accenture

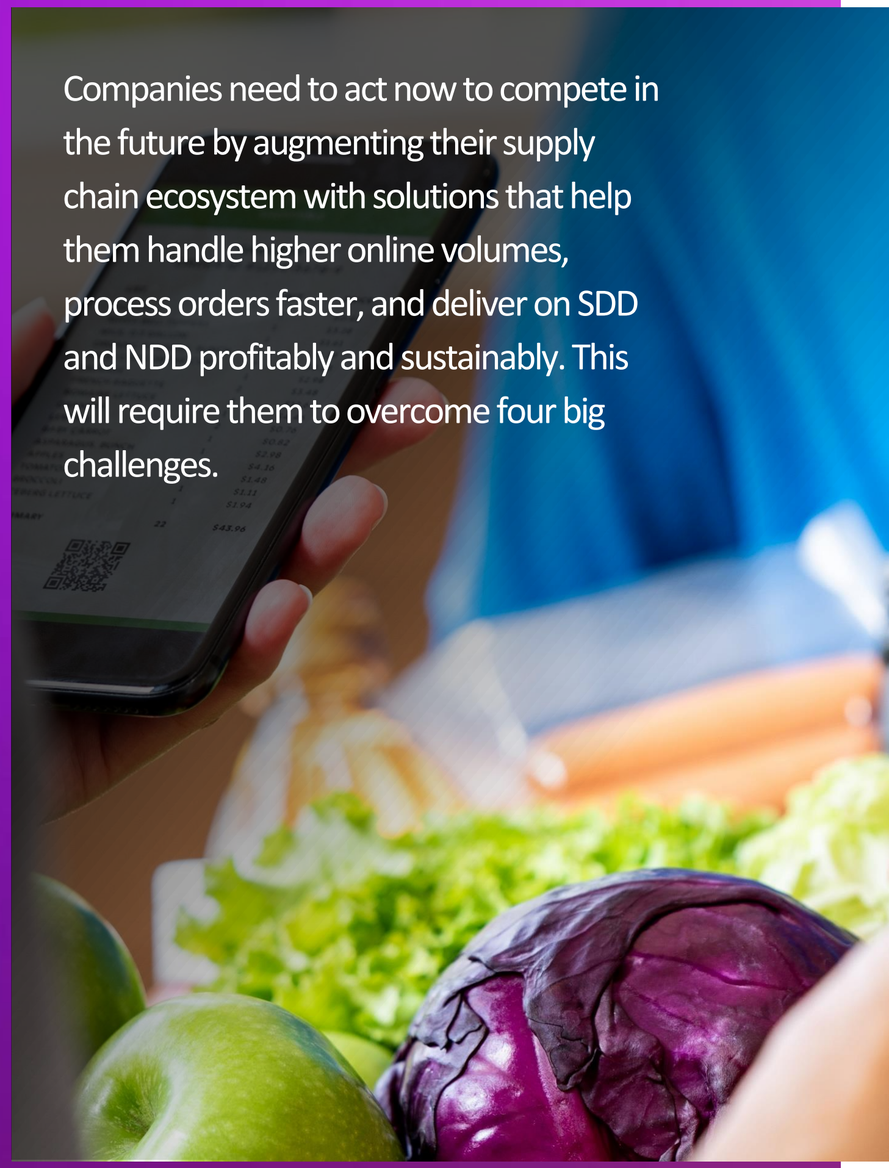
Micro-Fulfillment: Delivering the same-day last mile

Customer experience and delivery expectations were already on the rise due to the steady growth of online shopping prior to COVID-19. And, as we all know, the pandemic exponentially boosted online demands, and the momentum shows no sign of slowing. E-commerce sales were $870 billion in the US in 2021, a 14.2% increase over 2020 and a 44.89% increase over 2019 ($601.7 billion). Though a substantial increase, e-commerce still represents only 13.2% of all retail sales in 2021 in the US, showcasing the upward potential.[1] What does this mean for retailers' fulfillment operations?

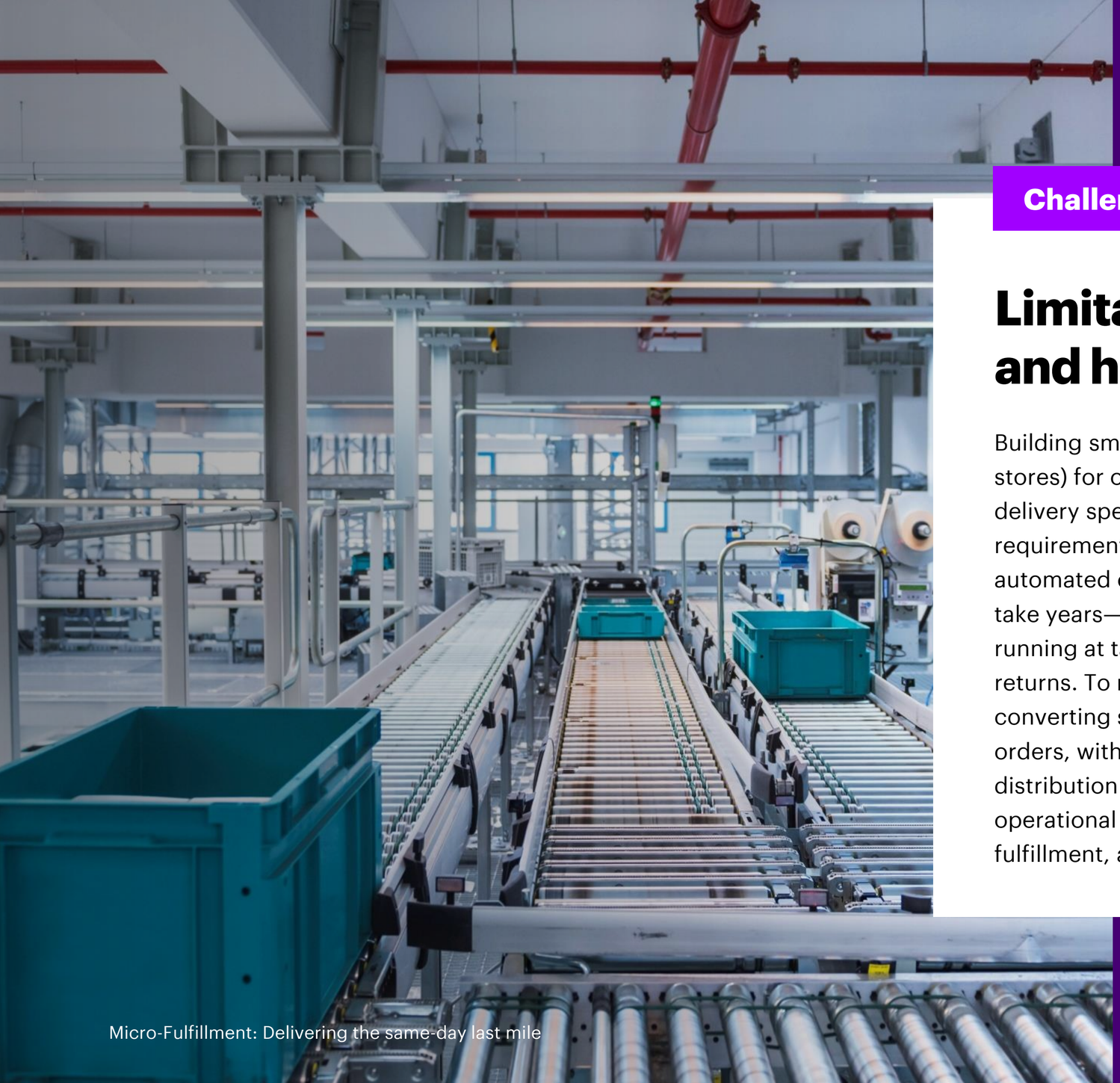
Customers now expect a frictionless shop-to-delivery online experience, including a range of delivery speed and location options. In a market full of alternatives, companies that want to build and grow customer loyalty need to deliver.

Amazon has proven the fulfillment experience can be the single most important point of differentiation and competitive advantage in ecommerce: 58% of Amazon Prime customers purchase more due to faster delivery options such as same-day delivery (SDD).[2] Customers now expect the same from all the companies they buy from.

The increase in ecommerce order volume and growing need to meet SDD and next-day delivery (NDD) commitments, in turn, are ramping up the pressure on traditional supply chains and systems that were designed for store replenishment. And this is just the beginning. With the expansion of Amazon's Prime Now and local courier capabilities, the percentage of same-day and next-day delivery orders in Canada alone is estimated to grow to a staggering 78% by 2027.[3]



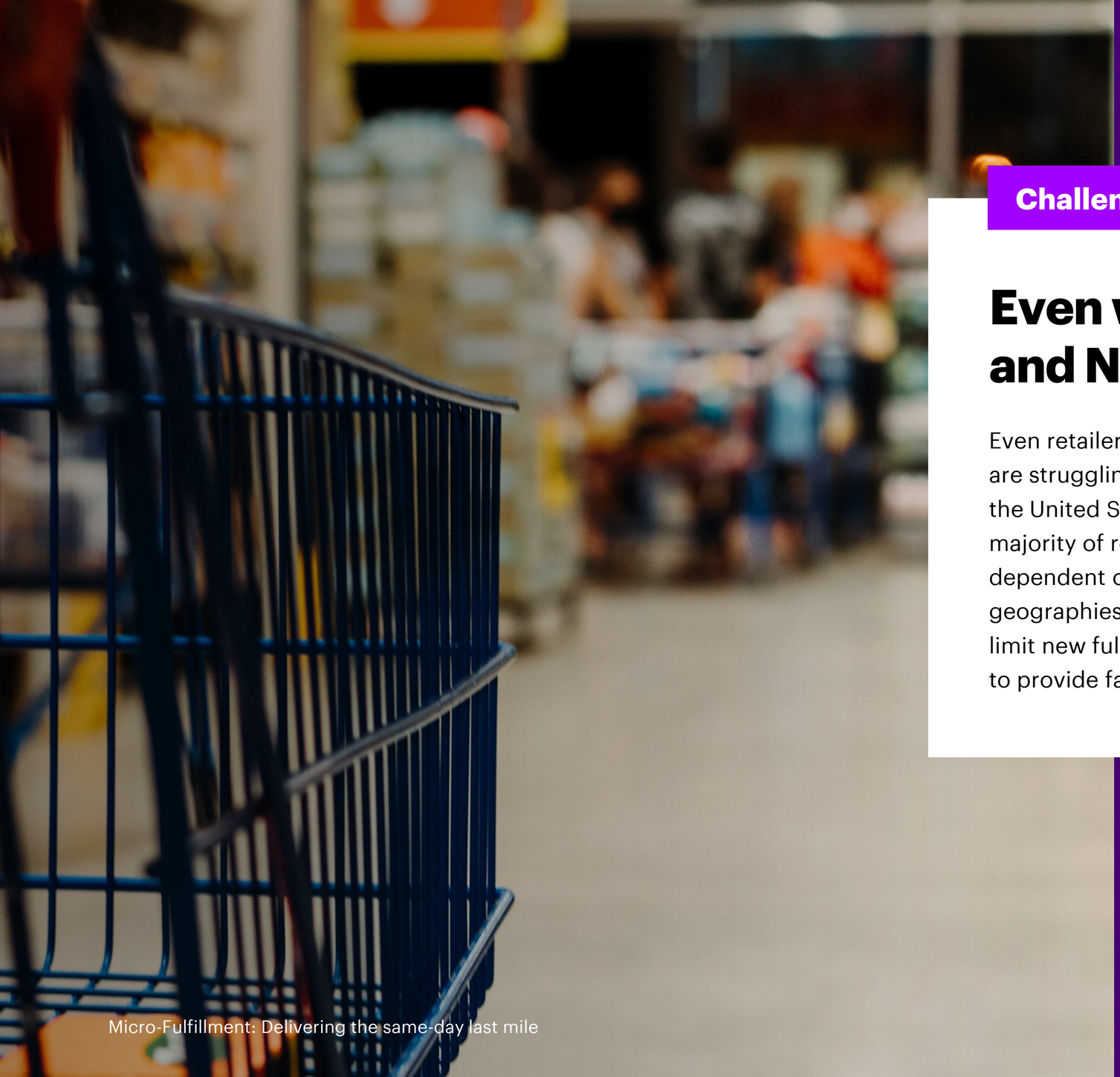
Companies need to act now to compete in the future by augmenting their supply chain ecosystem with solutions that help them handle higher online volumes, process orders faster, and deliver on SDD and NDD profitably and sustainably. This will require them to overcome four big challenges.



Challenge #1

Limitations of current infrastructure and high capex investment.

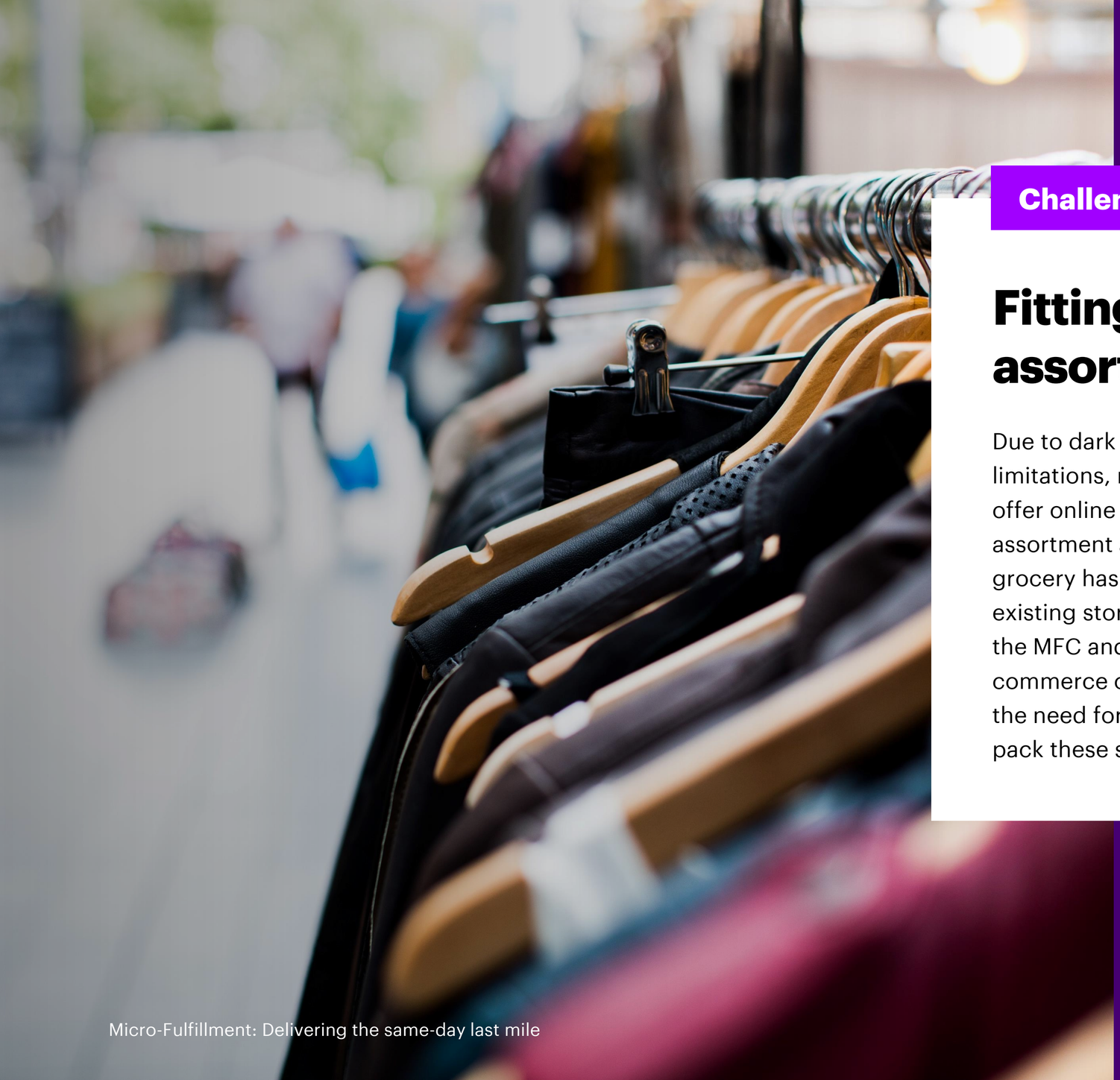
Building small, manual fulfillment centers (often referred to as dark stores) for online order processing and fulfillment can improve delivery speeds and deploy quickly but come with high labor requirements and limited scalability. On the other hand, large, automated customer fulfillment centers (CFCs) are scalable, but can take years—and significant financial investment—to get up and running at target operational levels and have a longer period to realize returns. To meet current demands, many retailers and brands are converting stores to act as fulfillment points for shipping online orders, with mixed results. While stores can take the pressure off distribution centers (DCs), this change usually means higher operational inefficiencies, inventory discrepancies and overall cost of fulfillment, as well as inferior in-store experiences.



Challenge #2

Even with infrastructure options, SDD and NDD generally aren't achievable.

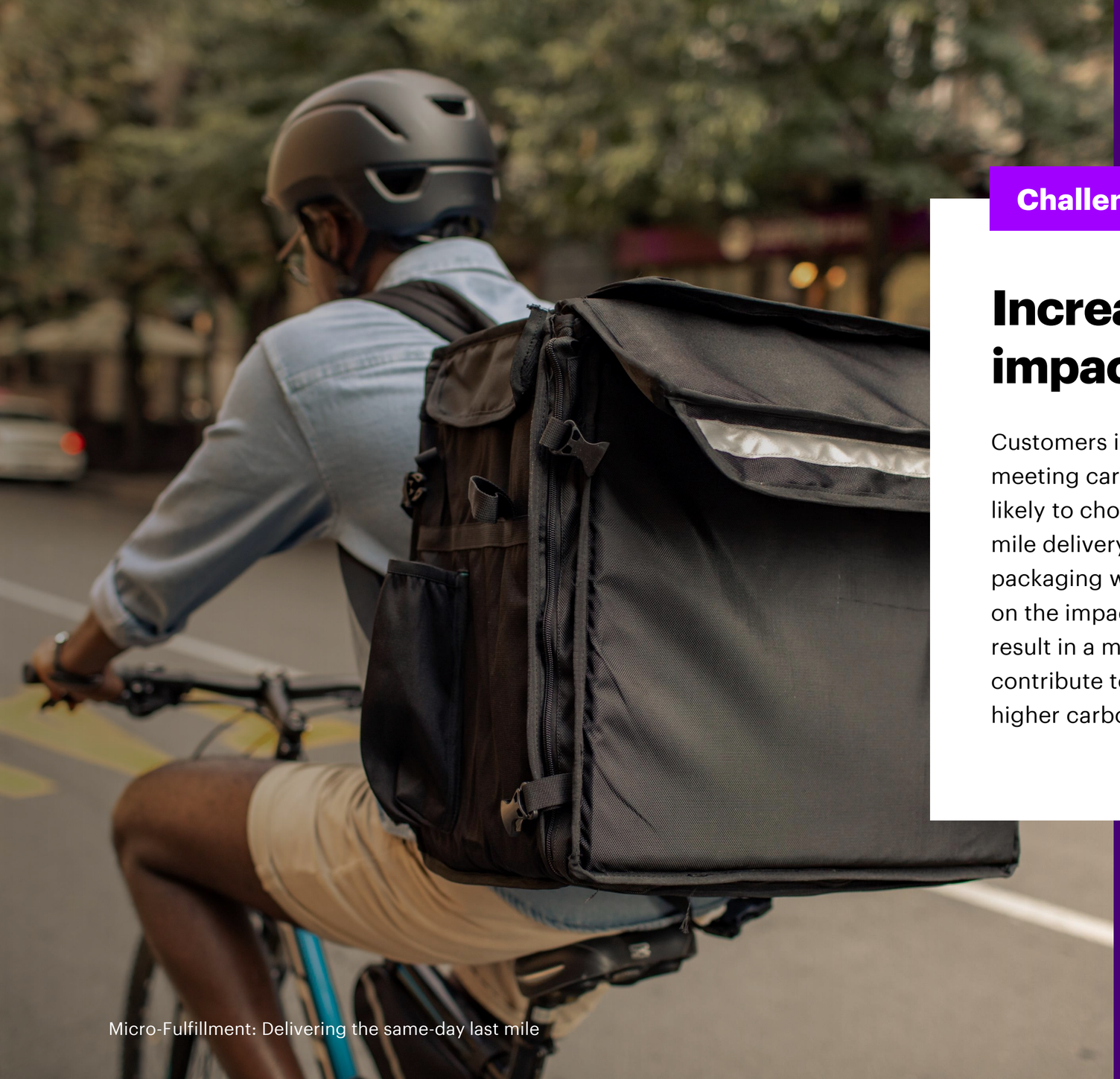
Even retailers that have shifted to in-store or CFC fulfillment options are struggling to achieve their goals. Only 8% of the top 50 retailers in the United States have the capability to offer SDD.[4] A significant majority of retailers rely on traditional DCs for online fulfillment, are dependent on 3PLs, have a DC or store presence only in specific geographies, or are constrained by legacy technology systems that limit new fulfillment options. It's virtually impossible for these retailers to provide faster delivery services such as SDD and NDD.



Challenge #3

Fitting a large assortment

Due to dark stores' physical size and operational technology limitations, retailers are restricted in the size of assortment they can offer online customers. It has been impractical to have a full assortment and be closer to the customers. A popular solution for grocery has been to attach a micro-fulfillment center (MFC) to an existing store, housing the top 5,000 to 7,000 e-commerce SKUs in the MFC and picking the tail from the store. However, almost all e-commerce orders require a tail pick and, thus, the challenge shifts to the need for significant additional space and labor to consolidate and pack these split orders.



Challenge #4

Increasing carbon impact

Customers increasingly are judging brands on how well they're meeting carbon-reduction goals. In fact, 43% of customers are more likely to choose retailers that offer sustainable delivery options.[5] Last-mile delivery has a massive impact on carbon footprint, from packaging waste to multiple delivery trips per order. A recent study[6] on the impact of currently used last-mile delivery options found they result in a multiple-fold increase in vehicles on the road and contribute to higher mileage, increased congestion, and a much higher carbon footprint.

The Micro-Fulfillment Solution to SDD and NDD

The good news is these challenges, while significant, aren't insurmountable. In fact, a number of leading retailers are embracing the model of an MFC to help them solve their SDD/NDD challenges. An MFC is a small, automated fulfillment center that specializes in fulfilling online orders and is geographically located within city limits to put inventory closer to customers to allow faster delivery and returns.

An example of an MFC is the eGrocery micro-fulfillment solution developed by Accenture and Attabotics. At its core, the solution contains pre-configured best practices and connects an advanced Warehouse Management System (WMS) with the (Goods to Person GTP) robotics solution developed by Attabotics. It supports high SKU assortments in smaller warehouses by using vertical space to house six times as much product as a traditional warehouse floor. It also increases order accuracy and reduces human labor by 75%, reducing the total cost-per-unit. And it can be quickly implemented, scaled, and customized to a specific retailer's needs.

Using such a solution, retailers can:

Reduce cost to serve.

An MFC optimizes its operations to reduce delivery cost. It provides high-density storage in the center of a highly populated area, fast retrieval of orders, higher order aggregation, and optimized delivery van loading. It reduces the cost of storage as well as errors in handling, order processing, and delivery, which minimizes the overall cost to serve while offering SDD and NDD services customers want.

Reduce carbon footprint.

By cutting the distance products need to travel, and aggregating demand for higher vehicle load and route efficiency, MFCs can significantly lower the carbon footprint associated with product delivery. And the immediacy of SDD will make consumers think twice before taking their car to go shopping. If they decide not to, it reduces fuel consumption, congestion, and pollution.

Share physical infrastructure.

An MFC space, infrastructure, carrier network, and resources can be shared among multiple retailers to optimize costs without impacting the customer promise. A single retailer may not be able to generate the volume to provide SDD and NDD—and, thus, be unable to justify the build-out of the necessary infrastructure. But a multi-tenant service can allow the company to offer these services and remain competitive. No doubt, the past few years have been challenging for retailers, as customer expectations and demands continued to outpace many companies' fulfillment capabilities. An MFC can be a profitable and sustainable solution to the SDD and NDD delivery—creating a win for business, society, and the planet.

Improve customer experience, loyalty, and revenue.

Being able to hold more than 20,000 SKUs in automation means improved inventory accuracy and avoiding stock outs or substitutes. This factor increases order processing accuracy, thus providing a consistently higher customer experience that's fundamental to building strong customer loyalty and increasing revenues. MFCs also contribute to maintaining a positive in-store experience, as shoppers are not competing with ecommerce shoppers for the products on the shelf.

[1] US Dept. of Commerce – Quarterly Retail E-Commerce Sales 4th Oct 2021, U.S. Census Bureau

[2] Flexe. (Report Title: SDD 3 Reasons Why Speed Matters Link to Report: https://www.flexe.com/articles/same-day-delivery-3-reasons-why-speed-matters)

[3] Statistics Canada, Accenture Research & Analysis

[4] Gartner. 2021 Gartner Fashion, Apparel, and Footwear Fulfillment and Returns Customer Offerings Study

[5] Thomas Barrett April 24th 2019 Consumers more likely to shop somewhere with sustainable delivery

[6] Accenture Study: Urban Congestion Analysis. Data Source: eMarketer; Statista; Government Reports; Accenture Client Value Services

Authors

Tim Webb
Senior Manager, SC&O, Accenture
tim.h.webb@accenture.com

Julien Seret
VP Network Supply Chain, Attabotics
julien@attabotics.com

Arpit Saraiya
Manager, SC&O, Accenture
arpit.saraiya@accenture.com

Kevin Chan
Manager, SC&O, Accenture
kevin.b.chan@accenture.com

About Accenture

Accenture is a global professional services company with leading capabilities in digital, cloud and security. Combining unmatched experience and specialized skills across more than 40 industries, we offer Strategy and Consulting, Interactive, Technology and Operations services —all powered by the world's largest network of Advanced Technology and Intelligent Operations centers. Our 624,000 people deliver on the promise of technology and human ingenuity every day, serving clients in more than 120 countries. We embrace the power of change to create value and shared success for our clients, people, shareholders, partners and communities. Visit us at **www.accenture.com**