REINVENTING THE SUPPLY CHAIN:

THE FUTURE OF FULFILMENT VISION STUDY

CONFRONTING LOGISTICS CHALLENGES IN AN OMNICHANNEL SHOPPING LANDSCAPE

ZEBRA

ZEBRA'S FUTURE OF FULFILMENT VISION STUDY

Zebra Technologies commissioned a global research study to gain a richer understanding of how manufacturers, retailers and logistics firms are preparing to meet the growing needs of the on-demand economy. Surveys were designed to reveal plans, implementation levels, experiences and attitudes toward omnichannel logistics.

TOP TRENDS

E-COMMERCE
89 % agree e-commerce is driving the need for faster delivery, spiking concern and investment

INVENTORY ACCURACY
Respondents estimate their current inventories are **66 % accurate**

DIGITISATION OF THE SUPPLY CHAIN
55 % of organisations currently use pen and paper to manage omnichannel logistics

INNOVATION
61 % say automation is disrupting the industry

STATE OF THE INDUSTRY

A $2.3 trillion global e-commerce market reflects how profoundly shopper expectations have recalibrated worldwide.[1] Today's consumers have been rewired by digital disruption. That always-connected, tech-savvy shopper expects a seamless, faster purchasing journey, whether she's buying online and picking up in store or wants her merchandise delivered in two hours to her door.

In turn, a digital transformation is rippling through the retail supply chain, dictated by the moment-to-moment wants and whims of consumers forever changed by the Internet's endless — and instant — buying possibilities. The result is a retail ecosystem in flux and it is shaking the supply chain at its very core.

To succeed in the new normal, retailers, manufacturers and logistics companies are collaborating and swapping roles in uncharted ways to meet shoppers' omnichannel product fulfillment and delivery expectations in a plot that is still unfolding. Companies are turning to digital technology and analytics to bring heightened automation, merchandise visibility and business intelligence to the supply chain to compete in the on-demand consumer economy. Although an estimated 73 % of consumers are omnichannel shoppers today (and they spend more than single-channel consumers),[2] only 39 % of supply chain respondents believe they're operating at an omnichannel level, the Zebra Technologies study revealed.

RESPONDENTS CHARACTERISE THEIR ORGANISATION'S OMNICHANNEL STRATEGY

OMNICHANNEL PLAN IN PROCESS

3 %
NO PLANS

58 %

39 %
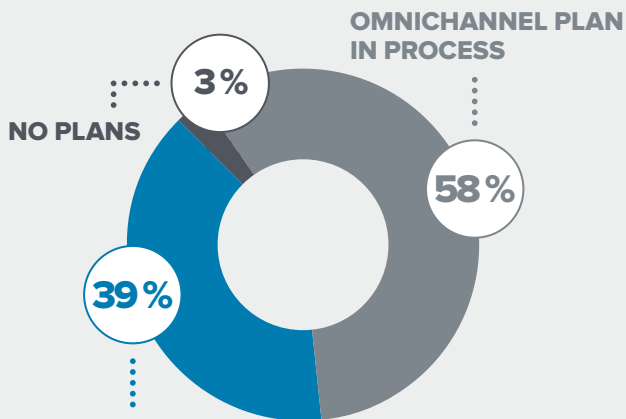
OPERATING AT OMNICHANNEL LEVEL

LOGISTICS	RETAIL	MANUFACTURING
45 % POSTAL, COURIER, FREIGHT	**38 %** STORE FRONT	**58 %** PHARMACY
42 % THIRD-PARTY LOGISTICS, WAREHOUSE, STORAGE	**28 %** NON-STORE FRONT	**45 %** FASHION, APPAREL
		38 % COMPUTER, ELECTRONICS
		29 % CONSUMER PACKAGED GOODS, FOOD & BEVERAGE

DIGITAL TRANSFORMATION OF THE SUPPLY CHAIN

Meeting shoppers' omnichannel product delivery and fulfilment expectations calls for a digital transformation of the supply chain that addresses key pain points. Inventory allocation, reducing backorders and replenishment efficiency top the hurdles facing logistics companies with omnichannel fulfilment, the study found. That comes as little surprise as merchants, manufacturers and logistics firms navigate an ecosystem built for a single channel brick-and-mortar shopping landscape, ones that are now taxed by a rapidly growing e-commerce market.

To adapt, new business models are taking hold as the lines between retailers, manufacturers and logistics firms start to blur. These longtime, largely siloed, solo acts are increasingly acting in concert to rise to the demands of a dynamic, 24/7 bricks-and-clicks shopping world.

NEW FULFILMENT AND DELIVERY OPTIONS

Dramatic changes are beginning to materialise as industry players race to offer consumers fast, flexible and even free product fulfilment and delivery. Consumers want a hassle-free shopping trip whether they're buying in-store, from their mobile phone, desktop computer or some combination of the three. Stores are increasingly doubling as distribution centres that fulfil online orders. Logistics companies are starting to provide product fulfilment. Manufacturers are drop-shipping merchandise to expedite retail deliveries. Retailers are also partnering with third-party technology upstarts to handle last-mile delivery.

[1] EMarketer, *Worldwide Retail and Ecommerce Sales: eMarketer's Estimates for 2016–2021*; [2] Harvard Business Review, *A Study of 46,000 Shoppers Shows That Omnichannel Retailing Works*

THE OMNICHANNEL CHALLENGE

E-commerce is growing at a staggering pace, projected to generate $4.479 trillion in retail sales by 2021, soaring over 140 % from $1.859 trillion in 2016.[3] And it's forcing decision makers to shift to a robust omnichannel fulfilment strategy that meets the modern consumer's needs.

86 %
of respondents agree that the amount of capital investment and operating expense required for omnichannel is a challenge

Today, 41 % of consumers worldwide use two or more channels during the purchase process.[4] According to Zebra's 10th annual shopper study, 64 % of online shoppers ship to home, 34 % pickup in store and 15 % ship to an alternate location. Accurately fulfilling these orders 100 % of the time requires inventory visibility across the entire supply chain. Unfortunately, inventory systems haven't yet caught up and are unable to provide the level of inventory granularity necessary to facilitate strong cust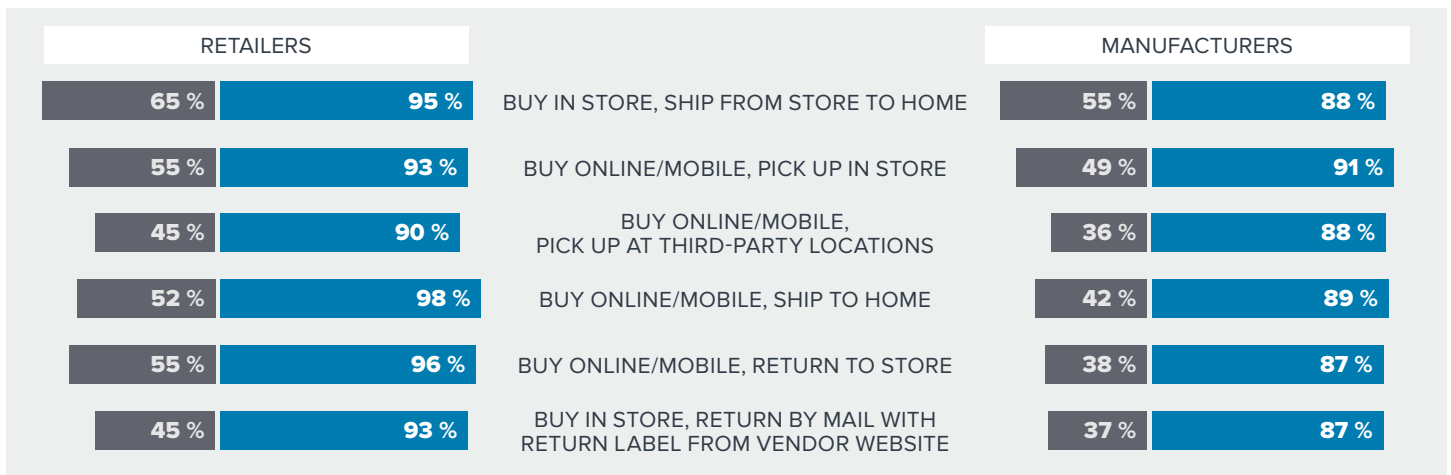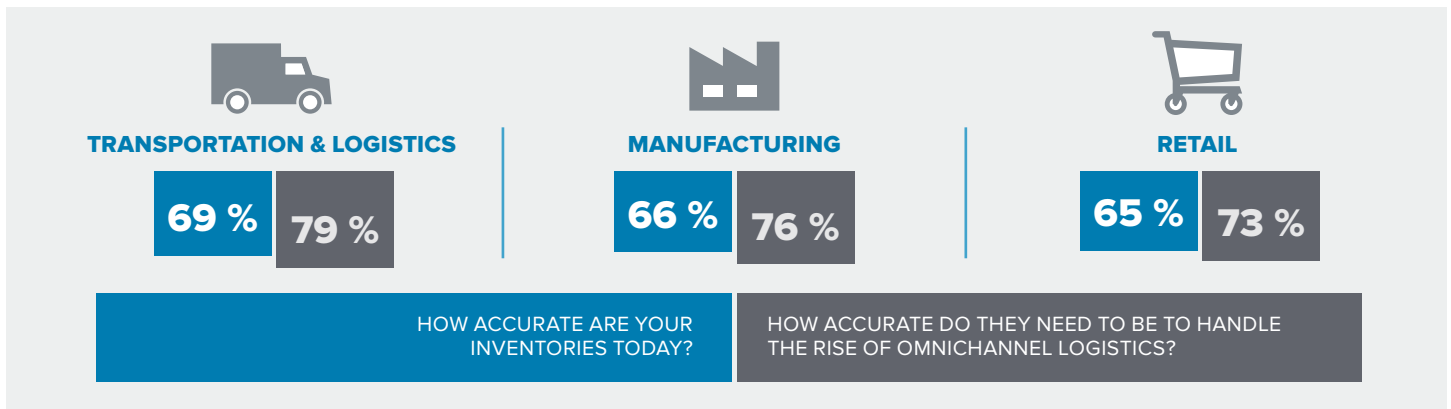omer satisfaction. Survey respondents estimate that their inventories are about 66 % accurate today. Clearly this level of preciseness is woefully inadequate in a buyer's market where shopper tolerance of out of stocks, for one, is diminishing as countless alternatives are just a click away.

Supply chain and operations leaders must swiftly adjust to the changing world. The race is on to implement omnichannel-primed logistics systems and processes to ensure merchandise fulfilment is scalable as online sales volumes continue to escalate. But that's a formidable task. Indeed, 86 % of respondents cited the capital investment and operating costs of implementing an omnichannel operation as a challenge. Yet, companies must address this issue as more and more consumer's physical and digital worlds are converging and they are buying "phygitally."

RETAILERS AND MANUFACTURERS REPORT COMPLEX PURCHASING MODELS   TODAY 2023

RETAILERS		MANUFACTURERS	
65 %	95 %	BUY IN STORE, SHIP FROM STORE TO HOME	55 %	88 %
55 %	93 %	BUY ONLINE/MOBILE, PICK UP IN STORE	49 %	91 %
45 %	90 %	BUY ONLINE/MOBILE, PICK UP AT THIRD-PARTY LOCATIONS	36 %	88 %
52 %	98 %	BUY ONLINE/MOBILE, SHIP TO HOME	42 %	89 %
55 %	96 %	BUY ONLINE/MOBILE, RETURN TO STORE	38 %	87 %
45 %	93 %	BUY IN STORE, RETURN BY MAIL WITH RETURN LABEL FROM VENDOR WEBSITE	37 %	87 %

INVENTORY ACCURACY

TRANSPORTATION & LOGISTICS   69 %   79 %

MANUFACTURING   66 %   76 %

RETAIL   65 %   73 %

HOW ACCURATE ARE YOUR INVENTORIES TODAY?

HOW ACCURATE DO THEY NEED TO BE TO HANDLE THE RISE OF OMNICHANNEL LOGISTICS?

TURNING STORES INTO FULFILMENT CENTRES

91% AGREE MORE AND MORE RETAILERS WILL CONTINUE TO TURN STORES INTO FULFILLMENT CENTRES

86% AGREE CLICK AND COLLECT (BUY ONLINE/ PICK UP IN STORE) WILL BECOME THE DEFAULT DELIVERY METHOD

76% OF RETAILERS SURVEYED USE STORE INVENTORY TO FULFILL ORDERS

68% EXPECT STORE USE OF INVENTORY TO FULFILL ORDERS TO GROW IN THE NEXT FIVE YEARS

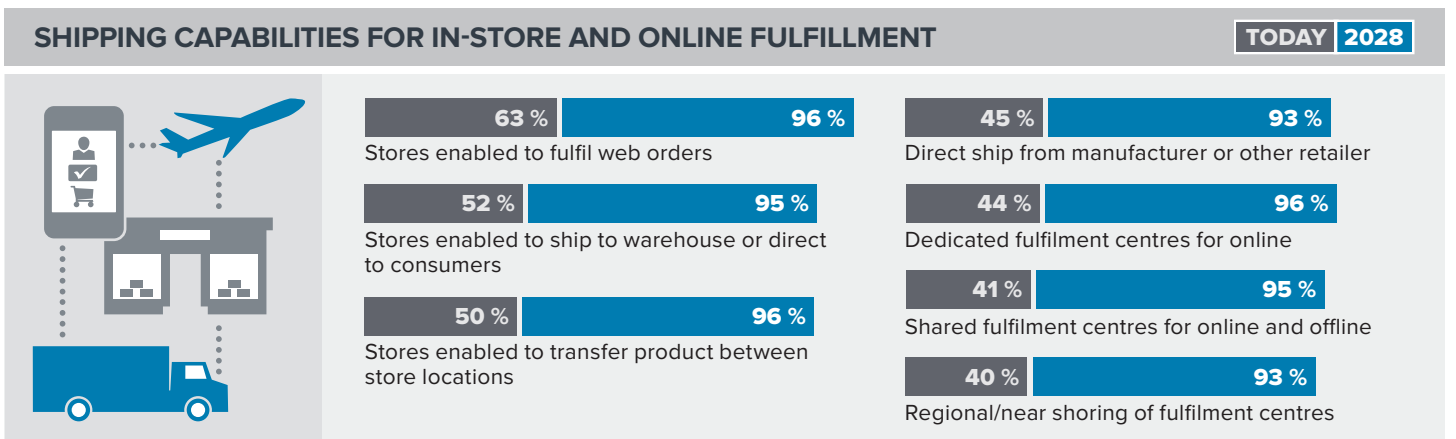# CHANGING ROLES AND INCREASING COLLABORATION

A new phenomenon is occurring in the retail sector as it shifts to serve its omnichannel consumer base. In a quest to boost online fulfilment performance and get their digital-physical profit model right, retailers are leveraging one of their greatest assets: their fleet of stores. At the same time, manufacturers are updating their systems to accommodate both bulk and SKU-level shipping so that they too can serve consumers directly.
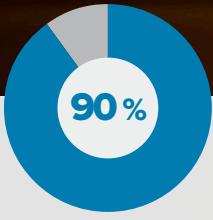
Merchants are diving into "ship from store," retrofitting locations to double as online fulfilment centres and shrinking selling space to accommodate e-commerce pickups and returns. The study revealed that 76 % of retailers use store inventory to fill online orders, and six out of 10 expect that to grow. In fact, some of the biggest retailers now fill digital orders from every one of their brick-and-mortar locations.

The strategy taps stores to fulfil digital purchases to defray the high transportation costs of online orders, which have been eating into retail profit margins. By offering click and collect (buy online pickup in store) retailers skirt the cost of delivering to shoppers' homes, while encouraging add-on sales. That's because consumers that come in to pick up their digital order often end up making impulse purchases.

Industry leaders are also calculating that a network of stores can get digital orders faster and more efficiently to the consumer than a handful of centralised warehouses. This is particularly critical amid the growing consumer expectation for same day and even two-hour delivery. Optimising the distribution network is key to omnichannel success.

Meeting the unfolding demands of the omnichannel retail landscape is also fostering newfound collaborations between manufacturers and retailers. Suppliers are increasingly drop-shipping merchandise directly to consumers for their retail partners' online operations. The study revealed that worldwide 32 % of retailers request drop ship from manufacturers and 73 % of manufacturers expect this to increase up to 10 % over the next five years.

SHIPPING CAPABILITIES FOR IN-STORE AND ONLINE FULFILLMENT TODAY 2028

	TODAY	2028
Stores enabled to fulfil web orders	63 %	96 %
Stores enabled to ship to warehouse or direct to consumers	52 %	95 %
Stores enabled to transfer product between store locations	50 %	96 %
Direct ship from manufacturer or other retailer	45 %	93 %
Dedicated fulfilment centres for online	44 %	96 %
Shared fulfilment centres for online and offline	41 %	95 %
Regional/near shoring of fulfilment centres	40 %	93 %

90 % of respondents agree that delivery is an extension of a retailer's brand

THE DELIVERY RESURGENCE: THE NEED FOR SPEED

E-commerce and an "I-want-it-now" instant-gratification mindset are feeding the consumer craving for faster and faster delivery. Industry players are feverishly working to fulfil that demand and still turn a profit — a challenge given the high cost of transporting goods.

EXPECTED DELIVERY WINDOW FOR FUTURE SAME-DAY ORDERS

32 %
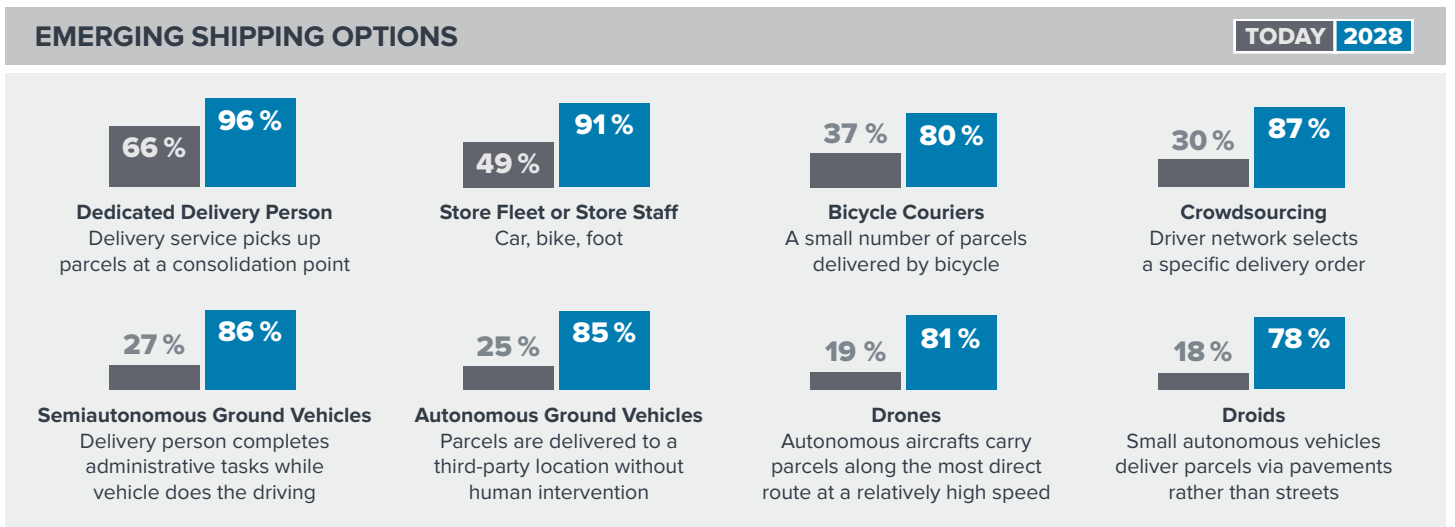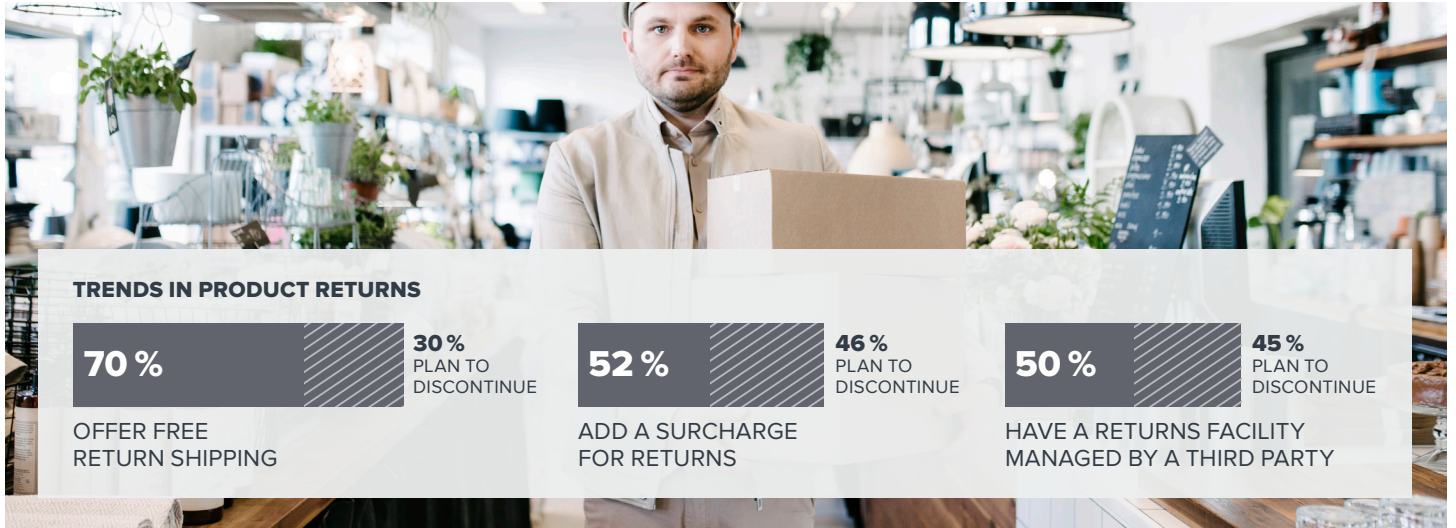2 hours or less

44 %
3 to 4 hours

24 %
5+ hours

Decision makers are testing a vast array of delivery strategies to trim time, distance and cost from shipping orders. Retailers are offering curbside pickup, warehouse pickup and merchandise pickup at third-party locations such as parcel shops and lockers. And tech startups like Instacart, Qourier and UberRush have entered the fray to speed fulfilment.

Solving the delivery challenge has given rise to a crowdsourcing model whereby retailers, manufacturers,

logistics companies and technology newbies are working collaboratively to get products in the hands of shoppers faster. That comes as little wonder, as some of the world's biggest retailers are increasing their same-day delivery capabilities to compete with online retailing giants. Within five years, 78 % of logistics companies surveyed expect to provide same-day delivery and in 10 years 39 % anticipate delivery within a two-hour window.

For brands, speed stokes loyalty amongst time-starved shoppers. Today's buyers have come to value companies that offer delivery perks such as the ability to track a purchase and text notifications alerting them that their order "is just four minutes away!" Importantly, more decision makers view merchandise delivery as an extension of the retailer's brand in the customer experience.

EMERGING SHIPPING OPTIONS

TODAY | 2028

66 % **96 %**
Dedicated Delivery Person
Delivery service picks up parcels at a consolidation point

49 % **91 %**
Store Fleet or Store Staff
Car, bike, foot

37 % **80 %**
Bicycle Couriers
A small number of parcels delivered by bicycle

30 % **87 %**
Crowdsourcing
Driver network selects a specific delivery order

27 % **86 %**
Semiautonomous Ground Vehicles
Delivery person completes administrative tasks while vehicle does the driving

25 % **85 %**
Autonomous Ground Vehicles
Parcels are delivered to a third-party location without human intervention

19 % **81 %**
Drones
Autonomous aircrafts carry parcels along the most direct route at a relatively high speed

18 % **78 %**
Droids
Small autonomous vehicles deliver parcels via pavements rather than streets

TRENDS IN PRODUCT RETURNS

70 %	30 % PLAN TO DISCONTINUE
OFFER FREE RETURN SHIPPING	

52 %	46 % PLAN TO DISCONTINUE
ADD A SURCHARGE FOR RETURNS	

50 %	45 % PLAN TO DISCONTINUE
HAVE A RETURNS FACILITY MANAGED BY A THIRD PARTY	

GRAPPLING WITH RETURNS

The rising consumer demand for free and fast product delivery correlates with a surge in product returns. Fulfilment and returns go hand in hand; they represent the two halves of the supply chain. While fulfilment means bringing products to market, returns flow the product in reverse back through the supply chain.

87 %

of respondents agree accepting and managing returns is a challenge

58 %

of retailers plan to employ third-party facilities to manage returns

Handling product returns is not a new challenge for retailers and brands, but it's become an infinitely bigger concern in an omnichannel marketplace. It is also extraordinarily costly and is eating into already pressured profit margins: Worldwide, shoppers return an estimated $642.6 billion in goods each year.[5]

Managing returns efficiently and cost effectively is a challenge that retailers must take on. Shoppers increasingly expect free returns, and a hassle-heavy return process turns off 80 % of shoppers, according to a ComScore Study.[6]

Still, reverse logistics capabilities remain underdeveloped and significant opportunities for improvement remain, the Zebra

study revealed. Many retailers seem uncertain as to how to improve their processes. In fact, 68 % of surveyed retailers agree that returns for online orders are a challenge with two out of 10 viewing it as a significant challenge.

Merchants are increasingly exploring new models to offset the costs of returns. The study uncovered that 52 % of retail respondents add a surcharge for returns today and 54 % have no plans to change this in the future. Of the 48 % of merchants that do not currently add a surcharge for returns, more than half plan to do so in the future.

Decision makers are testing solutions such as leveraging the store as a product returns hub. A resounding 70 % of surveyed executives agree that more retailers will turn stores into fulfilment centres that accommodate product returns. According to the study, the majority of retailers that currently do not offer free shipping, free returns or same-day delivery plan to do so and expect to engage third-party firms to manage the returns process in the future.

68 % of retailers globally ranked returns of online orders as a challenge

BY REGION

83 %	74 %	66 %	51%
LATIN AMERICA	ASIA PACIFIC	EUROPE	NORTH AMERICA

[5] MarketWatch, *Consumers Return $642.6 Billion in Goods Each Year;* [6] RetailNext, *The Real Cost of Returns for Retailers*

ENABLING INTELLIGENT FULFILMENT

Supply chain decision makers worldwide are investing in an array of tools to streamline omnichannel merchandise fulfilment. Solutions range from edge technologies – which automate worker tasks such as picking and sorting merchandise at a distribution centre – to demand forecasting and planning applications that boost the accuracy of revenue forecasts and better align inventory levels via data analytics.

MOVING FROM MANUAL TO DIGITAL

TODAY **2028**

HANDHELD COMPUTERS WITH BUILT-IN BARCODE SCANNERS
- 64 %
- 97 % +33 %

HANDHELD BARCODE SCANNERS
- 59 %
- 97 % +38 %

TABLETS
- 55 %
- 95 % +40 %

BARCODE LABEL, THERMAL PRINTERS
- 49 %
- 95 % +46 %

WEARABLE MOBILE COMPUTERS
- 44 %
- 93 % +49 %

VEHICLE-MOUNTED MOBILE COMPUTER
- 36 %
- 91 % +55 %

RFID-BASED INVENTORY MANAGEMENT SYSTEM
- 33 %
- 91 % +58 %

In two to three years, tablets and handheld mobile computers with barcode scanners will top the devices used for omnichannel logistics. The shift marks an upgrade from manual systems, such as pen and paper spreadsheets for inventory validation, to handheld mobile devices that offer real-time access to warehouse management systems.

Not surprisingly, supply chain executives are outfitting workers with mobile computers that enable quick, automated inventory and cycle counting. They also grant them on-demand inventory lookup and product information to fulfil orders no matter where a shopper purchase originates — a physical store or a smartphone — from wherever the inventory resides — in the retail stock room, fulfilment centre at the manufacturer or on a delivery truck. This in-the-moment inventory visibility enables nimble omnichannel order fulfilment from any link in the supply chain.

Meanwhile, radio-frequency identification (RFID) technology and inventory management platforms are expected to grow the most in the next few years. RFID-enabled software, hardware and tagging solutions offer up-to-the-minute, item-level inventory lookup, heightening inventory accuracy while reducing out of stocks, overstocks and replenishment errors.

Additionally, demand forecasting and planning as well as workforce management tools are being implemented today by 50 % of logistics companies surveyed. What's more, workforce management technologies will also see a rise in investments in the next year by 32 % of the same firms.

WORKFORCE MANAGEMENT TOOLS ON THE RISE

	TODAY	2028
Demand forecast planning	55 %	97 %
Labour workforce management	48 %	98 %
Freight document handling and archiving	48 %	98 %
Transportation management system	45 %	97 %
Warehouse management system	44 %	97 %
Tracking and event management	41 %	96 %
Inventory planning and management	40 %	97 %
Route optimisation and scheduling	39 %	97 %
Sensors and monitoring	37 %	96 %
Network optimisation system	37 %	97 %
Electronic interfaces with carriers	36 %	98 %
Electronic interfaces with shippers	35 %	98 %
Yard management system	34 %	94 %

EXPECTED REWARDS FROM TECHNOLOGY INVESTMENTS

1 Lower supply chain management risks

2 Improved transport routing, transport mode selection

3 Reduced labour costs through automation

4 Shorter delivery times without increasing inventories

NEXT-GENERATION SUPPLY CHAIN TECHNOLOGIES

In the digital economy, manual processes left over from the pre-Internet era continue to vanish from warehouse and fulfilment operations. Decision makers looking to the future said next-generation supply chains will reflect connected, business-intelligence and automated solutions suited to the on-demand, omnichannel landscape.

E-commerce has given way to a dramatic rise in distribution centres and warehousing operations placing enormous pressure on the already scarce supply of skilled labour resources. To counteract the labor concerns, supply chain decision makers are forecasting that automation will offset the shortages. Survey executives identified the most highly disruptive technologies as drones, driverless/autonomous vehicles and augmented reality.
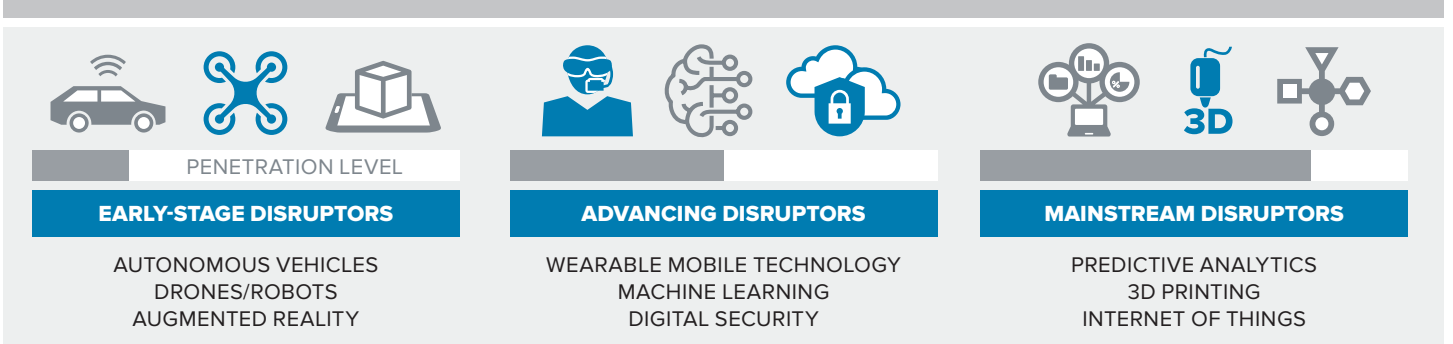
Next-generation supply chains will utilise robotics and automation to perform traditionally manual tasks such as picking, sorting, inspecting, storing, handling and classifying products to improve overall efficiency, worker productivity and speed to market. Some warehouses are turning to autonomous vehicles to bring merchandise to sortation and packing areas. Others are using drones and RFID for inventory management. The opportunities are seemingly limitless and include wearable

technology, which enables truly hands-free, multi-modal workflows that result in greater worker efficiency and increased productivity. The market for enterprise wearable devices is expected to skyrocket with projected growth of 75 % by 2021.[7]

Interestingly, while supply chain executives have highlighted key disruptors, they seem to be taking a wait-and-see approach when it comes to actually investing. Indeed, these technologies are being implemented more as tests to determine their return on investment rather than a full-scale rollout.

Industry players also face the challenge of managing these next-generation technologies across the many moving parts of the supply chain for an effective omnichannel strategy, while implementing them to work seamlessly with existing legacy systems — which is no easy feat.

TRANSFORMATIVE TECHNOLOGY DISRUPTORS

PENETRATION LEVEL

EARLY-STAGE DISRUPTORS	ADVANCING DISRUPTORS	MAINSTREAM DISRUPTORS
AUTONOMOUS VEHICLES DRONES/ROBOTS AUGMENTED REALITY	WEARABLE MOBILE TECHNOLOGY MACHINE LEARNING DIGITAL SECURITY	PREDICTIVE ANALYTICS 3D PRINTING INTERNET OF THINGS

NEW TECHNOLOGY IMPLEMENTATION CHALLENGES

DIFFICULTY IN DEPLOYING, INTEGRATING AND MANAGING NEW TECHNOLOGY | INTERNAL COORDINATION STRATEGY | DETERMINING ROI OF NEW TECHNOLOGY | SAFETY AND TRAINING | REGULATORY REQUIREMENTS

REGIONAL FINDINGS

Industry decision makers worldwide view the growing omnichannel landscape as driving the need for merchandise delivery and fulfilment processes upgraded by digitally-enabled automation, merchandise visibility and business intelligence. But their areas of need and focus vary by region.

85 %
rank drones as one of the most disruptive technologies

ASIA PACIFIC

In Asia Pacific, 95 % of respondents rated e-commerce as the driving need for faster delivery. The region expects to implement same day delivery faster than any other continent and nearly 30 % consider returns for online orders as a significant challenge. Drones were ranked by 85 % of those surveyed as one of the most important disruptive technologies.

EUROPE

European retailers are increasingly turning to separate facilities to handle online orders and returns. Currently, 52 % of merchants surveyed employ third-party logistics firms to handle the complex task of returns. By 2028, dedicated fulfilment centres are expected to grow by over 110 % with 93 % of retailers planning to employ them for online orders. A clear majority of respondents (68 %) view digital security as a disruptive technology.

52 %
of retailers employ third-party logistics firms to handle returns

93 %
agree pressure to reduce environmental impact is growing

LATIN AMERICA

In Latin America, 93 % of executives agreed that they are facing increasing pressure to reduce the environmental impact of e-commerce caused by reliance on paper-based systems and the surge in the number of delivery vehicles. The region is embracing RFID solutions to enable omnichannel logistics more dramatically than most regions with respondents expecting penetration rates to skyrocket by 2028 for active RFID (95 %), Infrared + RFID (91 %) and passive RFID (86 %).

NORTH AMERICA

In the United States and Canada, manufacturers, logistics companies and merchants ranked current inventory accuracy at 74 % and reported needing to be at 83 % to handle the rise of omnichannel logistics. Only 44 % of companies provide same-day service today trailing all other regions. A resounding 83 % classified driverless/autonomous vehicles as disruptive to the industry.
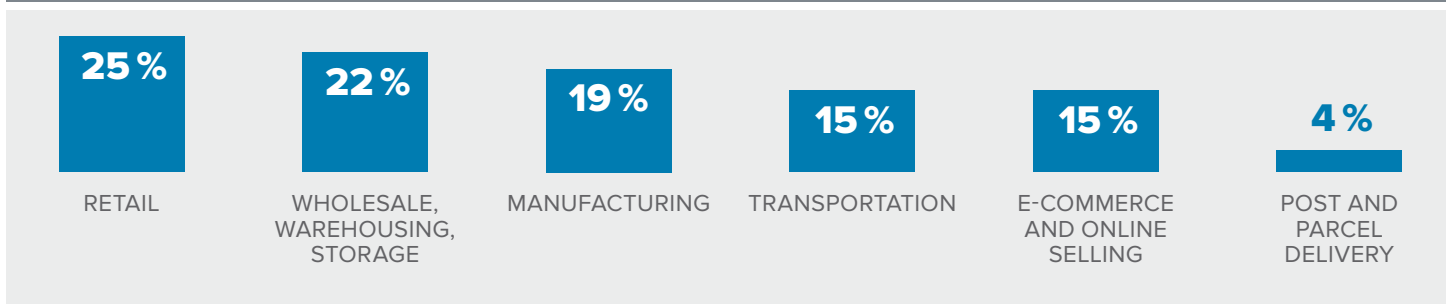
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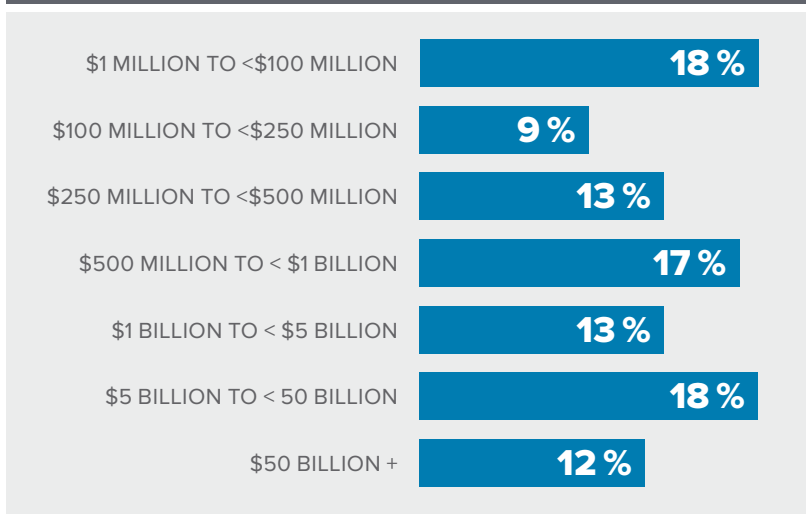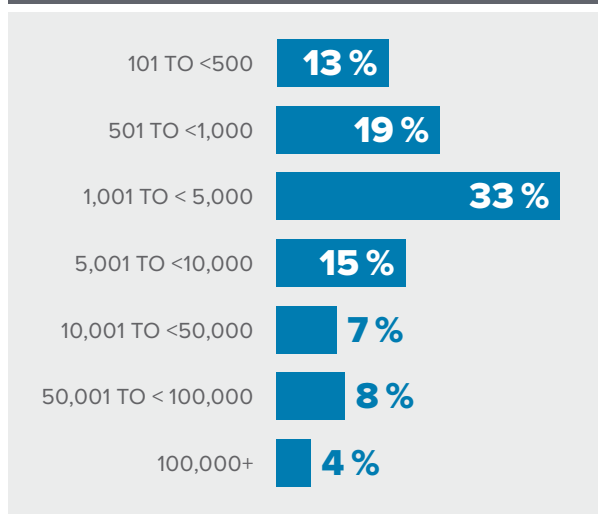
ABOUT THE STUDY

RESPONDENTS BY GEOGRAPHY

26 %

NORTH AMERICA
(Canada, United States)

27 %

EUROPE
(France, Germany, Italy, Russia,
Spain, United Kingdom)

22 %

LATIN AMERICA
(Brazil, Chile,
Colombia, Mexico)

26 %

ASIA PACIFIC
(Australia, China,
India, New Zealand)

BY INDUSTRY

25 %	22 %	19 %	15 %	15 %	4 %
RETAIL	WHOLESALE, WAREHOUSING, STORAGE	MANUFACTURING	TRANSPORTATION	E-COMMERCE AND ONLINE SELLING	POST AND PARCEL DELIVERY

BY REVENUE

$1 MILLION TO <$100 MILLION	18 %
$100 MILLION TO <$250 MILLION	9 %
$250 MILLION TO <$500 MILLION	13 %
$500 MILLION TO < $1 BILLION	17 %
$1 BILLION TO < $5 BILLION	13 %
$5 BILLION TO < 50 BILLION	18 %
$50 BILLION +	12 %

BY NUMBER OF EMPLOYEES

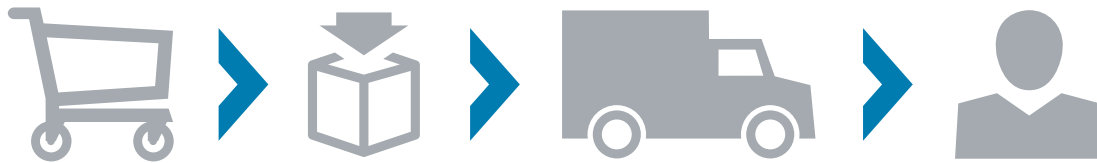|	
101 TO <500	13 %
501 TO <1,000	19 %
1,001 TO < 5,000	33 %
5,001 TO <10,000	15 %
10,001 TO <50,000	7 %
50,001 TO < 100,000	8 %
100,000+	4 %

GEARING UP FOR
NEXT-GENERATION SUPPLY CHAINS

Surviving and thriving amid the global, digital shopping revolution, in which consumers fluidly browse and buy from their smartphones, computers and in store, calls for a supply-chain makeover.

Pressed to offer consumers fast, flexible and even free product fulfilment and delivery in an omnichannel retail landscape, a crowdsourced, collaborative model is taking shape. Traditional roles are blurring as logistics companies, manufacturers and retailers work to meet the growing on-demand economy via the adoption of business-intelligence supply chain technologies.

In turn, stores are increasingly doubling as distribution centres that fulfil online orders; logistic companies are starting to provide fulfilment and distribution services; and manufacturers are drop-shipping merchandise to expedite retail deliveries. Merchants are also partnering with third-party technology upstarts to speed last-mile delivery.

These next-generation supply chain systems and practices are designed to ensure that merchandise fulfilment is scalable in an omnichannel marketplace.

ABOUT ZEBRA TECHNOLOGIES

Zebra provides unparalleled operational visibility to give enterprises the digital edge they require to thrive in an omnichannel landscape.

For more information, please visit us on the web.
Transportation and Logistics: www.zebra.com/tl
Manufacturing: www.zebra.com/manufacturing
Retail: www.zebra.com/retail