



Warehousing Vision Study 2023

# Making Modern Warehousing a Reality

Automation, Augmentation & Labor Planning



Warehouse leaders are adapting to rising customer expectations, competitive pressure and labor scarcity, focusing on worker enablement and operational enhancements to drive accuracy, efficiency and productivity improvements.

**Dive into the trends that are empowering workers to achieve new levels of precision and productivity.**

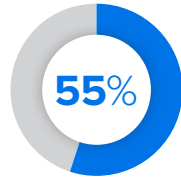
## Market Watch

The modern warehouse is evolving into a tech-savvy space that augments human capabilities with technology and automation. From wearable computers and mobile robots to AI-driven inventory management, technology is filling labor gaps and enhancing worker capabilities. This new approach to labor planning prioritizes technology investments that make the workforce more efficient, skilled and adaptable, setting a new standard for operational excellence.

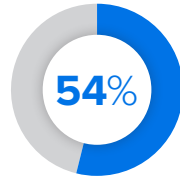


### Workforce Quest Continues: Leading Labor Challenges

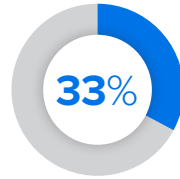
According to decision-makers



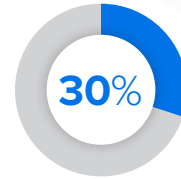
Attracting  
qualified workers



Training time  
to achieve full  
productivity takes  
too long



Absenteeism



Loss of labor  
to competitor  
warehouses



### A Universal Imperative: Environmental Sustainability

Eco-friendly initiatives are highly important for decision-makers in purchasing decisions.



The device/technology maximizes battery life and ensures swap out at the right time.



84%

All Sectors



88%

Manufacturing



84%

Retail



78%

Transportation



88%

Logistics



82%

Wholesale  
Distribution



Device/technology can monitor energy usage by application to maximize efficiency.



83%

All Sectors



82%

Manufacturing



82%

Retail



79%

Transportation



88%

Logistics



87%

Wholesale  
Distribution

### Top Catalysts to Automation

Among decision-makers currently or planning to automate workflows



Mitigating errors



Offsetting labor shortages



Meeting service level agreements

### Shared Tech Workplace Wishlist



Associates

84%



Ergonomic  
Handheld or  
Mounted Mobile  
Technology



Decision-  
Makers

85%

83%

Communication  
Application

85%

82%

Task  
Management

85%

80%

Collaborative  
Robots

82%

# Pivoting to Tech Amid Ongoing Labor Challenges

For many organizations, the drive to boost productivity in warehouse settings is adding further complexity to an already sensitive employment landscape. As a result, decision-makers are embracing workforce augmentation to extend their organization's capabilities.

What initially appeared as temporary glitches in the labor market have evolved into a consistent challenge for many warehouses, prompting them to invest in technological solutions. Both immediate and future investment plans show a trend toward strengthening warehouse operations by augmenting human workers with some level of automation rather than fully or partially automating their facilities.

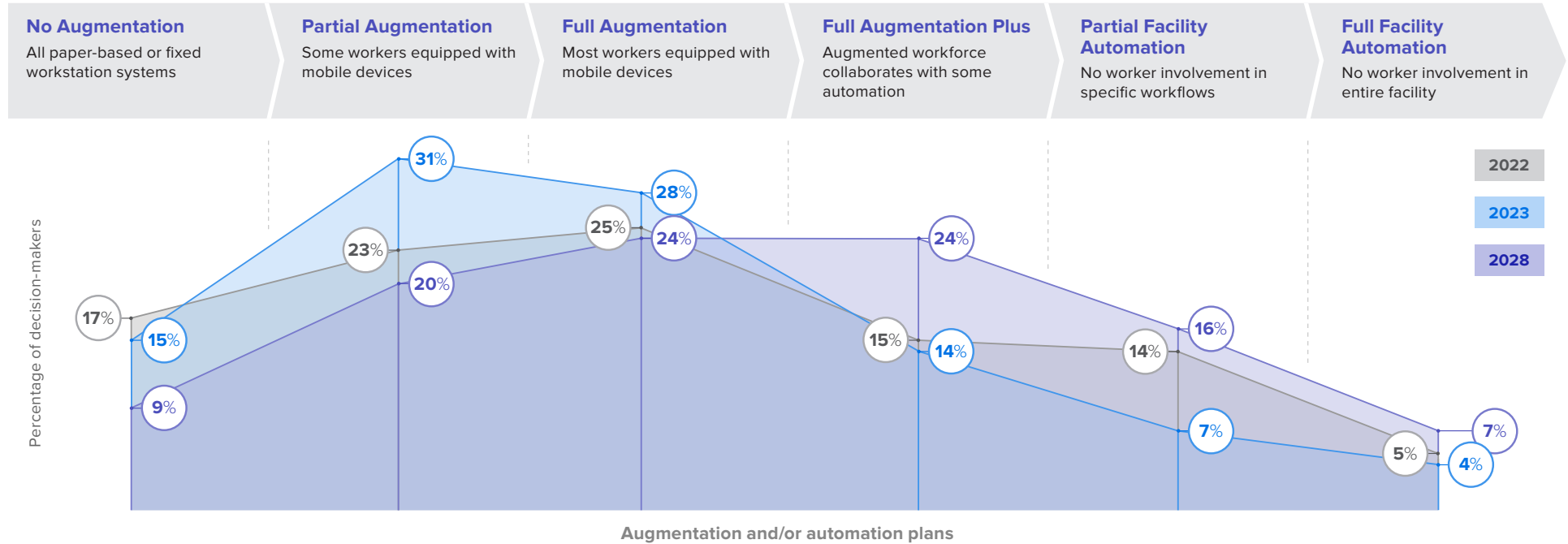


# 73%

of decision-makers agree providing front-line workers with easy-to-use technology devices/solutions is a top priority.

## Human-Centric Automation Ascends: Warehouses Gear Up for the Future

Implementing human-centric automation is increasing as warehousing organizations set out to future-proof their businesses.



Warehouse associates and decision-makers agree that increased use of technology and automation would help front-line workers meet or exceed productivity goals.

Associates 

81%

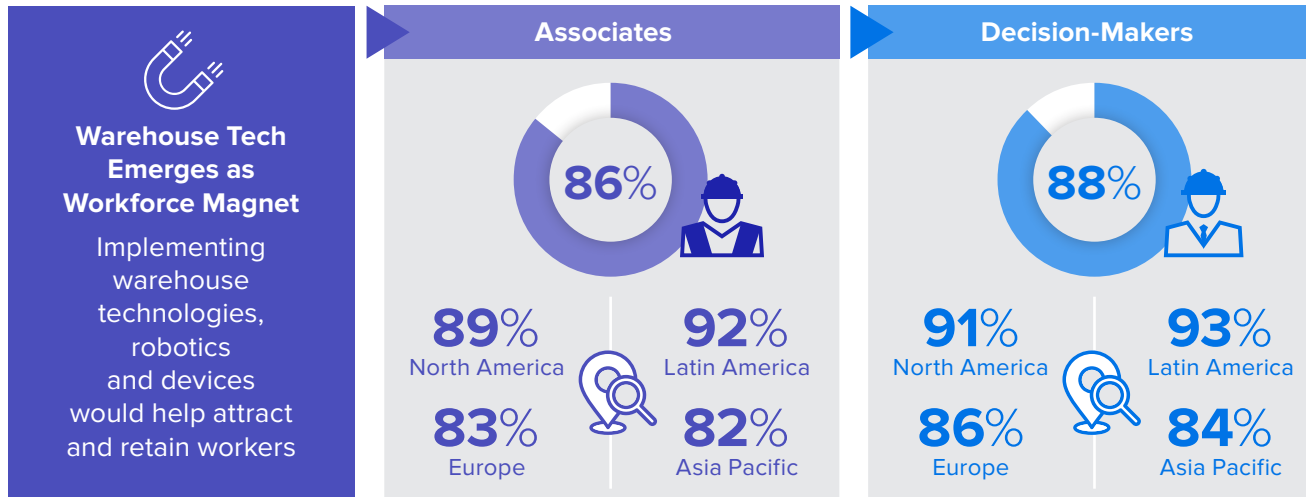
Decision-Makers 

80%

# Managing an Efficient, Human-Centric Warehouse

**Associates and decision-makers share a common perspective regarding the role of technology, devices and robotics in the modern workforce.** Both cohorts concur that these advancements help create an environment where associates are better equipped to excel. As the industry navigates labor issues, workplace technology plays a critical role in attracting and retaining a skilled workforce. While 82% of decision-makers acknowledge the significance of modernization, they admit their organization has been slow to adopt new devices and solutions.

Forward-thinking decision-makers are dedicated to fostering a culture of innovation and progress. In addition to enhancing operational efficiency, incorporating automation and other technological solutions can also positively impact the overall warehouse atmosphere and staff morale. Associates are more likely to engage meaningfully with their roles when empowered with the right tools, leading to increased job satisfaction and enhanced productivity.



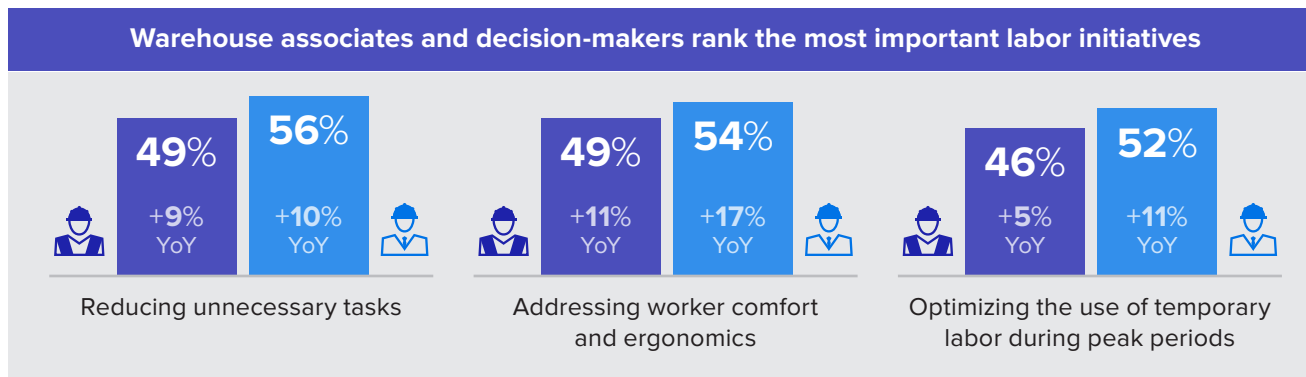
**Tech Empowerment and Automation Boost Employee Value and Morale**

**83%**

**Associates agree:**  
I feel more valued by my employer when they provide technology tools and automation to help me do my work.

**76%**

**Decision-makers agree:**  
Adding automation to collaborate with front-line workers will improve overall morale.





# Peering Into the Future of Warehouse Automation

Automation in the warehousing sector is not merely trend but a strategic response to pressing challenges. The primary motivator behind these goals is enhancing worker efficiency and effectiveness. By leveraging automation, warehouses aim to diminish errors substantially, streamline manual picking processes and reduce overall cycle time.

The advantages go beyond the immediate; these advancements also offer promising avenues for cost savings in both operational and facility expenditures. The bigger picture showcases a shift towards more streamlined, efficient and cost-effective warehousing operations, emphasized by the targeted use of automation.

Concurrent with this shift, there's a rising emphasis on integrating human-centric technologies. Such innovations improve working conditions, increase productivity and heighten the customer experience. This transformation prioritizes empowering front-line workers, aligning with the aspirations of warehouse organizations of all sizes.

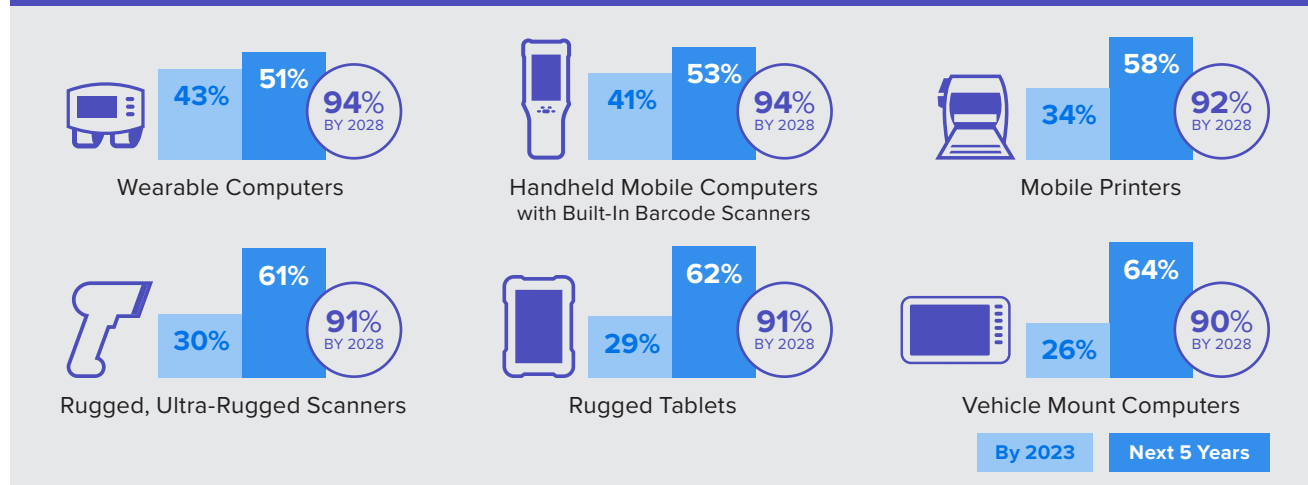


## Driving Efficiency: Decision-Makers Identify Key Goals Behind Warehouse Automation



## The Shift in Gear: Wearables Dominate While Tablets and Vehicle Mount Computers Gain Speed

Decision-makers reveal five-year device implementation plans



## Warehouse Leaders Spotlight Deployment Obstacles

- 1** Budget
- 2** Syncing with legacy systems
- 3** Service and support
- 4** Determining ROI
- 5** Training staff

# Aligning Technology and Human Potential for Sustainable Success

**Harmonizing technology with human potential can drive sustainable success in an increasingly complex and competitive landscape.** Today's decision-makers are orchestrating digital transformation that optimizes operations and infuses the environment with a spirit of innovation. As these technologies evolve, they open doors to unprecedented growth and adaptability in the industry.

## 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 Profitability

Zeroes in on the intricacies of achieving and optimizing order profitability, examining strategies and tools warehouses use to ensure accuracy, timeliness, and maximized profit margins amid rising costs and customer expectations.



### Automation, Augmentation and Labor Planning

Sheds light on how warehouses are leveraging advanced automation, integrating technology with human tasks, and strategizing workforce planning to boost efficiency and address evolving challenges.

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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