ZEBRA

Optimizing E-Commerce Fulfillment

Mobilize the Power of Industry Collaboration
with Supply-Chain Visibility and Efficiency
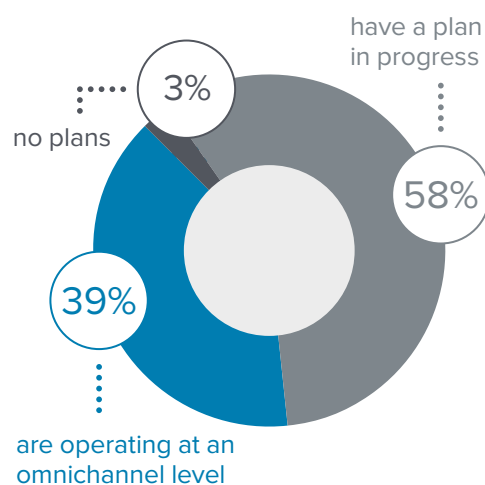
Innovative Solutions and Strong Industry Collaboration Boost Fulfillment Efficiency

The global e-commerce market has grown to $2 trillion-plus[1], a reflection of a shift in consumer attitudes that has made shopping convenience paramount. New consumer expectations of speed and convenience are also impacting supply chains in ways never seen before. In this environment, downtime and inaccurate inventory can cause delays that result in millions of dollars in lost transactions and poor customer experiences. But small increases in productivity can make a big impact on customer satisfaction and the bottom line.

Attaining these benefits requires optimizing operational efficiency in product handling, workflows and use of staff, assets and equipment throughout the fulfillment center. Superior visibility across your fulfillment center and partner networks makes greater efficiency possible. With better visibility, you can create efficiencies and collaborate with more partners to get goods delivered to customers faster using flexible omnichannel strategies as you grow.

E-commerce leaders are leveraging the latest Zebra® technology to optimize their fulfillment centers and fleet and delivery systems, from equipping workers with mobile devices that enhance speed, accuracy and productivity, to the Internet of Things (IoT) and radio-frequency identification (RFID) technology devices that drive real-time inventory and asset visibility.

[1]EMarketer, Worldwide Retail and Ecommerce Sales: eMarketer's Estimates for 2016–2021

no plans **3%**

have a plan in progress

58%

39%

are operating at an omnichannel level

97% percent of businesses either have a mature omnichannel strategy in place, have recently implemented one or are planning to implement one soon.

Source: Future of Fulfillment Vision Study, Zebra Technologies, 2018

Three Supply-Chain Visibility and Efficiency Improvement Strategies

With the increased dependencies on omnichannel logistics, industry partners are working under collaborative service-level agreements to get goods to the end customer in a promised timeframe—whether making them available on store or fulfillment center shelves, drop-shipping them from the manufacturer or delivering them over the last mile. Implementing three operational improvement strategies throughout your fulfillment operations can facilitate successful partner collaboration across the supply chain:

1. Equipping workers with modern mobile technology

2. Automating workflows and managing inventory on the front line

3. Adhering to global data capture standards

By incorporating innovative front-line inventory management and order-fulfillment technology solutions into your daily fulfillment operations, you can provide advanced visibility of supply-chain activities. This visibility enables you to collaborate seamlessly with selling channels, manufacturers, wholesalers, suppliers, third-party logistics providers and buyers. Combined with the use of global data capture standards, technology modernization is a critical step in achieving a higher level of collaboration that meets today's omnichannel order-fulfillment requirements.

Equipping workers with modern mobile technology

Giving your workers modern mobile technology to easily and intuitively capture and utilize data at each touch point throughout the fulfillment process gives you reliable inventory visibility at any given moment—providing you with better forecasting and communication with your vendors, suppliers, 3PLs and selling channels.
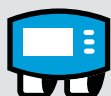
A wide range of form factors and enterprise applications gives your workers the agility they need to quickly and easily automate tasks.

The right device for the job ensures compliance for data capture and use

Handheld Mobile Computers

Give front-line workers a handheld device equipped with a built-in barcode scanner or RFID reader, touch screen, camera, enterprise-grade processing power and warehouse-grade durability. These devices reliably, accurately and securely capture data in real time to suit on-demand requirements.

Wearables

Provide workers with hands-free mobile computing, scanning and voice-directed picking to give them comfort, safety and freedom of movement. Their design maximizes efficiency, accuracy and performance needed for the fast pace of an e-commerce fulfillment center.

Enterprise Tablets

Manage inventory from anywhere with mobile access to enterprise applications and management systems. Enjoy the processing power and security of a desktop or laptop computer, along with the convenience of a tablet.

Vehicle-Mounted Computers

Keep material-handling equipment operators working efficiently with access to desktop applications right from their vehicles. These compact, rugged computers have touch screens that pair with extended-range scanners to track items in real time and meet omnichannel fulfillment requirements.

Barcode Scanners

Capture data reliably for receiving, shipping or cross-docking workflows with the necessary speed and accuracy high-volume e-commerce fulfillment demands. standard- and extended-range data capture form the basis of an accurate item-tracking foundation to communicate inventory status throughout your enterprise and to industry partners.

Mobile Printers

Print high-quality barcode labels or RFID tags from multiple locations—e.g., picking aisles, receiving or shipping docks—and ensure inventory and asset tracking. By giving your physical goods a digital presence, you'll maintain essential real-time visibility of your entire supply chain.

Automate and manage inventory on the front line

Third-party logistics providers, retailers and manufacturers that operate supply chains have much room to improve their inventory accuracy. Participants in a global Zebra survey report inventory accuracy of 65 to 69 percent.[2] Empowering your front-line workers to view and manage inventory is paramount to a successful, optimized e-commerce fulfillment operation. Using captured data to track and analyze inventory movement and utilization enables real-time decision-making throughout multiple operational areas of your fulfillment center, warehouse or plant so you can optimize interactions with your vendors, suppliers, 3PLs and physical and online selling channels. Providing accurate visibility into inventory status is critical to fulfilling every order, monitoring inventory levels and order status, and ensuring timely replenishment from vendors to reduce out-of-stocks.

Automation solutions scale to fit your business needs

Productivity Tools

The applications on your hardware are just as important as the hardware itself. Automating can be as simple as providing front-line workers with applications that save valuable seconds in repetitious tasks. For example, you can:

- Capture multiple barcodes in one scan or trigger pull.

- Convert legacy green screens into an all-touch, modern user experience.

- Automatically send scanned data into any running application.

Location Solutions

Inventory and finished goods tracking provide instant arrival, dwell and departure times for every asset throughout manufacturing off-line and finished goods processes and retailer and 3PL fulfillment center order processing— enabling operations managers to use analytics to:

- Improve efficiencies.

- Implement just-in-time scheduling.

- Track and trace.

- Automate customer notifications of goods in production or order fulfillment.

Radio-Frequency Identification (RFID)

RFID provides real-time inventory visibility with accuracy levels of up to 99%.[3] It adds more automation to inventory management processes by:

- Reducing the amount of manual scanning or counting through active or passive signals.

- Emitting signals that accurately track and show locations of goods down to the item level.

[2]Zebra Future of Fulfillment Vision Study, 2018

[3]Measuring the Impact of RFID in Retailing: Key Lessons from 10 Case-Study Companies, Adrian Beck, University of Leicester, February 2018

Adhere to global data standards to support effective collaboration

In the age of e-commerce, fulfillment and delivery optimization often means getting an item into a customer's hands the same day they order it. Collaborating more effectively with your industry partners and achieving real-time supply-chain visibility throughout your fulfillment process can be the difference between capitalizing on and missing opportunities to meet these heightened demands. Capturing and sharing data using global data standards is a powerful collaboration practice that helps industry partners use a common language when managing goods and assets across the supply chain. Using the standards allows for fast, accurate and frictionless transactions and analysis that reduce missed opportunities and cultivate greater customer satisfaction.
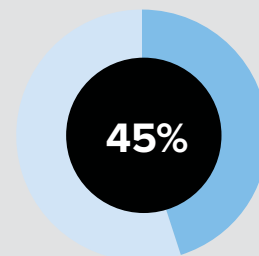
Benefits to using global data capture standards include:

- Easy identification of goods amid changes in the chain of custody

- Item-level data capture across your partner supply chain for further data analysis

- Easy-to-understand data and information sharing without complicated conversion exercises

- Use of the Internet of Things (IoT) to track and trace goods, packages and pallets in transit, production or distribution
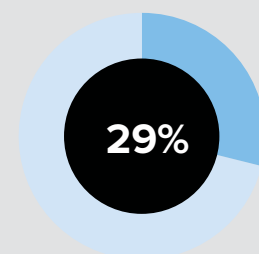
For example, more information on how to implement GS1 Standards is available at gs1.org/standards.
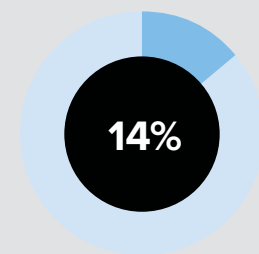
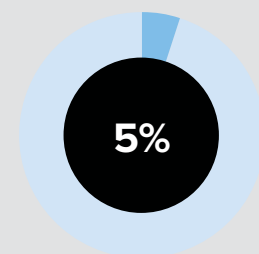## Retailers relying on industry partners to ship direct to customers

45%
Currently Implementing

29%
Plan to implement in the next year

14%
Plan to implement in 2 to 3 years

5%
Plan to implement in 4 to 10 years

Source: Zebra Technologies industry research

Zebra front-line mobility and automation solutions help improve industry collaboration

Zebra's ecosystem of hardware and software solutions is designed to give youand your partners unprecedented visibility into the supply chain for a new level of agility that keeps up with the paceof e-commerce. See how you can support industry collaboration at every stage of fulfillment with the right technology.

Stage	Handheld mobile computers	Wearable computers	Enterprise computers and scanners	Enterprise tablets	Vehicle-mounted computers	Barcode scanners	Mobile printers	Desktop and industrial printers	RFID	Locationing solutions	Productivity applications
Receiving and Sortation	●	●				●	●	●	●	●	●
Put-away and Replenishment	●		●	●	●	●		●	●		●
Inventory and Materials Management	●		●			●		●	●		●
Picking	●	●	●	●	●	●			●		●
Packing and Staging	●		●	●	●	●	●	●	●	●	●
Cross-docking			●	●		●			●	●	●
Shipping	●		●	●		●				●	●
Reverse Logistics	●	●	●			●	●	●	●	●	●

Receiving and Sortation
- Gives timely receipt confirmation, quick order reconciliation and advance notice of inventory availability
- Ensures accurate tracking throughout fulfillment with quality item- and carton-level labeling

Put-away and Replenishment
- Monitors and confirms stock availability and updates warehouse management system (WMS) for automated replenishments and orders
- Provides accurate location of goods

Inventory and Materials Management
- Provides a real-time view of inventory on-hand
- Allows for accurate and continuous item usage and forecasting
- Supports on-demand omnichannel logistics order fulfillment

Picking
- Provides real-time visibility of in-stock and out-of-stock items
- Indicates order fulfillment stage

Packing and Staging
- Confirms and reconciles picked inventory for automated order replenishment and forecasting
- Generates machine-readable labels for updated status visibility once in transit

Cross-docking
- Documents change in chain of custody
- Indicates real-time order-fulfillment stage
- Provides real-time receipt confirmation and quick reconciliation of incoming and outgoing pallets

Shipping
- Captures proof of pick-up, changes in chain of custody and proof of delivery
- Tracks inventory in transit

Reverse Logistics
- Documents real-time chain-of-custody changes and tracks returns throughout reallocation
- Gives supply-chain partners accurate, returns-adjusted demand signals

An Ecosystem of E-Commerce Fulfillment Solutions

To help you meet the pace of e-commerce and elevated consumer expectations for timely order fulfillment and delivery in the on-demand economy, Zebra Technologies and our partners offer an entire ecosystem of advanced hardware, software, supplies and services that give you and your front-line workers better visibility of goods, assets, processes and people. The resulting data-powered decision-making enables you and your workers to improve e-commerce order-fulfillment performance and meet today's demands.

Learn more about how Zebra's mobility and automation solutions can enhance how you collaborate with your industry partners at **www.zebra.com/fulfillment**

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