

Beyond Peak Delivery: Sustainable Shipping Alternatives on the Horizon



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A woman's hands are shown in a close-up, holding a black credit card in her right hand and typing on a laptop keyboard with her left hand. The laptop is open on a wooden desk. In the background, there is a potted plant with green leaves in a terracotta pot. The scene is brightly lit, suggesting an indoor office or home workspace. A large red circle is overlaid on the top left of the image, and a red shape is at the bottom left.

Two-day shipping. Next-day shipping. Instant delivery.

On the surface, it appears the entire e-commerce market is competing to deliver every order as fast as possible. But why? Not every order is urgent, and faster delivery times drastically increase fulfillment costs and environmental impacts. The market is fast approaching “peak delivery,” and strategic retailers and direct-to-consumer brands are looking for last-mile alternatives that can save money and emissions, differentiate their brands and satisfy customers.

Today's Consumers Expect a Lot

A [2020 study by Future Commerce](#) reported consumers' top three requirements for e-commerce websites: free shipping, free returns and two-day delivery. Considering the customer-acquisition strategies trailblazed by Amazon and other online retailers over the last decade, it's obvious how these consumer expectations came to be. But it's less clear — except perhaps in the case of groceries — why e-commerce competitors have been racing to entrench customer expectations for ever-shorter delivery times.

The same study concluded that consumers care about sustainable business practices, pointing to 28% of respondents who said they actively seek out environmentally conscious goods. Numerous other consumer-insights surveys also have shown growing awareness and concern for the environmental and social impacts of products and services. In fact, younger consumers demonstrate a willingness to hold businesses accountable for their impacts, according to [McKinsey & Company](#). The firm found that 70% of Generation Z consumers said they try to purchase products from companies they consider ethical, 65% said they try to learn the origins of anything they buy and 80% refuse to buy goods from companies involved in scandals.

McKinsey explains the key to understanding younger consumers is that they see consumption as a means of self-expression. “Led by Gen Z and millennials, consumers across generations are not only eager for more personalized products but also willing to pay a premium for products that highlight their individuality,” the firm wrote. In other words, today's consumers want buying options that reflect what is important to them.

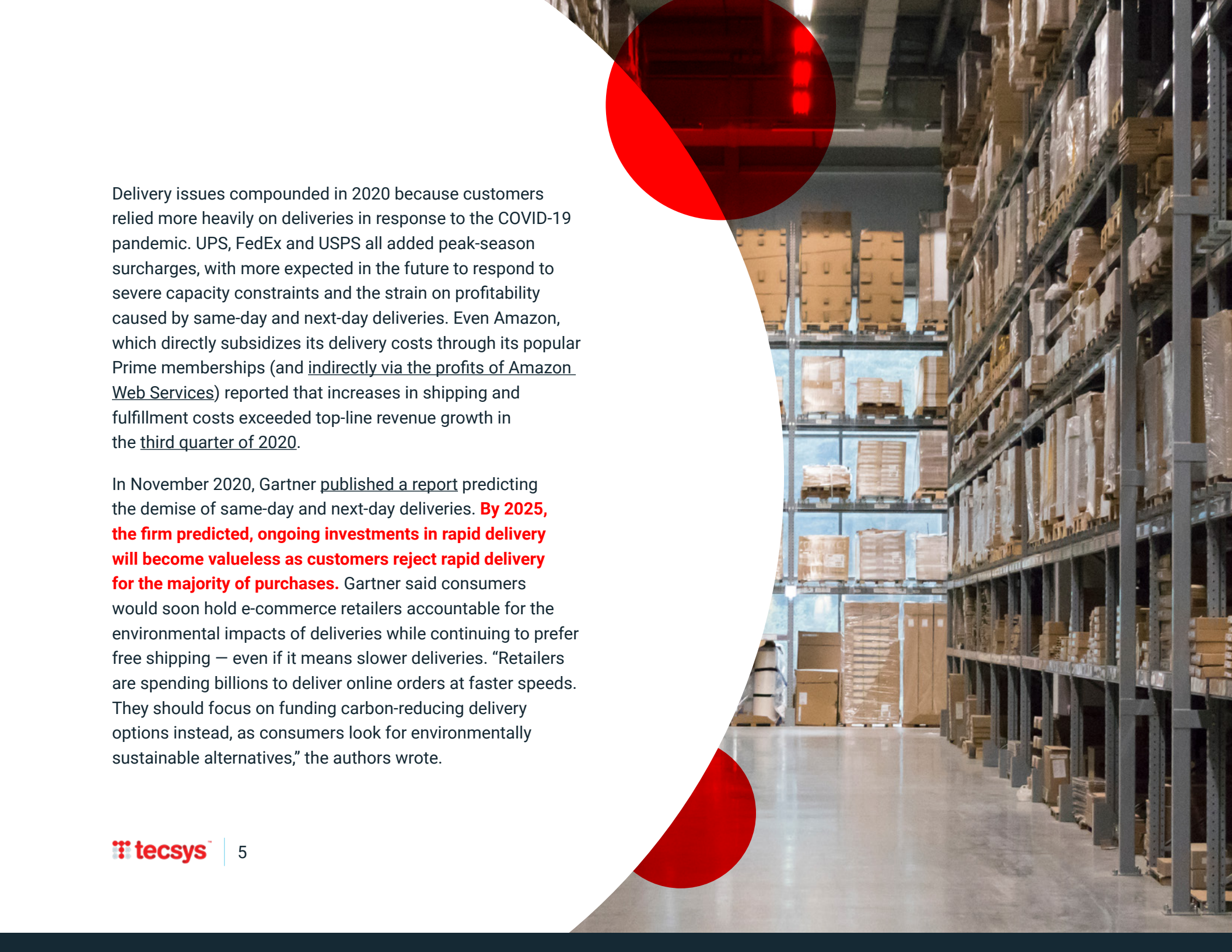
Fast Delivery, **Big Impact**

The International Transport Forum estimates that trade-related freight transportation accounts for about 7% of global carbon dioxide emissions. The emissions are concentrated more heavily on the delivery end because per-unit emissions jump steeply as goods are separated for regional and local delivery via trucks and vans.

By 2030, the demand for urban, last-mile delivery is expected to grow 78%, according to the World Economic Forum (WEF). Driven by the rise of on-demand and single-piece deliveries to individuals, this trajectory will result in 36% more delivery vehicles on the streets of the world's 100 largest cities. Those vehicles will compound what WEF says are the two biggest threats to urban quality of living: congestion and pollution.

The additional delivery vehicles are expected to cause emissions to rise by nearly one-third and add an average of 11 minutes to every urban commute.

In 2017, GreenBiz and UPS published a study of large and small companies and found they, too, identified air quality and congestion as the two biggest concerns of conducting business in urban environments – far ahead of issues such as public transit, safety and noise. Specifically, they pointed to challenges in sending and receiving deliveries, meeting e-commerce customer expectations, and meeting new city requirements for emissions, such as the Low Emission Zones established in London, Paris and Madrid.



Delivery issues compounded in 2020 because customers relied more heavily on deliveries in response to the COVID-19 pandemic. UPS, FedEx and USPS all added peak-season surcharges, with more expected in the future to respond to severe capacity constraints and the strain on profitability caused by same-day and next-day deliveries. Even Amazon, which directly subsidizes its delivery costs through its popular Prime memberships (and indirectly via the profits of Amazon [Web Services](#)) reported that increases in shipping and fulfillment costs exceeded top-line revenue growth in the [third quarter of 2020](#).

In November 2020, Gartner [published a report](#) predicting the demise of same-day and next-day deliveries. **By 2025, the firm predicted, ongoing investments in rapid delivery will become valueless as customers reject rapid delivery for the majority of purchases.** Gartner said consumers would soon hold e-commerce retailers accountable for the environmental impacts of deliveries while continuing to prefer free shipping – even if it means slower deliveries. “Retailers are spending billions to deliver online orders at faster speeds. They should focus on funding carbon-reducing delivery options instead, as consumers look for environmentally sustainable alternatives,” the authors wrote.

Just Slow Down

The first, most sustainable option is to simply slow down the speed of fulfillment and shipping. **“The time in transit has a direct relationship to the environmental impact,” Patrick Browne, director of global sustainability at UPS, told CNN in 2019. “I don’t think the average consumer understands the environmental impact of having something tomorrow, versus two days from now. The more time you give me, the more efficient I can be.”**

Having the time to fill a box, truck or van with as many orders as possible is the single most important factor in lowering the impact of deliveries. According to the [CNN article](#), the per-item emissions of a van delivery of just a single package can be as much as 35 times greater than the emissions associated with a fully loaded van delivering many packages on a single route

At the start of the busy 2019 holiday shopping season, Gap held sweepstakes for \$200 gift cards to incentivize customers to choose slower delivery times across all its e-commerce brands. At the same time, Macy’s offered \$10 gift cards to customers who opted for slower delivery. In 2020, other brands adopted similar practices in response to the surge in online shopping that accompanied the COVID-19 pandemic.

Slowing deliveries not only reduces the environmental impact, it also relieves the pressure on workers. Amazon in particular has come under fire for the working conditions in its shipping network. At the end of 2019, [ProPublica reported](#), the e-commerce giant put speed ahead of safety, and in 2021, [Vice News reported](#) that 10-hour “megacycle” graveyard shifts from 1:20 to 11:50 a.m. were being forced on warehouse workers across the United States.



“What customers really want is control, not speed. They want options and information,” said Bill Denbigh, a 30-year veteran of the supply chain industry and senior director of product marketing for supply chain solutions company Tecsys. “The green guy wants to be able to choose the option that makes him feel good, but others want to be able to say, ‘I don’t care about that. Send it to me as fast as possible.’”

Denbigh, who lives in the United Kingdom, said European e-commerce was significantly ahead of the U.S. market in this regard. He pointed to the popular Sainsbury’s grocer as an example. The company offers an array of scheduling options for home delivery and uses green trucks to indicate which times and days of the week a truck is already scheduled to be in the neighborhood for customers who want to choose the more environmentally responsible option.

Denbigh said he believed the e-commerce market was beginning to recognize that speed and convenience were not the same thing. For the vast majority of brands and retailers, the real opportunity to improve customer satisfaction and loyalty is to offer them informed choices. “The problem is that most e-commerce retailers don’t yet have the supply chain information to inform their own fulfillment decisions, let alone educate consumers about the sustainability of different options,” he said. “But the technology is available. Order management systems can be refined to determine the environmental and cost impacts at different delivery speeds and across multiple channels. Then it becomes a rules-based thing; retailers set parameters on the fulfillment and delivery options they want to offer customers.”

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The Next Wave of Last-Mile Delivery Options

Savvy businesses, such as Sainsbury's, already implement advanced strategies for last-mile deliveries to give customers sustainable options and better brand experiences. As the Gartner report foreshadowed, they've likely recognized there was no use in competing on speed and no value to be gained. With these early adopters already blazing the trail, the following practices are likely to become commonplace over the next three to five years.

Order Consolidation

Getting multiple orders into one box is what the typical customer probably thinks of as order consolidation. In 2019, Target.com offered shoppers \$1 off orders if they chose a slower shipping time that would allow for packing in fewer boxes. Consolidated packing takes up less space in delivery vans, but the more important aspect of order consolidation is delivery density – having the time to ensure that no truck or van hits the road until it is fully loaded. That's what generates the greatest emissions and cost savings.

To execute order consolidation, a retailer needs to trust that today's customers will agree to – and even benefit from – longer delivery windows but with fewer deliveries. They also need an order management system with a robust order routing rules engine to ensure that items located in different locations are efficiently routed to a pre-determined location and consolidated into one shipment for the end customer.





Micro-fulfillment

Traditional retailers are beginning to fulfill online orders from their brick-and-mortar stores, in what is called micro-fulfillment. When a customer places an order online, an employee at a store a few miles away may pick the item from the shelf or back inventory and then pack it and ship it with a local courier. With good inventory management, the environmental impact can be substantially lower than shipping the item from a distribution center halfway across the country.

The grocery industry has seen the most rapid growth – and challenges – in micro-fulfillment. Accelerated by the COVID-19 pandemic, local fulfillment of groceries increased from 4.3% of sales to 10.2% in 2020. The strategy can be more viable for other types of consumer goods – such as apparel or sporting goods – for which the volume of orders is less and the pressure on employees and stock levels would be more manageable. However, because distribution centers are inherently more efficient in packing and shipping, micro-fulfillment will require investments in systems and processes that allow in-store employees to perform the work more cost-effectively.

Order Routing

Consolidation and/or micro-fulfillment can reduce the environmental impact and costs of shipping. But it requires sophisticated order routing to solve a complicated equation with many variables. Where is the customer? Where is the nearest distribution center or micro-fulfillment location? What are the associated emissions? What are the costs? What if they aren't aligned?

For instance, if a customer in Minnesota orders a fleece jacket in March, should the item ship from the inventory of a brick-and-mortar store in Minneapolis? Or is it better to leave that item on the shelf and ship another one from a distribution center in Atlanta? Or is it better yet to pull it from a store in Florida, where jackets are already being swapped out with swimsuits and flip-flops? To solve the equation, retailers need the right data to set and balance priorities for environmental impact and profitability. Then those priorities must be translated into rules for an automated order-routing system.

In-Store Pickup

Like micro-fulfillment, having a customer order online and drive to a local store to pick up the item can reduce costs and environmental impacts. But only if the item is already in the local store, it arrived there as part of a fully loaded truck, and it was picked and set aside by a store employee as part of an efficient process.

Large retailers such as Target, Home Depot and Walmart have offered this option for several years. It's both convenient and effective if the customer already makes regular shopping trips to the store, but it also runs the risk of being counter-effective – generating more road miles and emissions – if the item is simply rushed to the store in a half-empty truck and then the customer goes out of his or her way to drive to the store for pickup. Again, what the retailer needs is a collection of processes and a rules-based system to set the parameters on what delivery options are offered for single items or consolidated orders.

Owning the Last Mile

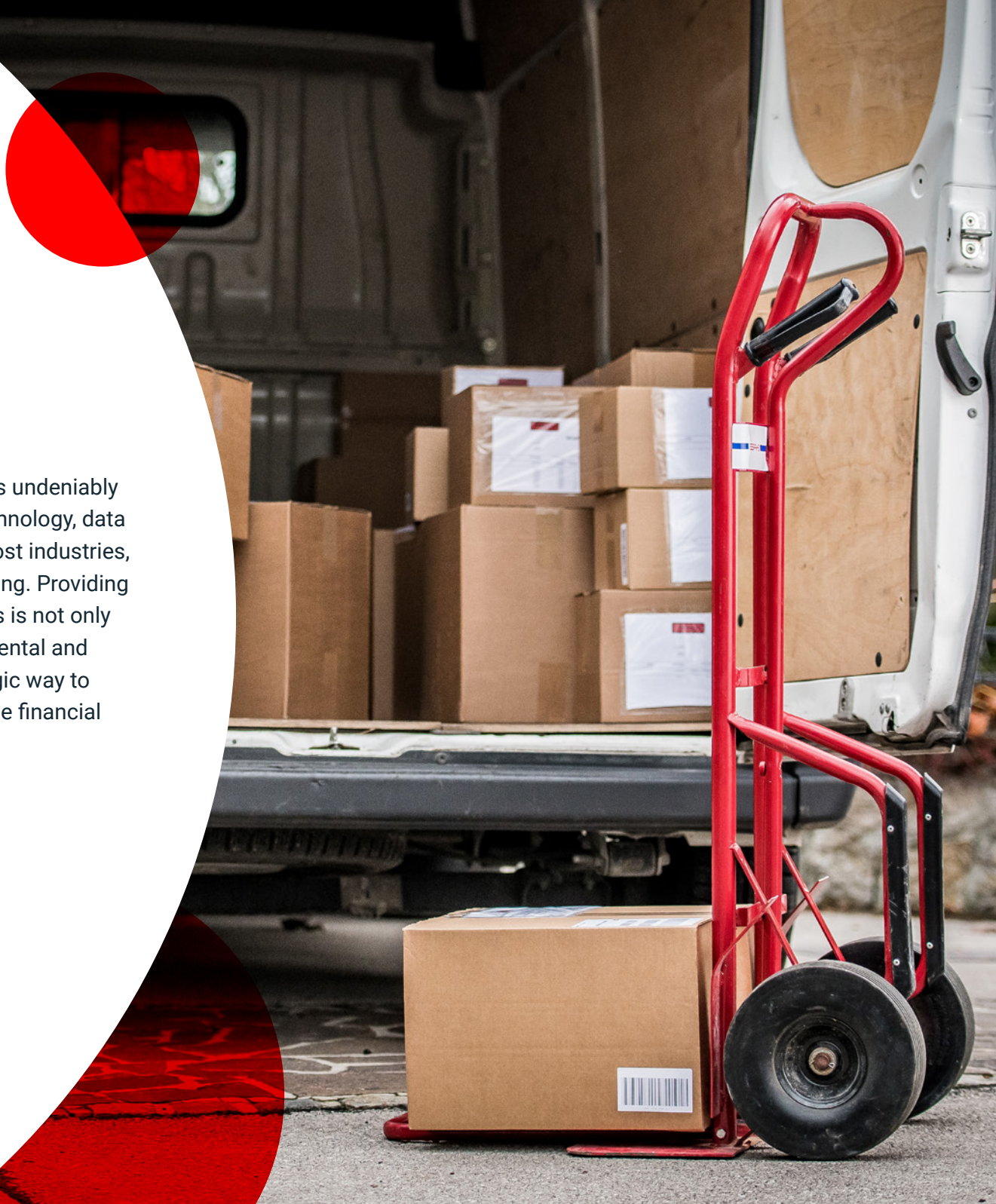
A growing number of retailers are beginning to manage their own deliveries, foregoing third-party couriers to offer more seamless, personalized customer experiences. Restaurants have handled their own deliveries for years, but now other types of local businesses recognize the opportunity to beat out the national competition through better service delivery. For instance, an electrical-supply store in the Midwest promises electricians in the area that it will have all the material on the worksite by their desired start time, and they will even box the ordered supplies room by room without any unnecessary packaging materials to speed implementation of the job.

It's not just local retailers employing this high-touch delivery strategy. Most direct-to-consumer mattress sales already offer delivery and set up, as do some sellers of flat-pack furniture that requires assembly. High-end cosmetics, handbags and footwear brands are also beginning to offer concierge delivery service that allows customers to try out and select merchandise in the comfort of their own homes with the help of a "fashion consultant" who makes the delivery. With the use of electric vehicles and a transportation management system for scheduling and planning routes, owning the last mile can be a better value proposition for customers and an environmentally responsible mode of delivery.



Conclusion

Moving away from one-speed-fits-all delivery is undeniably complex. However, it's achievable with the technology, data and experience on the market today, and in most industries, there's still a first-mover advantage for the taking. Providing sustainable options to e-commerce customers is not only necessary in response to worsening environmental and climate scenarios, but it's also a smart, strategic way to balance the actual needs of customers with the financial needs of the business.





With customers in more than 15 countries, Tecsys is committed to helping good organizations achieve supply chain greatness around the world. Founded in 1983, the company's solutions and services create clarity out of operational complexity with end-to-end supply chain visibility. Tecsys' approach to supply chain transformation enables growing organizations to realize their aspirations by reducing operating costs, improving customer service and uncovering optimization opportunities.

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