



Warehousing Vision Study 2023

# Making Modern Warehousing a Reality

Executive Summary



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Today's warehouse leaders face ever-increasing demands for **speed and accuracy** while contending with **tighter labor markets**, rising costs and economic uncertainty. Decision-makers are accelerating their investments in technology to **increase efficiency** across the supply chain and future-proof their operations.

**See what the future holds.**

# Keeping an Eye on the Future

Despite headwinds, the global warehousing sector is focused on achieving ambitious goals around connectivity, profitability and operational efficiency.

- The global economic slowdown has created markedly changing conditions for warehouse operations.
- Fluctuating customer demand and shifting regulations make it challenging for warehouses to accurately predict space, labor and inventory requirements.
- Decision-makers are under increasing pressure to improve flexibility and operational efficiency while boosting profitability.
- Forward-thinking leaders are accelerating technology solutions with the goal of becoming increasingly connected.



**\$4.63**  
Million

**\$5.15**  
Million

## Rising Investments in Technology

A growing trend fueling innovation and progress.

Average expenditures for 2022-2023 in US dollars.

2023

2024



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# Keeping an Eye on the Future

## Size and number of facilities slowed but decision-makers expect increases by 2028.

The **global average size** of facilities:

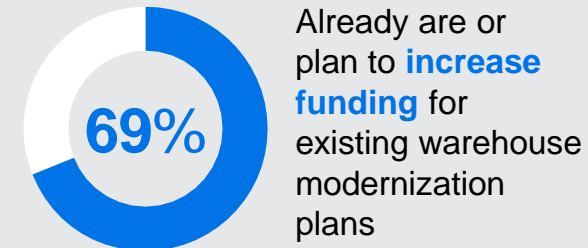
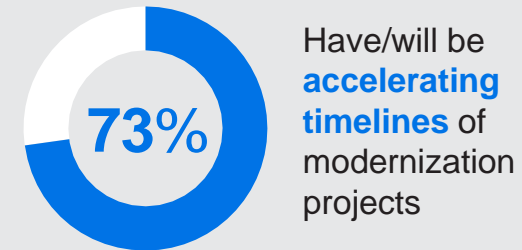


The **global average number** of facilities:



## Modernization plans remain a priority for the immediate future.

Over the next year, global decision-makers:



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# Supply Chain Resiliency and Agility

**Warehouse leaders are investing in technology innovation and intelligent automation to increase inventory visibility and resiliency.**

Decision-makers are:

- Tackling inventory issues and out-of-stocks for better productivity.
- Employing data and analytics to enable dynamic responses to changes in demand, mitigating disruption effects across the warehouse network.
- Improving speed, accuracy, and visibility.
- Deploying sensor-based technology for traceability and automated decision making.



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**Visibility Is Vital to  
Unlocking Improved  
Efficiency**

(Percentage of Decision-Makers)

**82%**

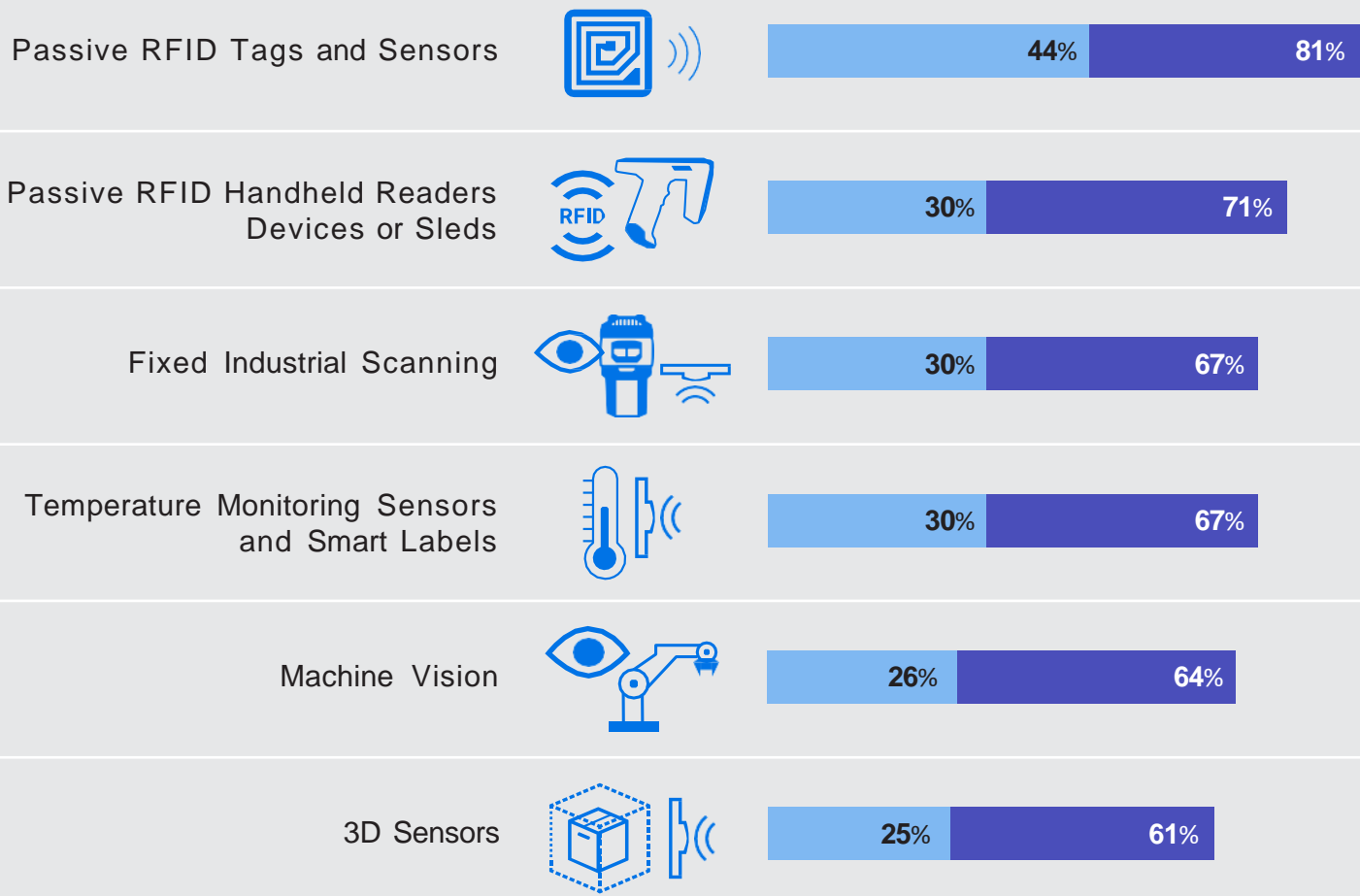
agree that improved operational visibility means more decisions can be automated for better staff and asset utilization.

**73%**

report they are under pressure to implement new technologies.

# Supply Chain Resiliency and Agility

Decision-makers plan to dramatically increase the implementation of sensor technology throughout warehousing facilities within the next year.



2023

2024



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# Achieving the Perfect Order Execution

In today's warehousing business, accuracy is currency.

- Decision-makers face widening pressure to improve performance amidst changing customer expectations
- Returns, inventory management and order accuracy issues escalate
- Achieving the perfect order becomes increasingly difficult
- Vital concerns include managing associate workloads, meeting productivity goals and addressing financial burdens from missed SLAs



Associates Voice  
Concerns

**79%**

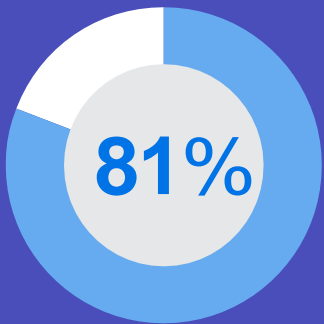
are concerned about  
managing workloads and  
high-stress levels to meet  
productivity goals.



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# Executing the Perfect Order



81% of decision-makers overall agree that missed SLAs pose a tremendous financial burden and must be addressed quickly.

## By region

80%

North America

76%

Latin America



80%

Europe

88%

Asia Pacific

## By sector



78% Manufacturing



78% Retail



79% Transportation



90% Logistics



83% Warehouse distribution

## Warehousing decision-makers pinpoint the top drivers of error rates.

47%



Sorting and packing

46%



Order picking

43%



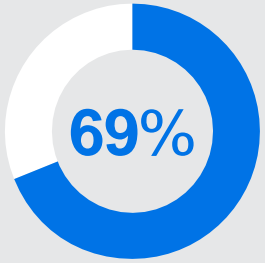
Put-away



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# Automation, Augmentation and Labor Planning



69% of decision-makers have or are planning to automate workflows by 2024.

Warehouse leaders recognize the benefits of human-centered automation for workers, customers and the organization's overall success – particularly amidst continued labor challenges across sectors.

- Warehouse leaders are reassessing their operations and actively investing in worker enablement and operational enhancements.
- Collaborative robots are seen as a valuable solution, helping to extend front-line workers' capabilities and shift them toward more customer-centric, high-value tasks.
- Warehouse decision-makers identify attracting qualified candidates and effectively training them as their most pressing labor challenges.
- These hurdles are accentuated by the need for skilled personnel who can adeptly handle the sophisticated technologies and equipment prevalent in modern warehouses.



Biggest Labor Challenges According to Decision-Makers

**55%** Attracting qualified workers

**54%** Training time takes too long

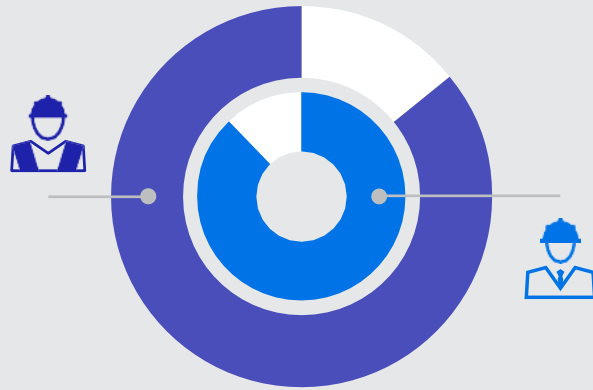
**45%** Keeping associates happy and fulfilled



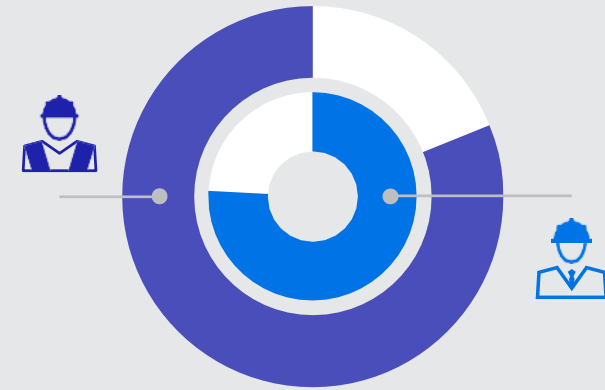
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# Automation, Augmentation and Labor Planning

## Technology tools and automation make associates feel more valued.



**86% of associates** and **88% of decision-makers** agree that implementing warehouse technologies, robotics and devices would help attract and retain workers.



**83% of associates** feel more valued by their employer and **76% of decision-makers** say adding automation to collaborate will improve overall morale.



Associates



Decision-Makers



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# Building Tomorrow's Connected Warehouse

Today's headwinds have prompted warehouse leaders to adopt innovative strategies to address critical challenges and prepare to offset any emerging or unexpected events.

Despite global uncertainty, warehouse leaders continue investing in data-powered environments that efficiently balance automation and optimized human labor across the supply chain.

Warehouses must continue to implement agile strategies to avoid inefficiencies, preserve resources, and provide employees with a performance edge.

## About the Study

- Zebra Technologies commissioned a global research study among decision-makers and associates to analyze the latest trends and technologies transforming warehouse operations.
- Administered online by Azure Knowledge Corporation, this year's study includes over 1,400 respondents across manufacturing, retail, transportation, logistics and wholesale distribution organizations.
- Zebra's 2023 Warehouse Vision Study reports on how organizations are utilizing technologies to modernize the warehouse and prepare for future challenges.
- The series focuses on three key themes:



### Supply Chain Resiliency and Agility

Investigates modern warehouses' adaptation to market changes, unforeseen challenges, and the integration of technologies for enhanced flexibility in the global supply chain.



### Perfect Order Execution

Focuses on the detail of achieving and optimization of 'Perfect Order Execution', by examining the methods and tools used by warehouse operators to ensure accurate, timely orders amid cost increases, leading to improved customer experience



### Automation, Augmentation and Labor Planning

Shines a light on how warehouses are using advanced automation, integrating technology with human tasks, and how workforce planning is strategized to increase efficiency and address evolving challenges in the labor market.



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To view the entire 2023 Warehouse Vision Study series,  
visit [zebra.com/warehousingvisionstudy](https://zebra.com/warehousingvisionstudy)

To learn how Zebra can help your warehouse operations  
achieve a performance edge, visit [zebra.com/warehouse](https://zebra.com/warehouse)

## About Zebra Technologies

Zebra (NASDAQ: ZBRA) empowers organizations to thrive in the on-demand economy by making every front-line worker and asset at the edge visible, connected and fully optimized. With an ecosystem of more than 10,000 partners across more than 100 countries, Zebra serves customers of all sizes, including 94% of the Fortune 100, with an award-winning portfolio of hardware, software, services and solutions that digitize and automate workflows.



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