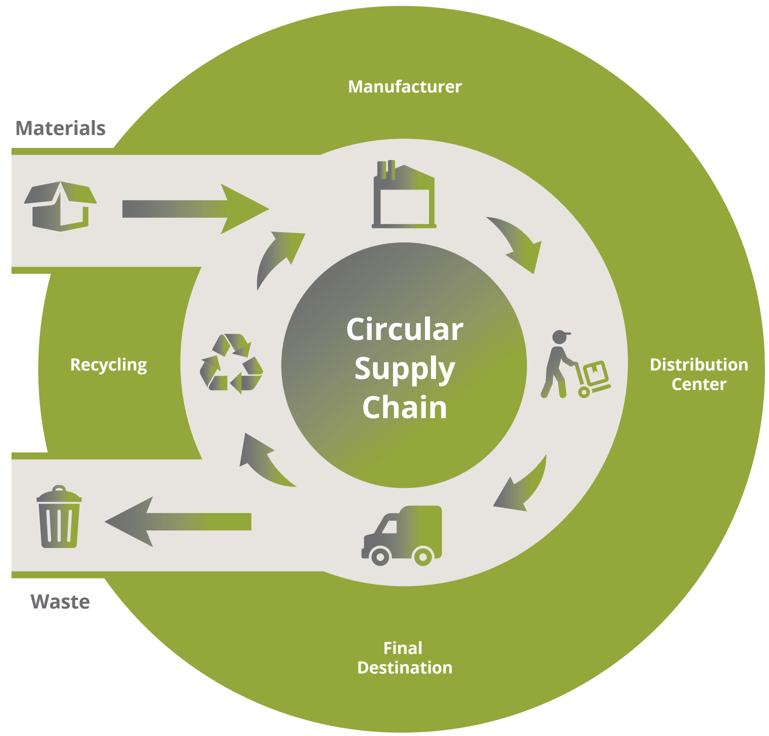
"A recent research study showed that 56% of carriers and 47% of shippers wish they had more visibility into government policy and expert guidance on the impact of regulatory changes."[3]

Sustainability & the circular supply chain

With an increased corporate focus on reducing waste, emissions and plastic use, the move toward a circular supply chain continues to be a future-forward focus.

Reusable packaging is a key component. Coca-Cola is one of the companies leading the charge in support of the circular economy. Pledging to offer at least 25% of their beverages in refillable bottles by 2030, their global commitment is already making an impact. The introduction of their reusable “universal bottle” in Brazil in 2018 has been a success, with a return rate of about 90%, resulting in 1.8 billion fewer bottles produced.

Walmart is another big name using its clout to change the manufacturing landscape. It has instituted several initiatives focusing on sustainability, including achieving zero emissions by 2040 and moving to 100% recyclable, reusable or industrially compostable packaging for its private brand packaging by 2025. With the addition of a fleet of e-vehicles for last-mile deliveries, buy-in to the circular economy from the retail giant should be a call to other businesses to explore how sustainability can sustain their business.



Geopolitical influences

Wars. Allegations of forced labor. Sanctions. Geopolitical stability is fundamental to the supply chain running smoothly, so any disruption is reflected in the way we do business. The complexity that comes with new tariffs, sanctions and regulations can place increased burdens on companies.

Agility is essential in weathering geopolitical disruptions, and reusable packaging is a key component. When you aren't constantly replenishing packaging materials, your supply chain is easier to control. Reusable packaging can help to mitigate impact from unforeseen conflicts. If you have a healthy supply of reusable packaging materials, you can concentrate on other parts of the business that are not as secure.

Between China's Belt and Road initiative and the Uyghur Forced Labor Prevention Act (UFLPA), relying solely on Chinese manufacturing could be a risky proposition in the future. The key to keeping the links in your cold chain up and running is preparation. Consider sourcing alternate suppliers, in different geographical locations. Preparing for geopolitical disruptions is a balancing act between efficient inventory management and being agile enough to shift to contingency strategies quickly.

"32% of executives cited geopolitical conflict as a top threat to growth, and 71% said it could inhibit their ability to sell products or services."[4]

Risk mitigation

With shortages affecting everything from truck drivers to cardboard to dry ice, risk mitigation will be a crucial consideration when doing business in 2023.

If even one link in your cold chain fails, the product is (at best) ruined or (at worst) unsafe. This makes having a risk mitigation strategy important. Whether the failure occurs at the initial point of contact or during the last mile, the result is the same — wasted product and diminished profits.

How are some companies approaching risk mitigation? One way is by exploring nearshoring or reshoring manufacturing facilities to minimize transport time and potential complications from geopolitical instability. By having easier access to goods and materials, companies hope to retain more control over fulfillment channels — resulting in fewer interruptions to service.

Mitigating risk also means staying current with information. Keeping abreast of indexes like the Cboe Volatility Index (VIX), known as Wall Street's fear gauge, help you anticipate volatility and investor anxiety, which will inform your near-term planning.

From automation to risk management, each of these trends are important on their own but, when combined, we predict they'll form the strongest links in your cold chain for 2023 and beyond.

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