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E-COMMERCE OUTLOOK 2021:
Assessing COVID-19's
Impact on Order Fulfillment

New report reveals the far-ranging impacts that the global pandemic has had on order fulfillment for warehouse and DC operators nationwide and how organizations are dealing with them.

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Introduction

When COVID-19 emerged in early-2020, it immediately began taking a steep toll on human life, livelihoods, businesses, and entire economies. As people around the world struggled to adapt to this "new normal" that had infiltrated their lives, many of them dramatically changed the way they shop for products, stock their pantries and even enjoy their favorite restaurants. Almost overnight, trips to the local mall, quick stops at the grocery store and in-person dining became potential health threats to be avoided when possible.

While no one could predict the longevity of the global pandemic when it reared its ugly head it's now clear even slight shifts in how consumers are engaging with online and of-fline merchants translate into tectonic changes on the order fulfillment front. As evidenced by the uptick in e-commerce sales—and the subsequent scramble to fulfill and ship the growing volume of direct-to-consumer orders—adapting to these unanticipated variations takes a combination of people, technology and automation (not to mention a strong dose of determination).
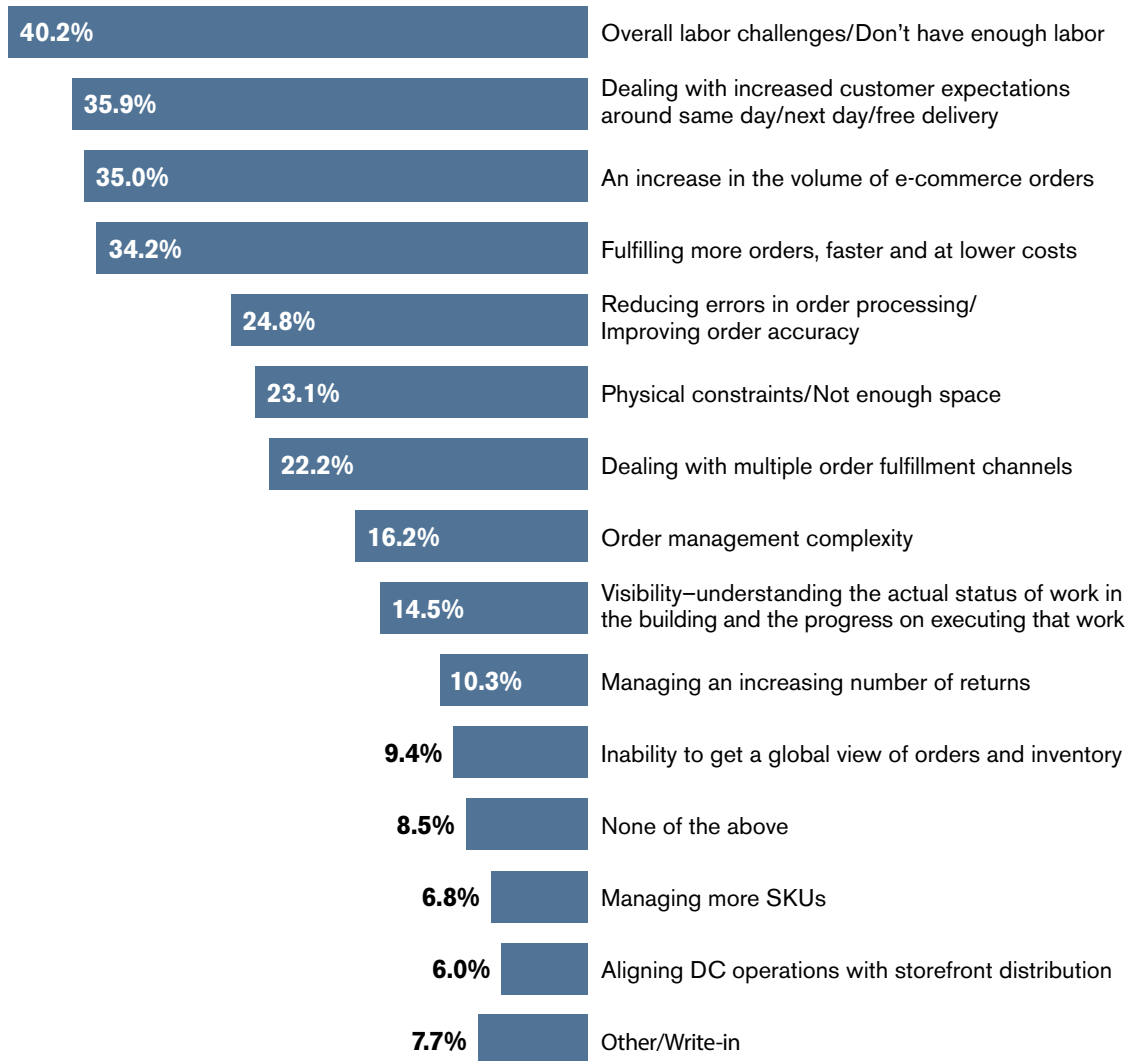
To learn more about the impacts of COVID-19 on fulfillment, current priorities and future plans for companies as we move further into 2021, Peerless Research Group conducted a reader survey on behalf of *Modern Materials Handling* for Kardex Remstar. This study was executed in December 2020, and was admin-istered via e-mail among subscribers to MMH.

Respondents were pre-qualified for being involved in decisions regarding warehouse and/or distribution center (DC) operations. The survey garnered 200 responses from a variety of industries, including fabricated metals, food, beverage, and tobacco, aero-space, computers and electronics, electrical equipment and industrial machinery. Many of the respondents (36.5%) were manufactur-ers, with the balance including wholesalers, third-party logistics companies (3PLs), retailers and e-commerce companies.

With this research, Peerless and Kardex Remstar set out to better understand how COVID-19 has impacted order fulfillment and other critical operations in the DC and warehouse. Here's what they learned about the key, fulfillment-related pain points and how organizations are using technology, automation and other processes to work through these challenges in 2021.

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FIGURE 1

What has been the impact of COVID-19 on your order management, fulfillment and distribution processes?

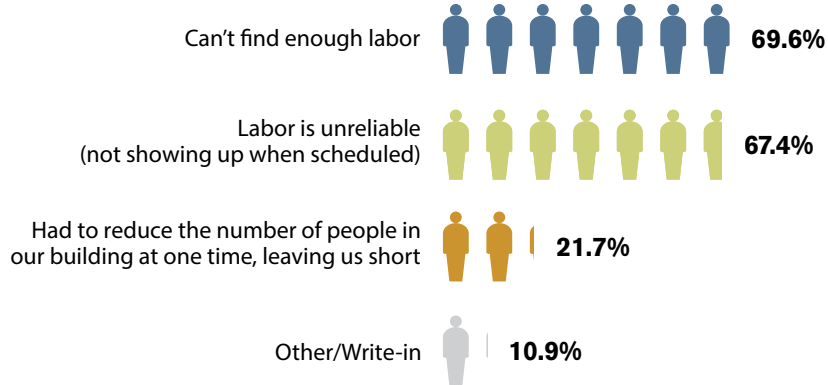|	
40.2%	Overall labor challenges/Don't have enough labor
35.9%	Dealing with increased customer expectations around same day/next day/free delivery
35.0%	An increase in the volume of e-commerce orders
34.2%	Fulfilling more orders, faster and at lower costs
24.8%	Reducing errors in order processing/Improving order accuracy
23.1%	Physical constraints/Not enough space
22.2%	Dealing with multiple order fulfillment channels
16.2%	Order management complexity
14.5%	Visibility—understanding the actual status of work in the building and the progress on executing that work
10.3%	Managing an increasing number of returns
9.4%	Inability to get a global view of orders and inventory
8.5%	None of the above
6.8%	Managing more SKUs
6.0%	Aligning DC operations with storefront distribution
7.7%	Other/Write-in

Tackling the Unknowns Head-On

[Q3] Ever since it emerged in March 2020 and rapidly transformed into a global pandemic, COVID-19 has had numerous impacts on order management, fulfillment and distribution processes across all sectors. The turn of the calendar to 2021 didn't provide much relief for organizations whose supply chains were severely impacted both at the onset of the pandemic and as it encompassed much of the world.

For survey respondents, the biggest immediate challenge brought on by the pandemic was a lack of labor (for 40.2% of companies), followed by increased customer expectations and in particular, for same-day and faster delivery times (35.9%). Thirty-five percent of those surveyed say one of COVID-19's greatest impacts is an increase in the volume of e-commerce orders; the need to fulfill more orders, faster and at lower costs (34.2%); and reducing errors in order processing or improving order accuracy (24.8%).

About 23% of companies say they've been dealing with physical constraints and a lack of physical warehouse/DC space due to COVID-19, while 22.2% say they've been unable to effectively manage multiple order fulfillment channels. According to 16.2% of respondents, order management complexity has been heightened, while others are grappling with a lack of visibility (14.5%), returns management (10.3%) and lack of a global view of orders and inventory (9.4%).

FIGURE 2

What is contributing to your labor challenges?

Can't find enough labor — **69.6%**

Labor is unreliable
(not showing up when scheduled) — **67.4%**

Had to reduce the number of people in
our building at one time, leaving us short — **21.7%**

Other/Write-in — **10.9%**

[Q4] Across many industry verticals, companies have been left shorthanded right at a time when e-commerce order volumes have been going through the roof. With a labor shortage in full effect long before the pandemic emerged, the majority of survey respondents (69.6%) say they simply can't find enough labor right now, while 67.4% say that the labor they do have is unreliable.

Finally, about 22% of companies have had to reduce headcount in their physical facilities due to pandemic-related requirements around social distancing. Other key impacts shared by respondents via write-in answers included the inability to resolve late deliveries, errors on the part of suppliers and increased fulfillment expenses.
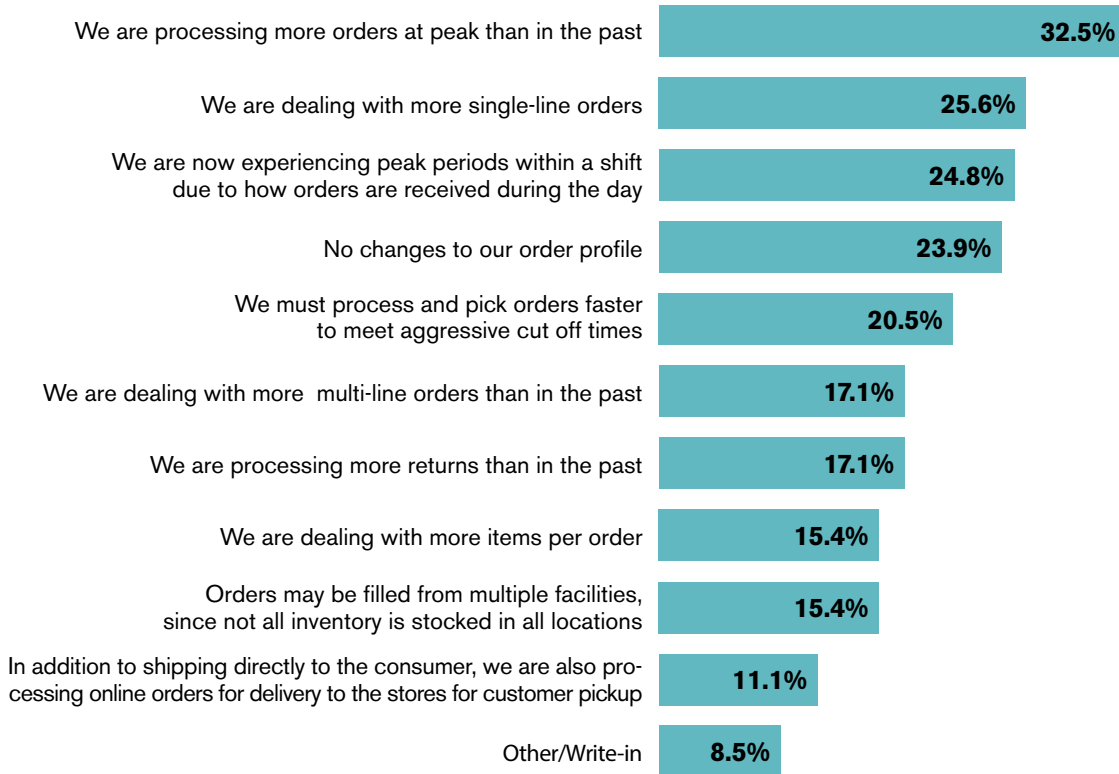
Learn more about Making the Case for Returns Handling

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FIGURE 3

How has your order profile changed because of COVID-19?

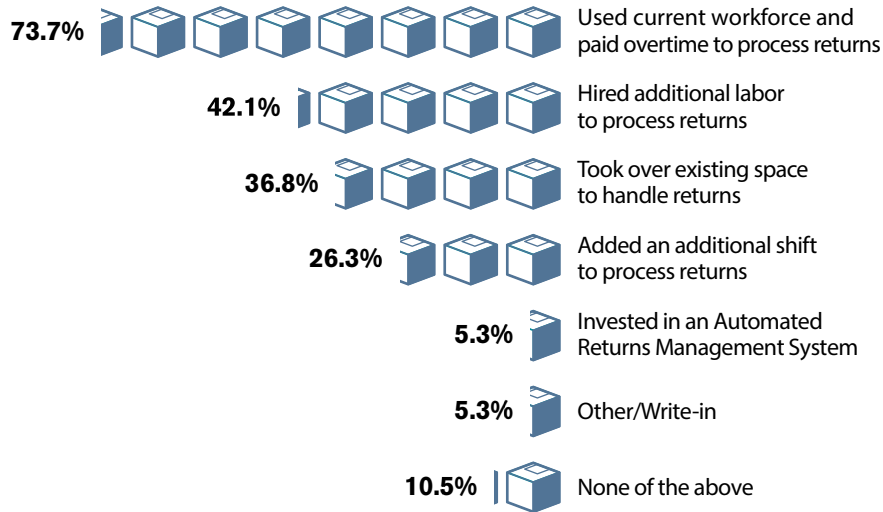|	
We are processing more orders at peak than in the past	**32.5%**
We are dealing with more single-line orders	**25.6%**
We are now experiencing peak periods within a shift due to how orders are received during the day	**24.8%**
No changes to our order profile	**23.9%**
We must process and pick orders faster to meet aggressive cut off times	**20.5%**
We are dealing with more multi-line orders than in the past	**17.1%**
We are processing more returns than in the past	**17.1%**
We are dealing with more items per order	**15.4%**
Orders may be filled from multiple facilities, since not all inventory is stocked in all locations	**15.4%**
In addition to shipping directly to the consumer, we are also processing online orders for delivery to the stores for customer pickup	**11.1%**
Other/Write-in	**8.5%**

Managing Changing Order Profiles

[Q5] Defined as the data that describes the characteristics of outbound orders, order profiles incorporate the total line items per order, order weight, destination, shipment method, and other characteristics that help companies more efficiently manage their fulfillment processes. In 2020, these characteristics pivoted as companies adapted to a higher volume of direct-to-consumer (DTC) orders.

According to the survey, 32.5% of companies are now processing more orders during peak times than they have in the past, 25.6% are dealing with more single-line orders and 24.6% are experiencing peak periods within individual shifts as a result of how orders are received.

Within their four walls, warehouses and DCs are picking up the fulfillment pace at a time when labor is not only more difficult to come by, but where companies must abide by new social distancing rules. According to the survey, 20.5% of companies are processing and picking orders faster in order to meet aggressive cutoff times, while 17.1% say they are dealing with more multi-line orders right now (for 17.1% of firms). Roughly 24% of respondents said they haven't seen any changes to their order profiles.

FIGURE 4

How are you solving the problem of processing more returns than in the past?

73.7%   Used current workforce and paid overtime to process returns

42.1%   Hired additional labor to process returns

36.8%   Took over existing space to handle returns

26.3%   Added an additional shift to process returns

5.3%   Invested in an Automated Returns Management System

5.3%   Other/Write-in

10.5%   None of the above

Keeping Up with Merchandise Returns

[Q6] Return rates remain high in the e-commerce selling environment, where consumers don't have a chance to touch, try on or test out products before those goods are shipped. Surpassing brick-and-mortar return rates even before the pandemic, the rising volume of e-commerce returns correlates directly with the booming online selling environment.

To deal with the increased return volume, 73.7% of respondents rely on their current workforces and pay them overtime to process those returns. About 42% of companies have had to hire additional labor to process returns and 36.8% say they've had to allocate additional space on the warehouse or DC floor to manage these processes. Just over 5% of companies have invested in automated returns management systems to handle the onslaught of returned merchandise, and 26.3% have added additional shifts to manage this process.
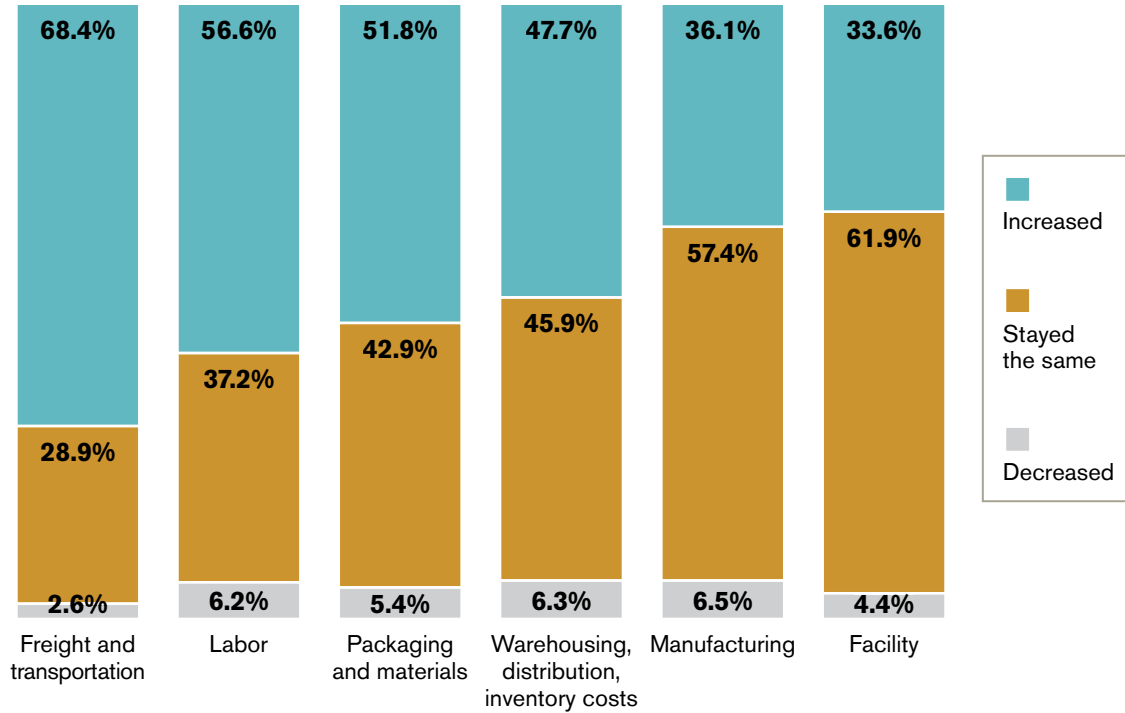
Learn more about Automating Returns Handling

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MAKING THE CASE FOR
IMPROVED RETURNS HANDLING

FIGURE 5

Over the last six months, how have fulfillment costs changed in each of these areas?

	Increased	Stayed the same	Decreased
Freight and transportation	68.4%	28.9%	2.6%
Labor	56.6%	37.2%	6.2%
Packaging and materials	51.8%	42.9%	5.4%
Warehousing, distribution, inventory costs	47.7%	45.9%	6.3%
Manufacturing	36.1%	57.4%	6.5%
Facility	33.6%	61.9%	4.4%

Legend: Increased / Stayed the same / Decreased
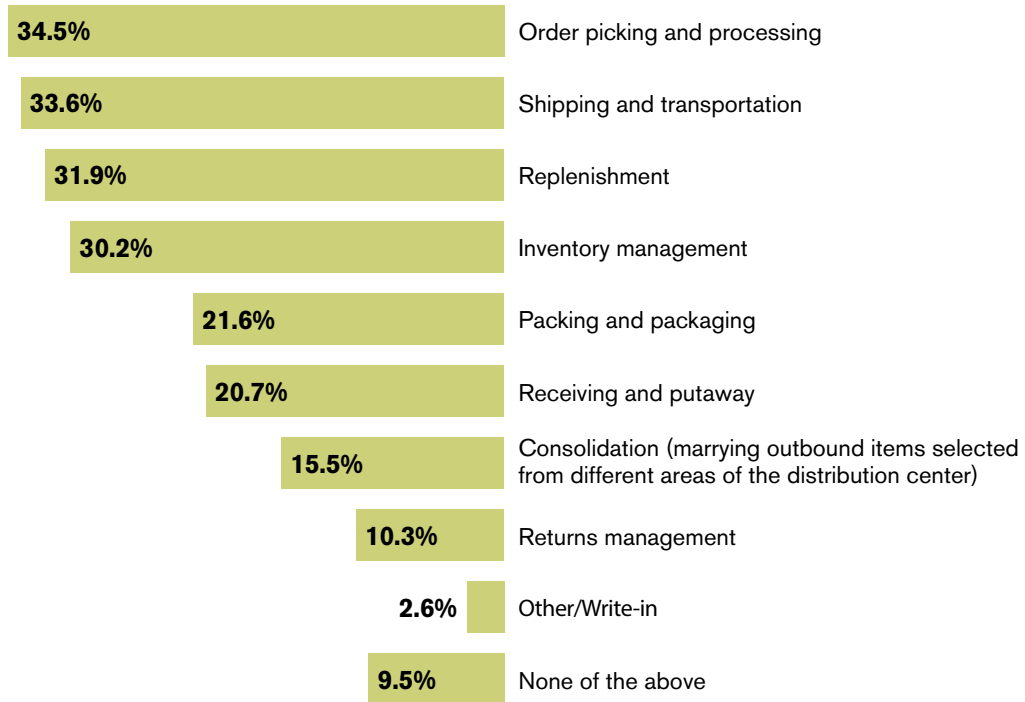
The High Cost of Order Fulfillment

[Q18] The costs of running a fulfillment operation are on the rise for most companies right now. Over the last six months, 68.4% of respondents have seen their freight and transportation costs increase; 56.6% say their labor costs have increased; and 51.8% say their packaging and materials costs have increased. Organizations have also seen increases in warehousing, distribution, and inventory costs (47.7%); manufacturing costs (36.1%); and facility costs (33.6%).

Within the four walls of the warehouse, 61.9% of those surveyed say that their facility costs have remained constant over the last six months. Additionally, 57.4% say their manufacturing costs have stayed the same during that time, while 45.9% say their warehousing, distribution, and inventory costs have remained stable. Other expenses that have remained unchanged include packaging and materials costs (for 42.9% of companies), labor costs (37.2%) and freight and transportation costs (28.9%).

Very few companies have experienced a lower cost of doing business in today's order fulfillment environment. About 6.5% of respondents say they've seen manufacturing costs decrease, while 6.3% have seen decreases in warehousing, distribution and inventory costs. Just 6.2% have seen labor costs go down in the past six months, and only 5.4% have experienced less packaging and materials costs during that time span. Finally, just 4.4% have seen decreased facility costs and 2.6% have experienced a decrease in freight and transportation costs.

FIGURE 6

Where are the delays/bottlenecks in your order fulfillment operations?

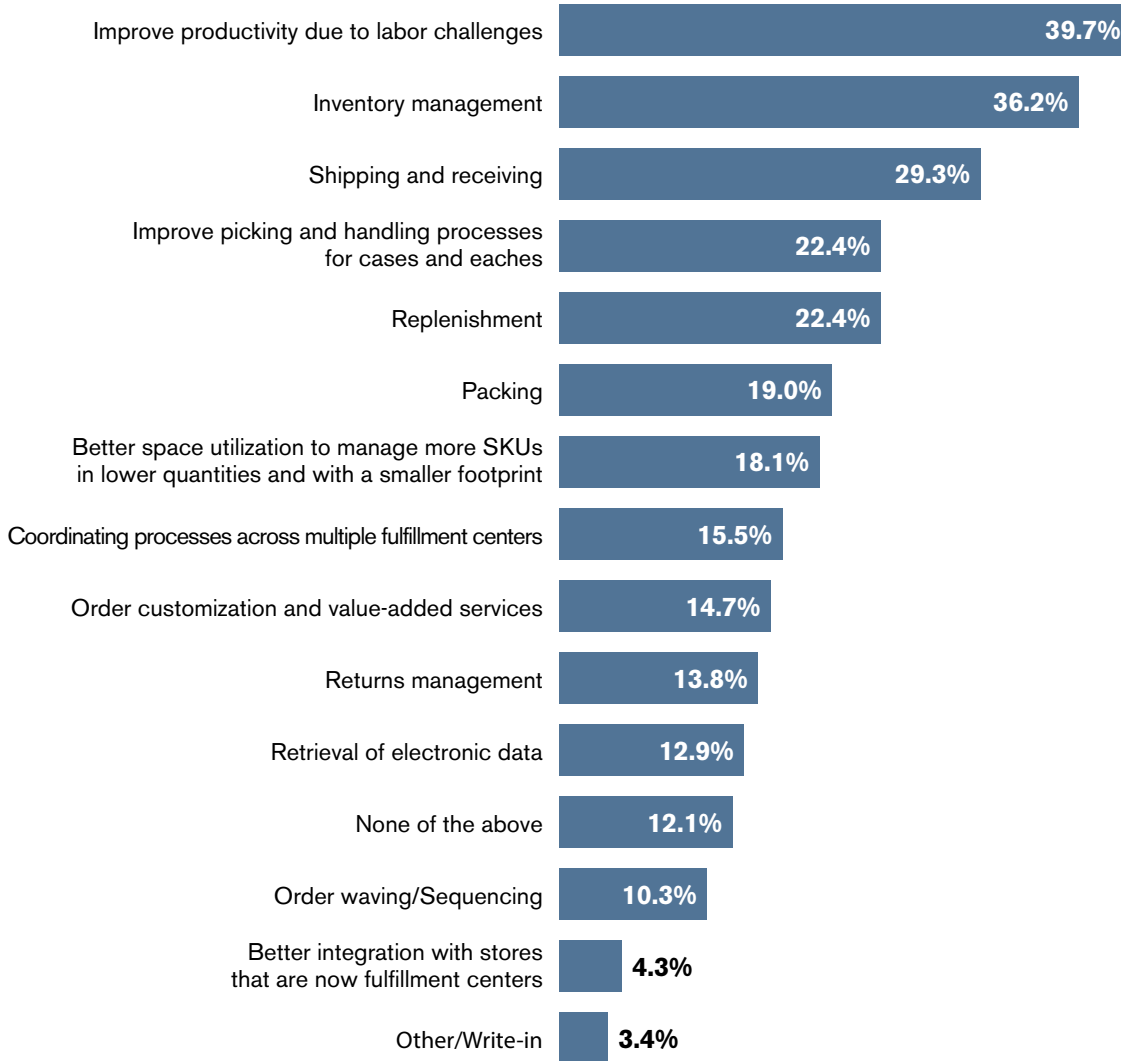|	
34.5%	Order picking and processing
33.6%	Shipping and transportation
31.9%	Replenishment
30.2%	Inventory management
21.6%	Packing and packaging
20.7%	Receiving and putaway
15.5%	Consolidation (marrying outbound items selected from different areas of the distribution center)
10.3%	Returns management
2.6%	Other/Write-in
9.5%	None of the above

Addressing Critical Bottlenecks

[Q9] A crucial part of any product-focused company's operations, order picking and processing can create major delays in order fulfillment operations—a problem cited by 34.5% of survey respondents. Other bottlenecks include shipping and transportation (for 33.6% of companies), replenishment (31.9%) and inventory management (30.2%).

In addition, 21.6% of respondents blame the delays on packing and packaging, while 20.7% believe they are caused by receiving and putaway and 15.5% experience bottlenecks in consolidation. Lastly, 10.3% experience delays due to returns management.

What aspects of your e-fulfillment and distribution operations would you like to improve?

| Category	Percentage
Improve productivity due to labor challenges	39.7%
Inventory management	36.2%
Shipping and receiving	29.3%
Improve picking and handling processes for cases and eaches	22.4%
Replenishment	22.4%
Packing	19.0%
Better space utilization to manage more SKUs in lower quantities and with a smaller footprint	18.1%
Coordinating processes across multiple fulfillment centers	15.5%
Order customization and value-added services	14.7%
Returns management	13.8%
Retrieval of electronic data	12.9%
None of the above	12.1%
Order waving/Sequencing	10.3%
Better integration with stores that are now fulfillment centers	4.3%
Other/Write-in	3.4%

[Q8] When it comes to improving their e-fulfillment and distribution operations, 39.7% of respondents want to improve productivity due to labor challenges, while 36.2% aim to improve their inventory management and 29.3% wish to improve their shipping and receiving processes.

Another 22.4% of respondents say they would like to improve their picking and handling processes, while 22.4% say they wish to improve their replenishment and 19% aim to improve packing processes. Additionally, 18.1% would like to improve their space utilization to manage more SKUs in lower quantities, 15.5% want to better coordinate processes across multiple fulfillment centers and 14.7% wish to improve their order customization and value-added services.

FIGURE 8

**During the next 12 months,
do you intend to invest in automation systems
and technologiesto improve your operations?**

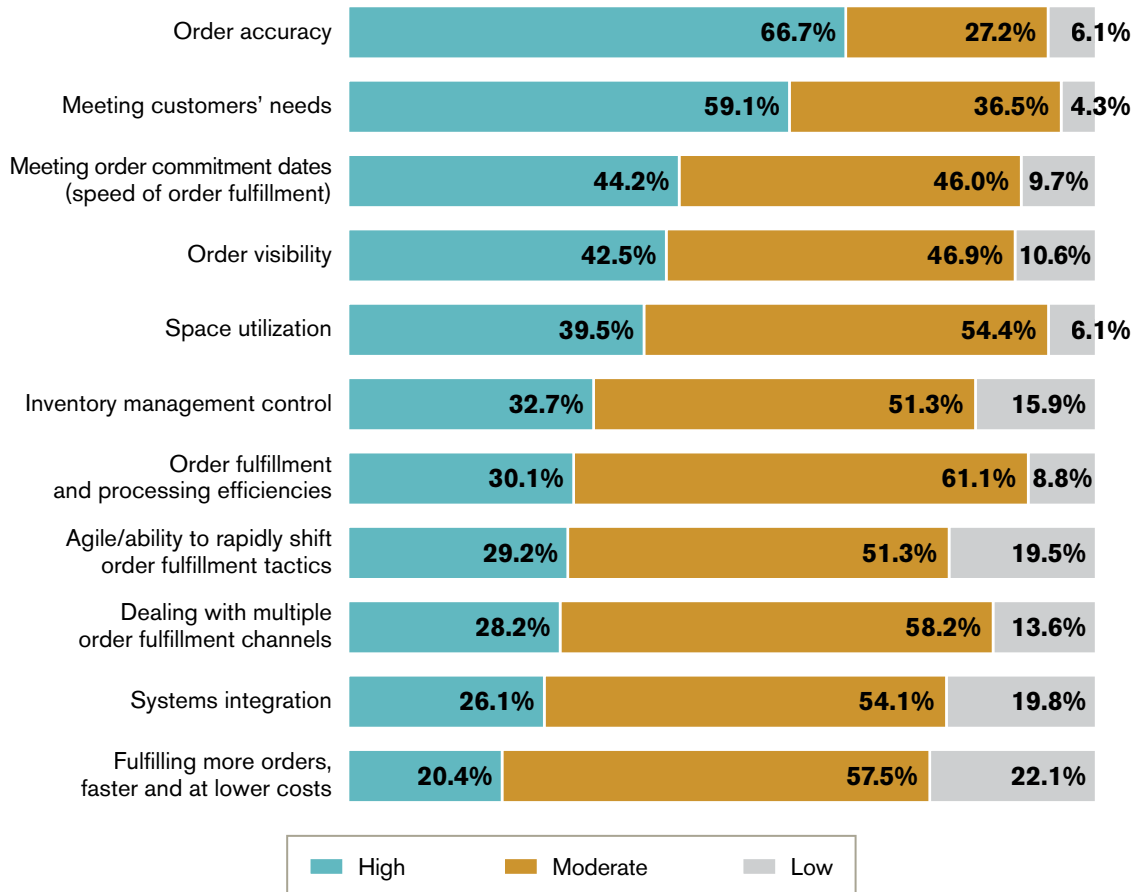Yes **31.0%**

No **40.7%**

Not sure **28.3%**
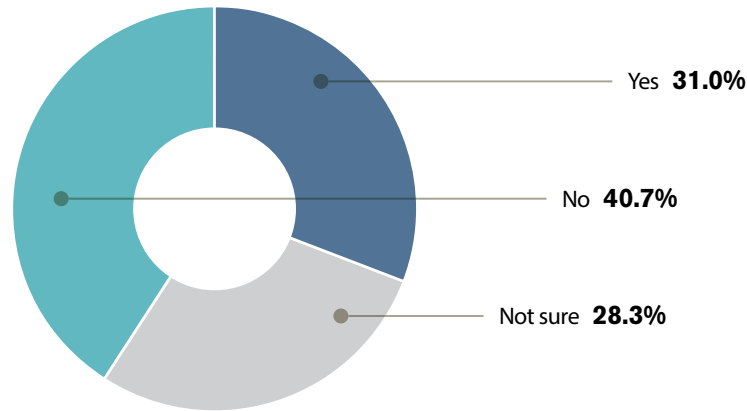
Putting Automation to Work

[Q14] Over the next 12 months, 31% of professionals say they plan to invest in auto-
mation systems and technologies to improve operations, while 41.7% say they do not
plan to do so, and 28.3% say they aren't sure. [Q15] The companies that are investing
in automation are most interested in adding automated packaging (55.9%) to improve
their operations, while 32.4% are considering adding piece picking robots to do so. Other
companies are considering the addition of autonomous mobile robots (26.5%), vertical lift
modules or vertical carousels (20.6%) or additional data collection tools (20.6%). Further-
more, 14.7% are interested in adding shuttle systems to their operations and 5.9% are
considering mini load systems.

For those companies that are striving for improvements in their fulfillment operations,
automated storage and retrieval systems (AS/RS) not only help enhance throughput
and performance, but they also reduce dependence on labor, maximize space utilization
and help companies adhere to social distancing rules on the warehouse or DC floor.
Combined, these benefits translate into significant cost and time savings; improved risk
management; and a more streamlined end-to-end supply chain.

FIGURE 9

How would you rate your fulfillment operations on…

Operation	High	Moderate	Low
Order accuracy	66.7%	27.2%	6.1%
Meeting customers' needs	59.1%	36.5%	4.3%
Meeting order commitment dates (speed of order fulfillment)	44.2%	46.0%	9.7%
Order visibility	42.5%	46.9%	10.6%
Space utilization	39.5%	54.4%	6.1%
Inventory management control	32.7%	51.3%	15.9%
Order fulfillment and processing efficiencies	30.1%	61.1%	8.8%
Agile/ability to rapidly shift order fulfillment tactics	29.2%	51.3%	19.5%
Dealing with multiple order fulfillment channels	28.2%	58.2%	13.6%
Systems integration	26.1%	54.1%	19.8%
Fulfilling more orders, faster and at lower costs	20.4%	57.5%	22.1%

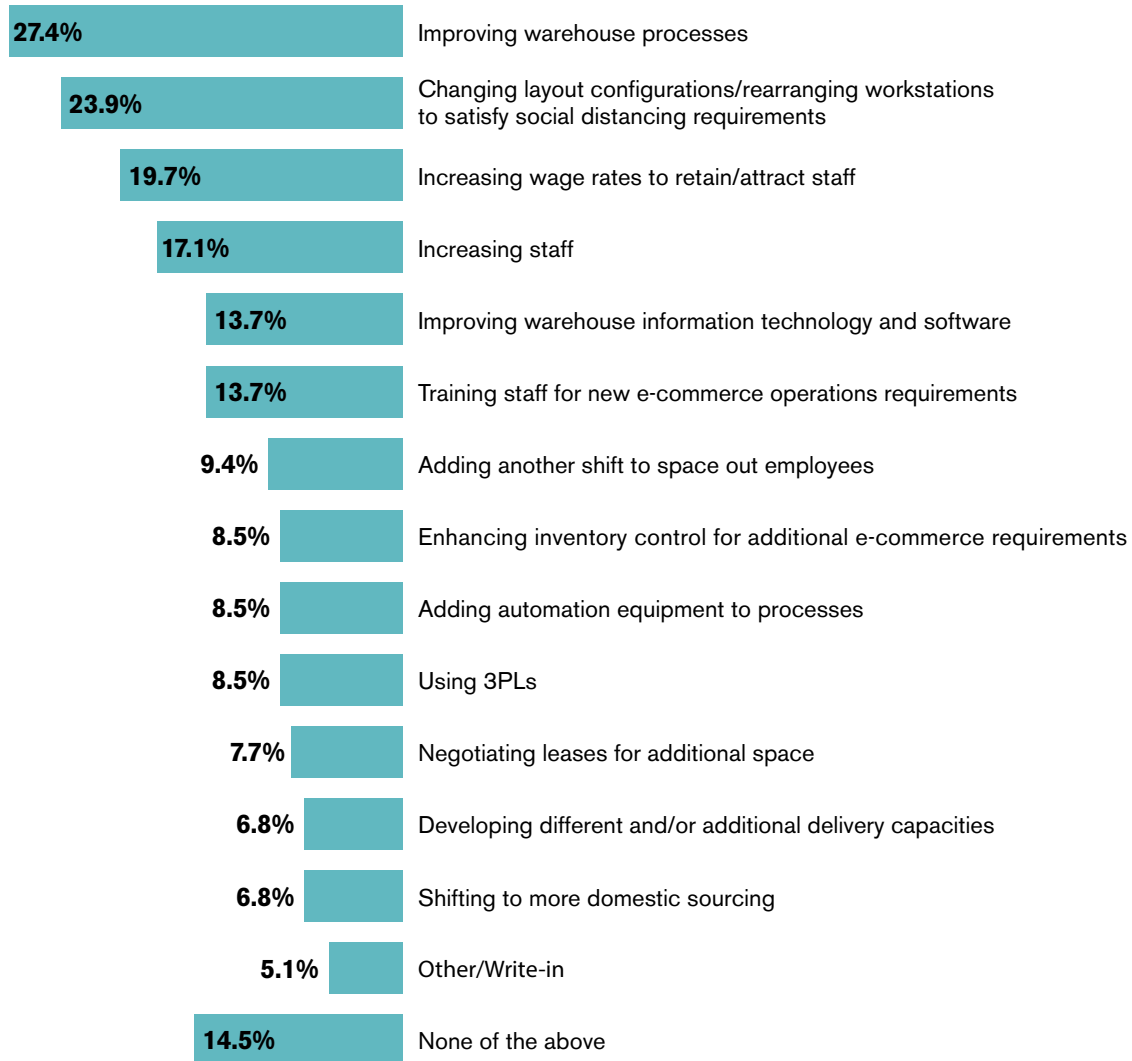Legend: ■ High ■ Moderate ■ Low

Rating their Performance

[Q17] Asked to rate the performance of their existing fulfillment operations, many respondents gave their own companies high marks in areas like order accuracy (66.7%), meeting customers' needs (59.1%), meeting order commitment dates (44.2%) and order visibility (42.5%). Areas where professionals feel they are performing just "moderately" well include order fulfillment and processing efficiencies (61.1%), fulfilling more orders faster and at lower costs (58.2%) and space utilization (54.4%).

Not all respondents were quick to give their companies high marks on the fulfillment performance scale. About 54% of respondents give their companies a "moderate" ranking for systems integration, while 51.3% say they are moderate at inventory management control and 51.3% rate themselves moderate when it comes to their ability to rapidly shift order fulfillment tactics.

The areas where professionals see the most room for improvement include fulfilling more orders faster and lowering costs (22.1%), systems integration (19.8%) and agility (19.5%). Others rated themselves "low" when it comes to dealing with multiple order fulfillment channels (13.6%) and order visibility (10.6%).

FIGURE 10

Since March of this year, what actions have you been taking to adjust operations to accommodate changing requirements due to the pandemic within your fulfillment and distribution operations?

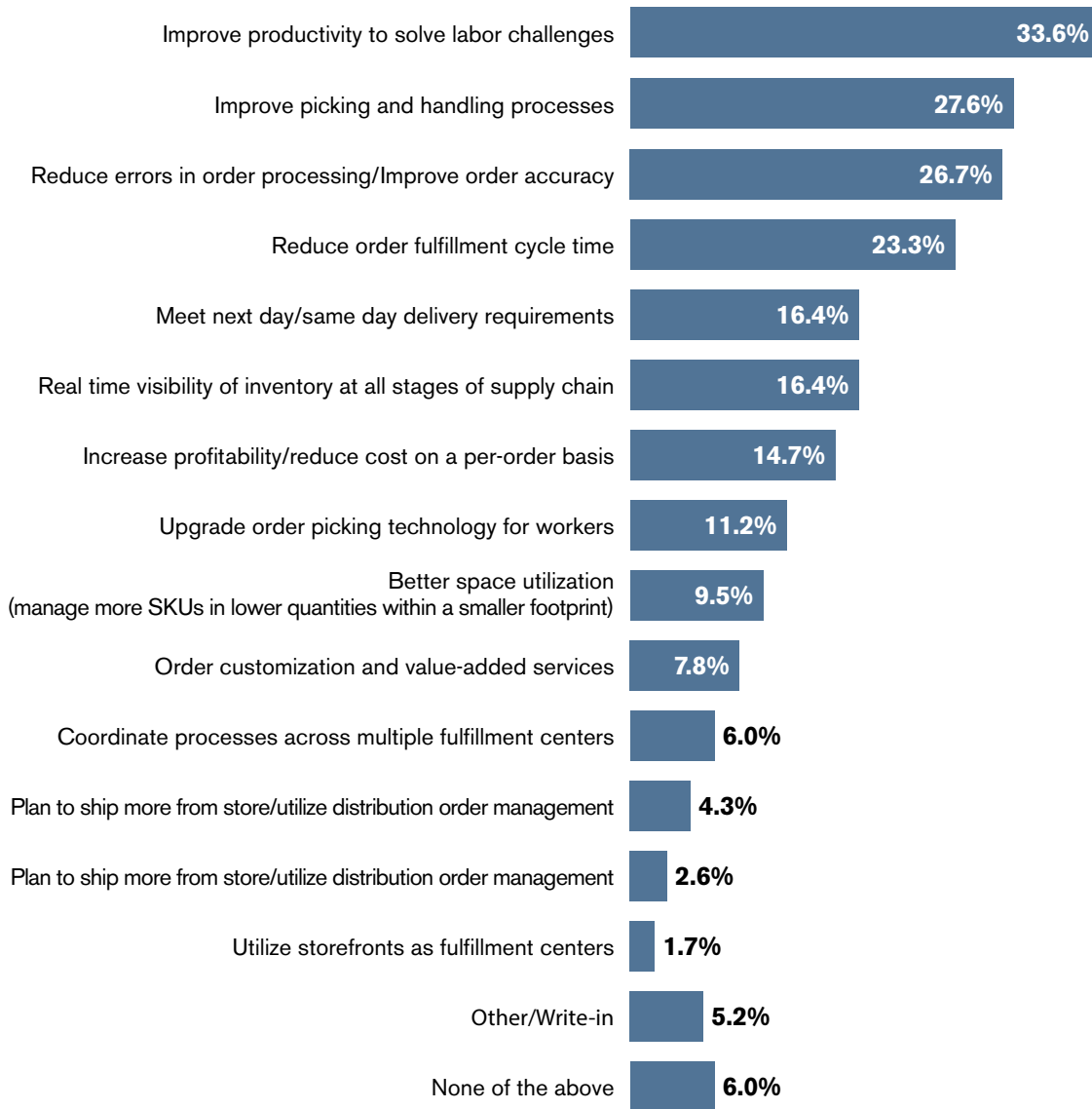|	
27.4%	Improving warehouse processes
23.9%	Changing layout configurations/rearranging workstations to satisfy social distancing requirements
19.7%	Increasing wage rates to retain/attract staff
17.1%	Increasing staff
13.7%	Improving warehouse information technology and software
13.7%	Training staff for new e-commerce operations requirements
9.4%	Adding another shift to space out employees
8.5%	Enhancing inventory control for additional e-commerce requirements
8.5%	Adding automation equipment to processes
8.5%	Using 3PLs
7.7%	Negotiating leases for additional space
6.8%	Developing different and/or additional delivery capacities
6.8%	Shifting to more domestic sourcing
5.1%	Other/Write-in
14.5%	None of the above

Taking Action

[Q10] Since March of 2020, organizations have been adjusting their operations to accommodate changing requirements spurred on by the pandemic, supply chain disruptions and changing customer preferences. Right now, most are improving warehouse processes (27.4%), while others are changing layout configurations or rearranging workstations to satisfy social distancing requirements (23.9%).

Other companies have increased wage rates in order to retain or attract staff (19.7%), increasing staff (17.1%) or improving warehouse information technology and software (13.7%). Additionally, 13.7% of respondents say they're training staff for new e-commerce operations requirements as a result of the pandemic; 9.4% say they're adding another shift to space out employees; and 8.5% are enhancing inventory control for additional e-commerce requirements.

With labor both difficult to find and expensive to retain, more companies are turning to technology and automation for help. According to the survey, 8.5% of firms are adding new automation equipment to processes and an equal percentage have turned to 3PLs for help. Other companies are negotiating leases for additional space (7.7%), developing different and/or additional delivery capacities (6.8%) or shifting to more domestic sourcing (6.8%).

FIGURE 11

During the next 12 months, what will be your top priorities in your e-fulfillment and distribution operations?

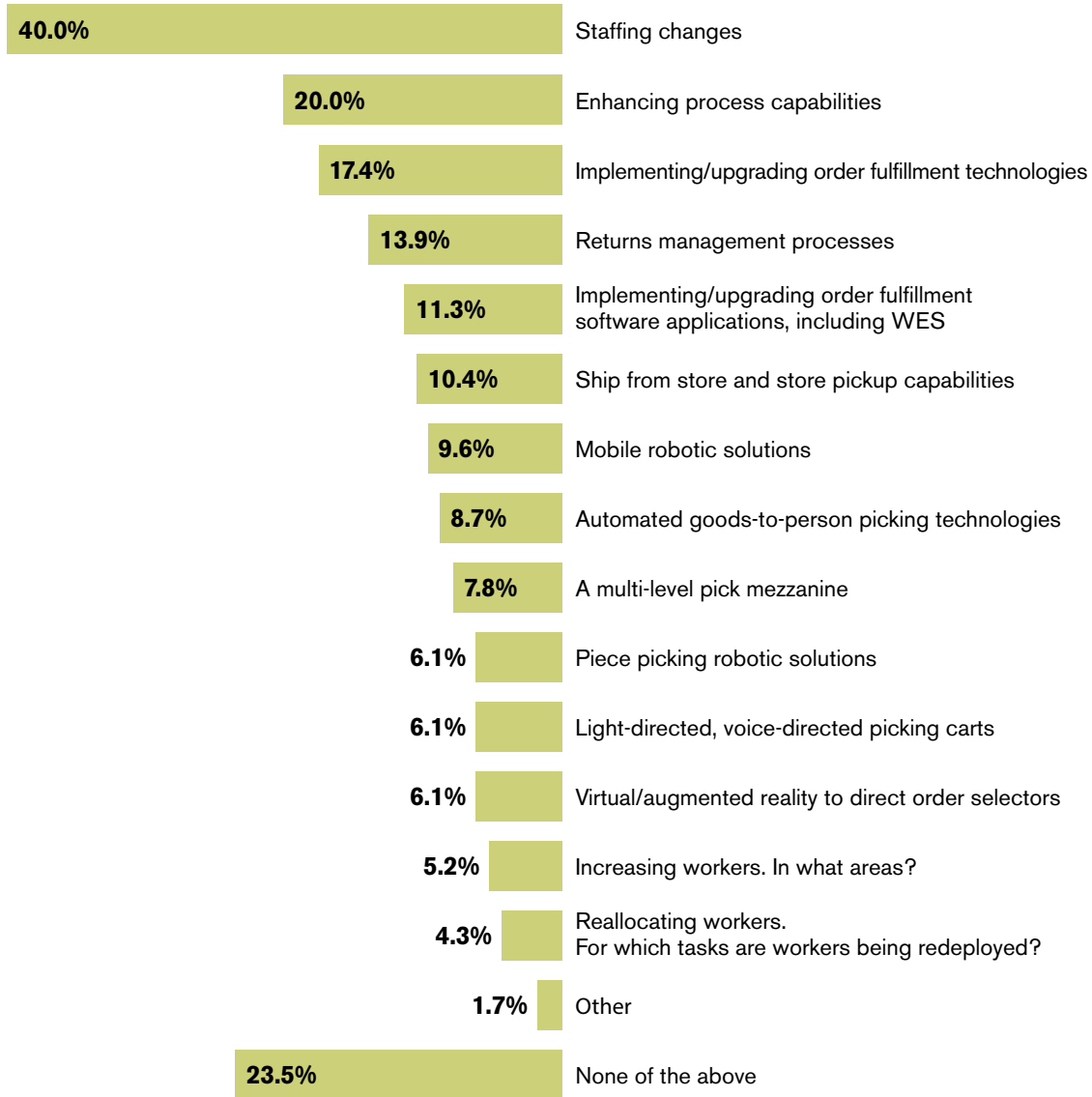| Priority	Percentage
Improve productivity to solve labor challenges	33.6%
Improve picking and handling processes	27.6%
Reduce errors in order processing/Improve order accuracy	26.7%
Reduce order fulfillment cycle time	23.3%
Meet next day/same day delivery requirements	16.4%
Real time visibility of inventory at all stages of supply chain	16.4%
Increase profitability/reduce cost on a per-order basis	14.7%
Upgrade order picking technology for workers	11.2%
Better space utilization (manage more SKUs in lower quantities within a smaller footprint)	9.5%
Order customization and value-added services	7.8%
Coordinate processes across multiple fulfillment centers	6.0%
Plan to ship more from store/utilize distribution order management	4.3%
Plan to ship more from store/utilize distribution order management	2.6%
Utilize storefronts as fulfillment centers	1.7%
Other/Write-in	5.2%
None of the above	6.0%

Top Priorities Ahead

[Q13] As e-fulfillment and distribution operations continue to morph and evolve in 2021, 33.6% of respondents say they'll focus on improving productivity to solve labor challenges, while 27.6% will prioritize picking and handling improvements. For 26.7% of respondents, reducing errors in order processing and improving order accuracy will be key priorities.

Other respondents point to reducing order fulfillment cycle times as a top priority (23.3%), while 16.4% plan to either 1) focus on meeting next day or same day delivery requirements or, 2) create real-time visibility of inventory at all stages of the supply chain. Finally, nearly 15% of companies want to increase their profitability, 11.2% plan to upgrade their order picking technology and 9.5% want to find ways to better utilize their existing physical spaces.

What actions are you taking or evaluating to address order fulfillment and/or distribution challenges because of COVID-19?

40.0%	Staffing changes
20.0%	Enhancing process capabilities
17.4%	Implementing/upgrading order fulfillment technologies
13.9%	Returns management processes
11.3%	Implementing/upgrading order fulfillment software applications, including WES
10.4%	Ship from store and store pickup capabilities
9.6%	Mobile robotic solutions
8.7%	Automated goods-to-person picking technologies
7.8%	A multi-level pick mezzanine
6.1%	Piece picking robotic solutions
6.1%	Light-directed, voice-directed picking carts
6.1%	Virtual/augmented reality to direct order selectors
5.2%	Increasing workers. In what areas?
4.3%	Reallocating workers. For which tasks are workers being redeployed?
1.7%	Other
23.5%	None of the above

Future-Proofing their Fulfillment Operations

[Q16] With organizations continuing to face COVID-related fulfillment and distribution challenges, 40% of survey respondents are implementing staffing changes to help offset these obstacles. Twenty-percent are enhancing process capabilities to overcome these obstacles, while 17.4% are implementing or upgrading their order fulfillment technologies and 13.9% are evaluating their returns management processes.

Other steps that companies plan to take this year include implementing or upgrading order fulfillment software (for 11.3% of companies), and improving both ship-from-store and pick-up capabilities (10.4%). Others firms are exploring mobile robotic solution options (9.6%), automated goods-to-person picking technologies (8.7%) and multi-level pick mezzanines (7.8%).

Additionally, 6.1% are evaluating or taking steps toward implementing piece-picking robotic solutions, while another 6.1% are looking at light-directed and voice-directed picking parts and 6.1% are interested in virtual reality to direct order selectors.

Unlike in years past, adding labor has become a less attractive choice for companies that are trying to balance costs with productivity. About 5.2% of respondents indicated they were interested in increasing workers to overcome their top fulfillment challenges, while 4.3% are considering the reallocation of workers. Of those companies that are hiring, most want to add personnel in areas like picking, packing, shipping and returns.

As companies work to meet current demands while also future-proofing their fulfillment operations, more of them will look for ways to infuse automation into their warehouses and DCs. With the aim of streamlining processes, improve labor utilization, and increasing throughput, the organizations that make this move now will be best positioned for success post-COVID.

ABOUT KARDEX REMSTAR

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