Panasonic

LAST-MILE DELIVERY: Solutions to Trucking's Biggest Challenge

TOUGHBOOK



SOLVING THE LAST-MILE RIDDLE TRANSPORTATION AND LOGISTICS WHITE PAPER



With the expansion of e-commerce, last-mile delivery has been a growth area for commercial fleets, but also presents challenges that include growing customer expectations and more frequent, smaller, less cost-effective deliveries. Technology can help fleets meet these challenges and remain profitable.

The trend for consumers to turn to e-commerce was well underway before the pandemic. But in 2020, online shopping took a huge leap. The number of newcomers to e-commerce increased by 32.4% in 2020 compared to 2019.¹ Online sales now represent 33% of retail sales overall compared to only 5% just 10 years ago.¹

With an ever-growing number of consumers turning to the internet to purchase an ever-increasing number of goods of all shapes and sizes, there is an equally expanding need to understand the costs of getting products to consumers, particularly those associated with last-mile delivery options.



33% E-COMMERCE SALES AS A SHARE

OF RETAIL SALES OVERALL, 2020¹

In general, e-commerce orders—from small products like clothing or electronics to large items like furniture and appliances—are shipped from retail warehouses and distribution centers, not directly from the manufacturer. This creates opportunities and challenges for last-mile delivery operations.

For example, as online shopping has increased, so have customer expectations related to their deliveries:

- 61% of consumers want faster deliveries.²
- 51% want real-time visibility into the status of their orders.²
- 65% want greater flexibility for their deliveries.²
- 79% of consumers want free return shipping.³

Consumers continue to be hooked on online shopping. In fact, online commerce sales grew from 11.3% in Q4 2019 to 14% in Q4 2020 relative to traditional brick-and-mortar retail sales.⁴ Taking steps to improve last-mile operations sooner rather than later is an imperative.

^{1.} The State of Commerce 2021. Signifyd (2021).

^{2.} Are You Winning the Last Mile of Retail? Retail TouchPoints (2018).

^{3.} Consumer Survey: Returns in Retail in 2021. Power Reviews (2021).

^{4.} Quarterly Retail E-Commerce Sales 3rd Quarter 2020. U.S. Department of Commerce (November 19, 2021).



Fueling Last-Mile Costs

There are several factors fueling the rise of last-mile costs, such as free shipping, easier returns and special "white-glove" services. Often retailers and logistics providers are left to absorb these costs for deliveries.

Returns—Unlike brick-and-mortar purchases, online returns are more frequent, averaging 15% to 40% of purchases compared to 5% to 10% for in-store purchases.⁵ Online returns can be as much as \$10 to \$20 per item⁶ and add to the costs related to deliveries. Highly efficient reverse logistics need to be in place to keep costs down for returning items—since a driver, vehicle and fuel will likely have to be dispatched either to the customer's home or to a centralized return center to pick up the returned item.

Faster delivery times—Consumer expectations for rapid delivery means that large retail companies like Walmart⁷ are pressuring transportation and logistics suppliers to meet their reduced delivery windows and may fine suppliers if they are unable to fulfill a one- to two-day delivery period for an order. Fleets are racing against the clock while having to contend with weather, traffic congestion and warehouse delays.

White-glove services—With the expansion into so-called "white-glove" operations, logistics and delivery providers are offering additional services beyond simple delivery. While the delivery may be "free," costs related to these white-glove deliveries are higher, since many of the services require additional skills, such as appliance installation, or additional effort, such as carting the old item away.

Other factors—Delivery operations also need to consider the impact of these factors on the bottom line.

- Labor for additional delivery drivers
- Failed attempts to deliver, repeat attempts and rescheduled deliveries
- Fuel and insurance costs for shorter, more frequent trips and additional miles driven
- Vehicle idling costs, maintenance, tolls and fees
- Out-of-route miles vs dispatch miles
- Replacement expenses for lost and damaged products
- Storage costs
- Technology costs for mobile hardware and apps like transportation management and routing software

The expansion of e-commerce—and costs to delivery operations—were at play prior to the pandemic, which also brought the added challenges of lockdowns, supply chain delays and a labor shortage that continues to test retailers and their suppliers. Because of these factors, businesses are looking for ongoing process improvements and a greater reliance on technology to keep costs down.

^{5.} That sweater you don't like is a trillion-dollar problem for retailers. CNBC (January 12, 2019).

^{6.} E-Commerce Returns Rose 70% in 2020. Morning Brew (January 20, 2021).

^{7.} Souza, Kim. Walmart demands all suppliers comply with 98% on-time in-full shipment rule. TB&P (September 3, 2020).



Solving the Last-Mile Riddle

A growing part of solving the last-mile riddle includes decentralizing distribution by bringing inventory closer to consumers and shortening the length of delivery routes. The number of last-mile fulfillment centers is growing and many companies are exploring the idea of urban warehouses. Built within major metropolitan areas where most of the U.S. population resides, this is a practical way to simplify last-mile logistics and facilitate same-day orders.

Retailers are also reducing the cost of shipping by introducing processes that consolidate deliveries and returns to centralized locations but still provide consumer convenience with options such as curbside pickup, smart locker pickup or return, ship free to store, and free return to store.

The role of technology—Automating fulfillment processes enables better, more accurate and predictable planning. Mobile devices help delivery drivers increase productivity by streamlining access to and capture of information in transit and all the way to delivery. These solutions are helping businesses keep up with demand, optimize processes, improve customer satisfaction and shave dollars out of last-mile costs.

• Automated dispatch. Automated dispatch can overcome the limitations of a manually based system and help support service costs for two-hour or same-day delivery. Deliveries can be scheduled, assigned or reassigned to drivers based on availability and proximity to the final destination.

- Optimizing delivery routes. Optimizing the route is crucial to fulfilling customer expectations while remaining profitable. Routing with a dispatch, fleet management or telematics solution can both save time and cut costs related to small-volume deliveries by minimizing time spent manually planning driver routes and updating routes in real time as conditions change. The technology uses algorithms that consider traffic congestion, street signals, road restrictions, even the number of left turns required so that multiple pickups and deliveries can be scheduled in the shortest amount of time with the fewest number of miles driven.
- Digital tracking and visibility. Today's online customers shop frequently, resulting in many small-volume deliveries to large numbers of locations in a short amount of time. This adds to the complexity and cost of the fulfillment process, estimated with an average cost for the last mile of \$10.10 per package delivered.⁸ Businesses need to be able to track shipments to understand where items are along the supply chain. Digital technologies such as IoT sensors and barcodes can provide visibility into the delivery process and build efficiency into the last-mile equation. Crucially, customers can receive updates and delivery estimates for arrival, which can help them stav current on the status of their order and avoid missed deliveries or repeated attempts that keep adding to fleet-related cost.



Solving the Last-Mile Riddle

• Electronic proof of delivery (ePOD). In addition, drivers can be paired with ePOD technology, allowing customers and dispatch teams to track packages at multiple points in real time. ePOD technology helps reduce operational costs by eliminating manual data-entry processes and more accurately capturing loading, delivery and collection data in real time.

Tracking and ePOD applications provide every member of the team, from the back office to dispatch and customer service agents, with a detailed audit trail of goods and assets during transit and delivery. This enables better communication with customers and gives those directly involved with the last-mile delivery the ability to proactively react to unplanned events.

• Managing returns. With the high rate of returns for e-commerce, businesses need to streamline returns to keep costs down. Often called "reverse logistics," a return is treated like a purchase in reverse. The approach should include the same speed and accuracy as the fulfillment process—online processing, easy pickup or drop off, and quick refunds. An efficient process that maximizes buyer convenience also improves customer satisfaction and the chance that the buyer will purchase again.

LAST-MILE SOLUTIONS: SMART ANSWERS TO TOUGH PROBLEMS

At Panasonic, we listen, learn and innovate to solve your toughest challenges.

Combining TOUGHBOOK[®] rugged mobile computers with application software, deployment services and accessories, our solutions are designed for the demands of the transportation industry.

- TOUGHBOOK hardware is durable, reliable and engineered to stand up to rain, heat, cold, dirt, vibrations and accidental drops, whether you're scanning a package or capturing a proof-of-delivery signature. Work effortlessly in any condition with daylight-viewable, rain-sensing, glove-touch screens.
- We can help ensure the success of your deployment through an ecosystem of Panasonic experts and third-party partners, providing consulting, software engineering, vehicle mounting and operating system support.
- With exceptional connectivity (4G LTE and upcoming 5G) built in, drivers have anytime access to critical data, helping them to work more efficiently and to serve their customers no matter where they are.

Looking Ahead

The popularity and convenience of online ordering shows no sign of abating and businesses are rapidly adopting technology to help them cope with the complexities of the supply chain. While today's existing technology can help meet the challenge of last-mile deliveries, future technologies promise to do even more.

- Greater consumer visibility. Increasingly sophisticated, self-service order options will give consumers—and delivery fleets—even greater visibility into the delivery process, including online order management, text updates and voice-activated connectivity through home speaker systems.
- Alternate delivery vehicles. Alternative-fuel vehicles and transportation options such as bicycles, e-bikes and scooters will provide more flexibility to meet deliveries in dense urban areas.
- Smart lockers for customer pickup. A secure, conveniently located locker pickup eliminates pressure on last-mile delivery by shifting some of the costs to customers and limiting the number of addresses drivers need to visit.



WHILE TODAY'S EXISTING TECHNOLOGY CAN HELP MEET THE CHALLENGE OF LAST-MILE DELIVERIES, FUTURE TECHNOLOGIES PROMISE TO DO EVEN MORE.

• Autonomous vehicles. Self-driving trucks and vans, aerial drones, and robots may one day be the way logistics and shipping companies get orders to consumers' doorsteps without any human intervention. While these technologies are currently in development and testing, top market players are making progress.

Amazon, for instance, launched a cooler-sized delivery robot called Scout in 2019 that rolls along sidewalks and delivers packages to their destinations.⁹ A partnership between Intermountain Healthcare and drone-maker Zipline is planning to deliver specialty pharmaceuticals and homecare products within a 50-mile radius of Salt Lake City in mid-2022.¹⁰

Autonomous vehicles can increase the speed of delivery, save fuel and reduce the environmental impact of traditional, gas-powered delivery vehicles. The technology and infrastructure to support autonomous deliveries and government regulations all require further effort before this will become a widespread and efficient method of delivery.



The Answer: Endless Innovation

As with any complex, variable business environment, there is no single "silver-bullet" solution to the last-mile delivery challenge.

Instead, the answer lies in combining a range of solutions, working sometimes in concert and sometimes in parallel to get a package to a customer as efficiently and cost-effectively as possible.

What these solutions all have in common is that they are driven by customer expectations, which will continue to grow.

This means the answer to last-mile deliveries will likely be an ever-evolving landscape of new techniques and innovations that work to reduce operational costs and enhance the customer experience.

Rugged Mobile Devices Purpose-Built for Transportation and Delivery Applications

Panasonic offers a broad range of rugged laptops, handhelds and tablets that work seamlessly with dispatch, route optimization, barcode, proof-of-delivery and signature apps.

TOUGHBOOK G2

A groundbreaking modular device with a 2-in-1 design and three expansion areas that offer 36 different configurations, including a barcode reader. Features a 10.1" Windows® tablet, biometric user authentication, an 18.5-hour battery and backwards compatibility with most docks.

TOUGHBOOK A3

A 10.1" rugged Android[™] tablet with an integrated barcode reader, five user-defined buttons for maximum user functionality and a dual hot-swap battery design.

TOUGHBOOK S1

A rugged 7" Android tablet designed for transportation and delivery applications. Optional: integrated barcode reader supporting landscape or portrait orientations and an extended warm-swappable battery.

TOUGHBOOK N1

This fully rugged Android handheld is a slim, powerful tool with a powerful quad-core processor, built-in multi-carrier 4G LTE and an angled, rear-facing barcode scanner that is ideal for moving cargo, proof of delivery and inventory management. Optional: longer-life, quick-charging swappable battery.









TOUGHBOOK G2 (2-in-1)

TOUGHBOOK A3

TOUGHBOOK S1

TOUGHBOOK N1

MORE THAN JUST THE DEVICE: PANASONIC TOUGHBOOK DEPLOYMENT & VEHICLE INSTALLATION SERVICES

Panasonic mobile computers are backed by a strong warranty program and the industry-leading ProServices team, the company's U.S.-based support network that delivers rapid turnaround on repairs and access to specialized services and knowledgeable experts, including:

- **Deployment Services.** Ensures that TOUGHBOOK computers arrive field ready the moment your drivers and technicians turn them on, with everything from the software to third-party accessories to the battery configured and fully tested.
- Vehicle Installation Services. Provides customizable in-vehicle mounting solutions and installation services for mobile devices, making it easy and safer to use, store and transfer devices between users and shifts.



KEEP YOUR DRIVERS PRODUCTIVE AND YOUR MOBILE SOLUTION COSTS LOW WITH PANASONIC MOBILITY.

FOR MORE INFORMATION ON HOW PANASONIC CAN HELP INCREASE EFFICIENCY IN THE LAST MILE, VISIT OUR TRANSPORTATION OPERATIONS PAGE >

toughbook@us.panasonic.com

1.888.245.6344

TOUGHBOOK.com

Panasonic

© 2022 Panasonic Corporation of North American. All rights reserved. Android is a trademark of Google LLC.