



Manufacturing Vision Study

# The Future Workforce

## Where Innovation Meets Productivity



Global labor shifts and changing generational expectations underscore the critical importance of upskilling workers. See how augmented workforce strategies are driving productivity, enhancing decision-making and optimizing resource allocation.

**Discover how these shifts are fostering innovation and transforming the factory floor.**

## Next-Gen Factory Floors: Redefining Productivity and Adaptability

Amid intense competition and workforce changes, manufacturers must nurture collaboration and innovation.

Despite hurdles in digital transformation and differing views on leadership, they are embracing bold strategies to drive growth and encourage innovation. By empowering their workforces with digital insights and investing in cutting-edge technologies, they are also enhancing productivity and efficiency, developing a resilient, adaptable workforce.

### Strategic Evolution: Economic and Workforce Strategies Driving Growth



Expand sustainability, waste reduction and environment protection initiatives



Augment workers with mobility-enabling technology



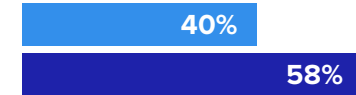
Reskill labor to enhance their data and technology usage skills



Address labor shortage through recruitment of more workers



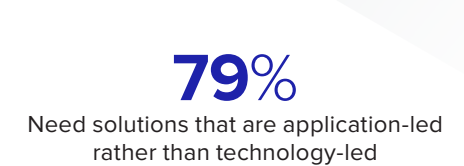
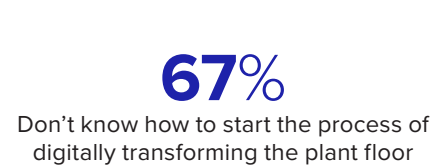
Create and maintain workflow efficiencies



Improve ability to adjust to fluctuating market demand

Today In 5 years

### Manufacturers Battle Inertia in Digital Shift, Seek Intelligent Solutions



### Tech Tug-of-War: Departments Vie for Leadership in Factory Workforce Technology

Who's the boss? Operational Technology (OT) leads the way with Information Technology (IT) close behind



C-Suite Perceptions

**38%** C-Suite is Primary Driver

KEY INFLUENCERS:  
OT: 19% IT: 17%



IT Perceptions

**42%** IT is Most Responsible

KEY INFLUENCERS:  
OT: 24% C-Suite: 21%



OT Perceptions

**45%** OT is Leading Force

KEY INFLUENCERS:  
IT: 30% C-Suite: 25%

# Bridging Perspectives, Navigating Labor Challenges

Manufacturers face common labor challenges, from prolonged training to difficulties attracting and retaining talent. While perspectives may vary between the C-suite, IT and OT, the underlying issues remain strikingly similar. IT and OT agree that training times are too long to reach full productivity. C-suite decision-makers, on the other hand, feel their organizations are challenged more so by the recruitment and hiring process: 38% say their most significant challenges include both attracting qualified workers and the time it takes to fill open positions.










As the industry evolves, prioritizing workforce empowerment strategies is essential for maintaining productivity and promoting long-term growth. Organizations rank improving worker experience, skills and careers as the most critical labor initiatives for associates already working on the plant floor. Manufacturers are leveraging workforce solutions to improve the day-to-day experience and help workers develop new skills to succeed.

## Enhancing Collaboration and Data Support

In addition to upskilling, nurturing collaboration and providing robust data support are essential for empowering workers. Having access to documented expertise and the knowledge of experienced colleagues can greatly improve decision-making and efficiency. By leveraging collaborative tools and knowledge-sharing platforms, manufacturers can ensure that workers are well-equipped to handle complex tasks and innovate on the plant floor.



### Different Views, Same Struggles: Views on Plant Floor Labor Challenges

	 C-Suite	 IT	 OT
Training time to full productivity is too long 	35%	39%	<b>42%</b>
Attracting qualified workers 	<b>38%</b>	32%	<b>38%</b>
Amount of open positions/job vacancies 	<b>36%</b>	<b>36%</b>	33%
Keeping associates happy or fulfilled 	29%	<b>40%</b>	34%
Finding temporary workers for peak season 	28%	<b>36%</b>	34%
Internal organizational challenges 	<b>35%</b>	32%	<b>35%</b>
	Focuses on strategic workforce planning and high-level organizational concerns.	Prioritizes associate satisfaction, fulfillment and efficiency through technology.	Addresses operational workforce challenges and ensures smooth daily operations.

Bolded numbers denote highest response in each category.

## Empowering the Workforce: Top Labor Strategies

Manufacturers ranking initiative in top three

- 1 Improving the worker experience with technology
- 2 Pursuing ongoing workforce development to match skill sets with continual technology advancements  
Retraining/upskilling the current workforce to meet the required skill sets for advanced manufacturing
- 3 Developing manufacturing career paths to attract future workforce talent

# Redefining Manufacturing Dynamics: Harnessing Technology for a New Era

As digitalization efforts mature, manufacturers increasingly rely on intelligent automation technologies to achieve the vision of the connected factory. Embracing a future shaped by advanced technology, they are streamlining processes and setting new standards of excellence. Manufacturers are attaining unprecedented levels of productivity and agility by leveraging cutting-edge tools and encouraging continuous workforce development. This forward-thinking approach transforms the shop floor, empowers workers and paves the way for a dynamic and agile future.

## Synchronizing Plant Floor Teams

The plant floor encompasses diverse teams such as shifts, quality control, maintenance and material handling. Integrating these functions through synchronized workflows and communication systems can lead to significant efficiencies, reducing downtime and enhancing overall productivity.

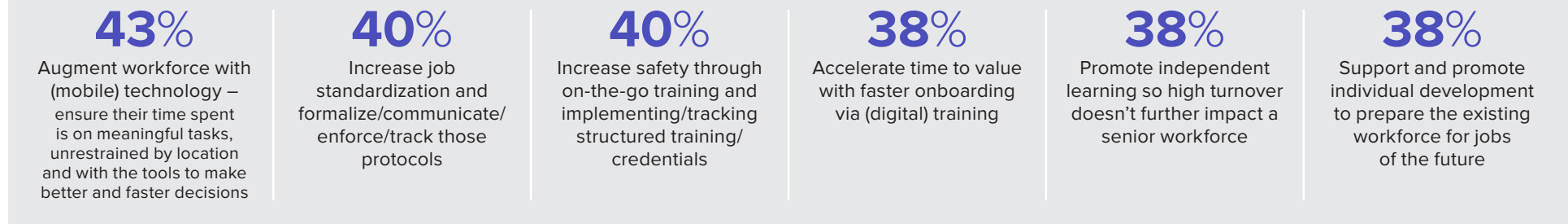
Organizations aim to ensure their workforce's time is spent on meaningful tasks and that each employee has the necessary tools and training to enhance personal performance while supporting overall plant productivity. Technology plays a crucial role in helping manufacturers meet evolving priorities. Solutions that enhance worker mobility enable faster decision-making, higher throughput and greater accuracy, ultimately driving better results.

Beyond the Warehouse:  
Elevating Material Handling and Logistics on the Factory Floor

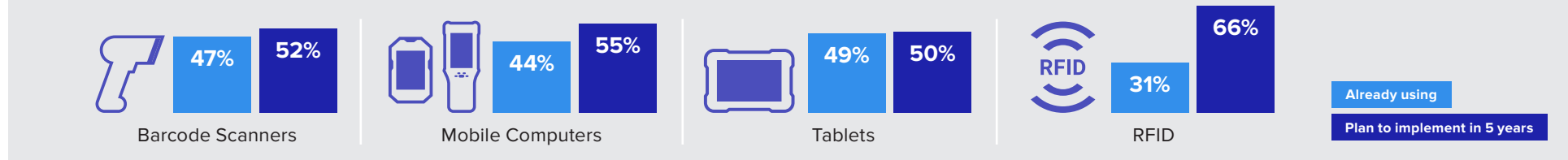
**89%**  
of manufacturing decision-makers agree material handling and logistics, historically prioritized in the warehouse, have become increasingly critical on the shop floor

## Transforming Labor Dynamics: Harnessing Technology and Training for Workforce Success

Manufacturers weigh in on desired outcomes for labor issues



## Adoptions Rates of Key Technologies





# Transforming Labor Dynamics: Embracing Technology for a New Generation



91% of manufacturers agree C-suite, OT and IT are all involved in the decision-making process for new technologies

As we enter a new era in manufacturing, technology and automation are at the forefront of transformation. Manufacturers are leveraging these advancements to address labor challenges and thrive in a rapidly evolving industrial landscape. Automation, robotics and AI enhance human labor by mitigating labor shortages and skill gaps and reducing training time.

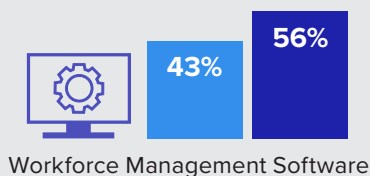
Collaborative robotics, or cobots, are particularly valuable in this context. By working alongside human workers, cobots can take on repetitive or hazardous tasks, boosting productivity and improving workplace safety. This collaboration allows human workers to focus on more complex and strategic aspects of production, ultimately achieving higher-quality outputs.

While workplace digitalization and automation often raise concerns about job displacement, the reality is more nuanced. These technologies are set to deliver significant improvements for manufacturing workers. By automating routine tasks, streamlining processes and improving efficiency, manufacturers can create a modern, innovative environment that meets the expectations of a new generation of workers.

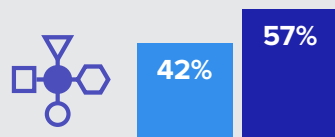


## Transformative Technologies: Rapid Growth in Manufacturing's Digital Future

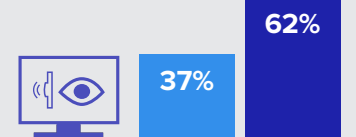
Five-year tech plans to empower the workforce



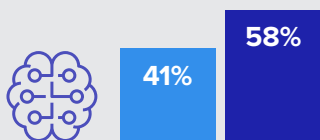
Workforce Management Software



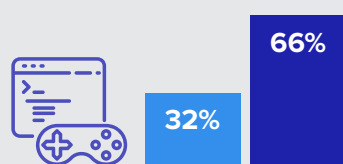
Industrial Internet of Things



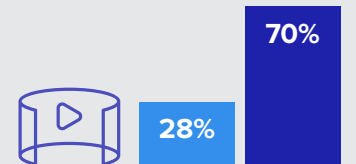
Sensing and Monitoring Systems



Artificial Intelligence



Digitized Training Gamification



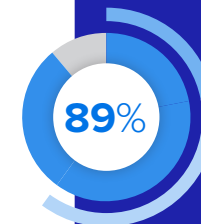
Augmented Reality / Virtual Reality

Already using

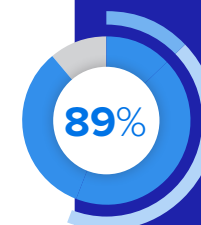
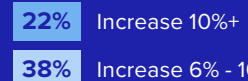
Plan to implement in 5 years

## 2024 Vision: Ambitious Investment Strategies Propel Manufacturing

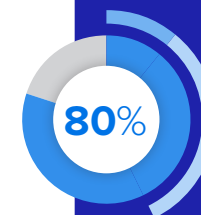
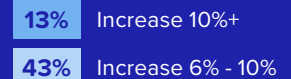
Manufacturing 2024 Investment Plans



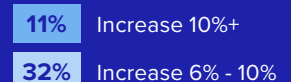
Plan to increase technology investments



Plan to increase manufacturing physical infrastructure spend



Plan to increase staffing spending



# Empowering the Future

The future of manufacturing is driven by the synergy of innovation and technology, meeting both industry and workforce needs. Digital transformation enhances operational excellence and creates career advancement opportunities. Augmented workforces, empowered by advanced technologies, enable swift adaptation to market dynamics, ensuring competitiveness and resilience. These advancements cultivate a collaborative environment where workers thrive, addressing labor challenges and paving the way for sustainable growth. Manufacturers build a robust foundation to navigate modern market complexities, deliver high-quality products and maintain a competitive edge by investing in technology, people and processes.

## About the Study

Zebra commissioned Azure Knowledge Corporation to conduct 1,200 online surveys among C-suite executives as well as IT and OT decision-makers across various manufacturing sectors. Respondents were surveyed in Asia, Europe, Latin America and North America.

### Introduction to Series

Zebra's 2024 Manufacturing Vision Study addresses enterprise trends, challenges and priorities industry executives face in transforming the plant floor while gauging their outlook on technology drivers for deployment and spending as they work to digitally evolve their organizations. The results are summarized in a three-part series:



**The Power of Actionable Visibility**  
Transforming Manufacturing for the Digital Age



**The Future Workforce**  
Where Innovation Meets Productivity



**In Pursuit of Excellence**  
Intelligent Automation for Superior Quality and Efficiency

To view the Manufacturing Vision Study series, visit [zebra.com/manufacturing-vision-study](https://zebra.com/manufacturing-vision-study)

## About Zebra Technologies

Zebra (NASDAQ: ZBRA) helps organizations monitor, anticipate and accelerate workflows by empowering their frontline and ensuring that everyone and everything is visible, connected and fully optimized. Our award-winning portfolio spans software to innovations in robotics, machine vision, automation and digital decisioning, all backed by a +50-year legacy in scanning, track-and-trace and mobile computing solutions. With an ecosystem of 10,000 partners across more than 100 countries, Zebra's customers include over 80% of the Fortune 500.

Explore how Zebra can revolutionize your manufacturing operations, enhancing efficiency, productivity and competitive edge. Visit [zebra.com/manufacturing](https://zebra.com/manufacturing)



**NA and Corporate Headquarters**  
+1 800 423 0442  
inquiry4@zebra.com

**Asia-Pacific Headquarters**  
+65 6858 0722  
contact.apac@zebra.com

**EMEA Headquarters**  
zebra.com/locations  
contact.emea@zebra.com

**Latin America Headquarters**  
zebra.com/locations  
la.contactme@zebra.com

ZEBRA and the stylized Zebra head are trademarks of Zebra Technologies Corp., registered in many jurisdictions worldwide. All other trademarks are the property of their respective owners. ©2024 Zebra Technologies Corp. and/or its affiliates. 06/05/2024