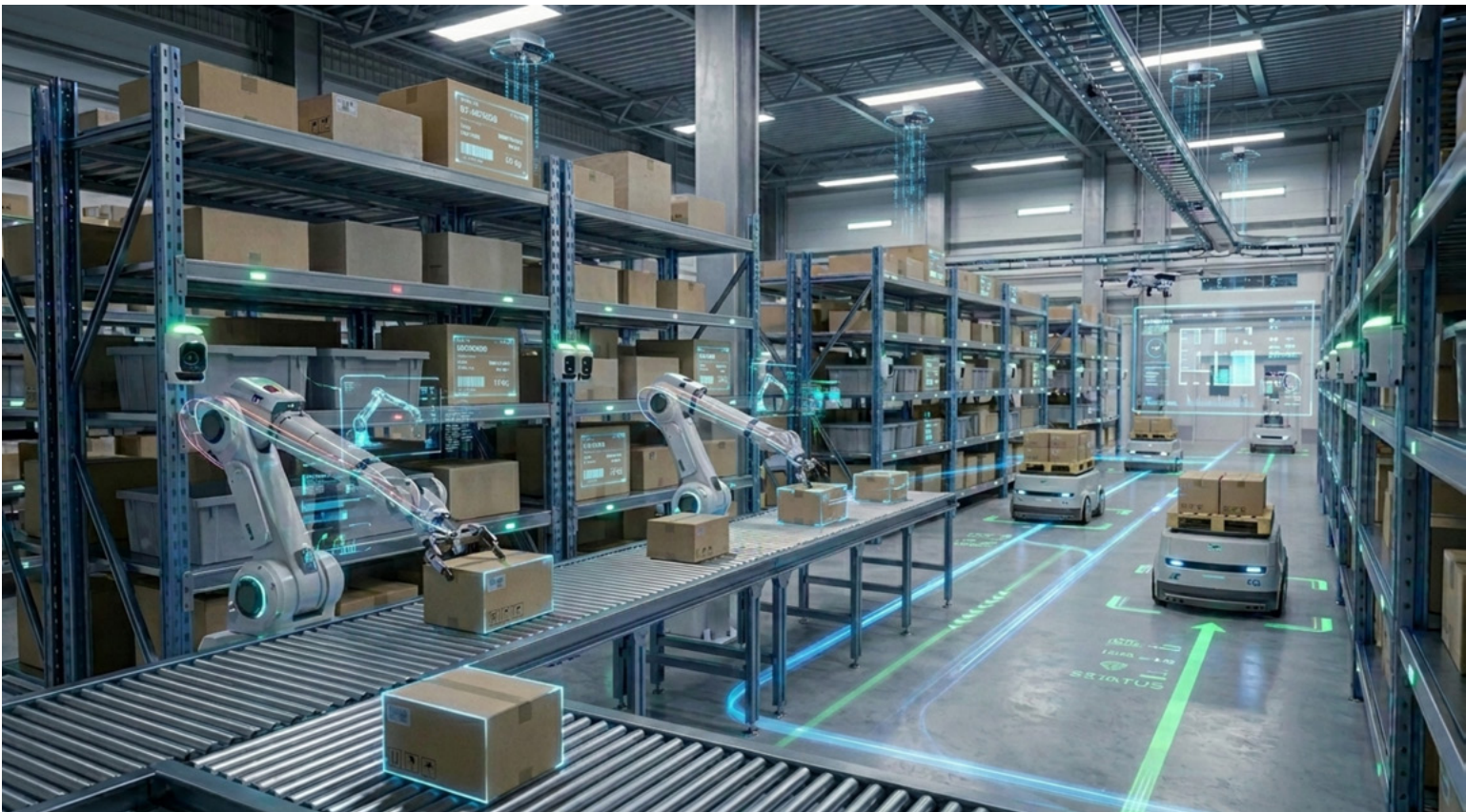


Thought Leadership Series

Transform Warehouse Operations with Robotic Picking



Transform Warehouse Operations with Robotic Picking

As organizations work to improve warehouse productivity, increase order accuracy and meet rising customer expectations, robotic picking technologies are becoming more scalable and cost-effective than ever before. Advances in robotic sensors, vision technology, machine learning (ML) and artificial intelligence (AI) are enabling robotic warehouse solutions that can be deployed quickly without disruption.

At the same time, labor shortages and fulfillment pressures are accelerating modernization initiatives. According to the 2026 MHI Annual Industry Report¹, 56% of organizations expect to increase their spending on supply chain innovation. Along with this boosted level of investment, the adoption of AI is expected to increase by 88% and robotics and automation by 73% over the next five years.

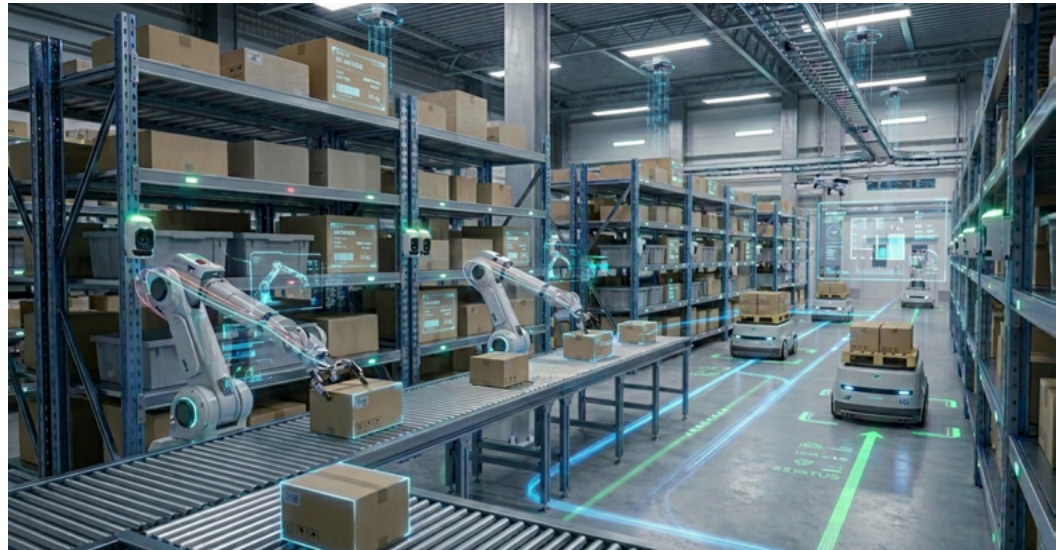
Organizations that delay modernization risk falling behind competitors that are building more agile and efficient fulfillment operations. In this Insight, we spotlight different types of robotic picking solutions that can lower labor costs, boost productivity and raise accuracy rates to give you the competitive edge.

¹ <https://www.mhi.org/annual-industry-reports>

What is robotic picking?

Robotic picking refers to warehouse automation technologies that optimize manual picking processes by using robots and intelligent software systems. These solutions automate repetitive and physically demanding fulfillment tasks to improve operational efficiency, accuracy and scalability.

Robotic picking systems can take many forms, including robotic arms, autonomous mobile robots (AMRs), automated storage and retrieval systems (ASRS), goods-to-person (GTP) technologies and shelf-to-person robotics. Robotic picking has become a critical component of modern warehouse operations as e-Commerce growth and shifting demands continue to drive fulfillment complexity.



4 benefits to robotic picking

Optimized warehouse inventory management

Warehouse robotics and automation become even more powerful when paired with intelligent software such as warehouse execution systems (WES), warehouse control systems (WCS) and warehouse management systems (WMS).

These systems integrate and orchestrate robotic solutions to provide:

- Real-time inventory visibility
- Dynamic slotting optimization
- Improved inventory accuracy
- Faster replenishment
- Optimized labor deployment

Scalability for changing demands

Warehouse operations must be prepared to scale quickly during seasonal peaks, promotional events and unpredicted shifts while supporting long-term business growth.



Robotic picking systems offer flexible scalability by allowing organizations to:

- Add AMRs or robotic picking stations as demand grows
- Increase throughput without adding labor
- Support higher SKU volumes and order complexity
- Improve fulfillment speed, even during peak periods

Robotic fulfillment systems allow operations to scale incrementally, helping organizations avoid large upfront infrastructure investments.

Improved order accuracy

Best-in-class organizations report near-perfect accuracy in order picking, leaving minimal room for error.² The reality is, order inaccuracies, mispicks and returns can significantly impact profitability and customer loyalty.

Robotic picking systems reduce human error by leveraging advanced technologies, integrating vision sensors, AI and intelligent software orchestration. Automated picking technologies help ensure the correct SKU is picked every time, minimizing costly returns and rework. Robotic picking systems can:

- Minimize human errors
- Boost accuracy rates
- Reduce costs associated with reshipments, credits and reverse logistics

With real-time inventory visibility and optimized workflows, operations can deliver a more consistent customer experience with a 99.9% pick accuracy rate with robotic picking solutions powered by FORTNA.

Enhanced worker safety and ergonomics

Warehouse workers often perform repetitive motions, heavy lifting and extensive walking that can contribute to fatigue and workplace injuries. Robotic picking solutions automate physically demanding tasks and reduce employee exposure to:

- Repetitive strain injuries
- Forklift traffic
- Ladder climbing
- Heavy lifting
- Long travel distances

Transportation and warehousing experience the highest recordable injury and illness rates, ranking them among the most dangerous industries.³ Robotics can help create safer, more ergonomic fulfillment environments while improving employee satisfaction and retention.

² <https://www.netsuite.com/portal/resource/articles/erp/order-fulfillment-kpis-metrics.shtml>

³ <https://injuryfacts.nsc.org/work/industry-incidence-rates/most-dangerous-industries/>



Types of robotic picking solutions

Robotic arm picking

Advancements in AI, machine vision and end-of-arm tooling have made robotic arm picking a viable fulfillment solution for a growing number of applications.

Robotic arms can be deployed at picking stations where they identify items using:

- Barcodes
- Package graphics
- Dimensions
- Shape recognition
- AI-driven image analysis

Once identified, the robotic arm picks and places the item into the appropriate container. Vacuum and gripping end-of-arm tooling can be customized to safely handle various product types without causing damage. Robotic arm picking is especially effective for high-volume, repetitive picking applications.

Person-to-goods picking

Traditional manual warehouse fulfillment often requires workers to travel long distances to retrieve items from storage locations and then deliver the completed order to a packing station.



In a person-to-goods robotic solution, collaborative robots or AMRs travel through the warehouse while workers remain within assigned picking zones. The robot directs the worker to the appropriate pick location and quantity before continuing through the workflow.

Benefits include:

- Reduced worker travel time
- Faster picking rates
- Improved labor utilization
- Flexible deployment

Goods-to-person (GTP)

Goods-to-person fulfillment is one of the fastest-growing robotic warehouse strategies. In a GTP solution, workers remain at ergonomic stations while inventory is automatically delivered to them using robotics and automation technologies. High-level software orchestrates inventory movement, order sequencing and fulfillment workflows.

Benefits of goods-to-person systems include:

- Higher throughput rates
- Improved order accuracy
- Reduced labor travel
- Increased storage density
- Faster fulfillment times

Technologies that support GTP fulfillment include:

- ASRS solutions
- Shuttle systems
- AMR-based fulfillment systems

Organizations implementing GTP systems, like the FORTNA Autostore automated storage and retrieval system, report productivity improvements of 3x compared to traditional manual picking operations.

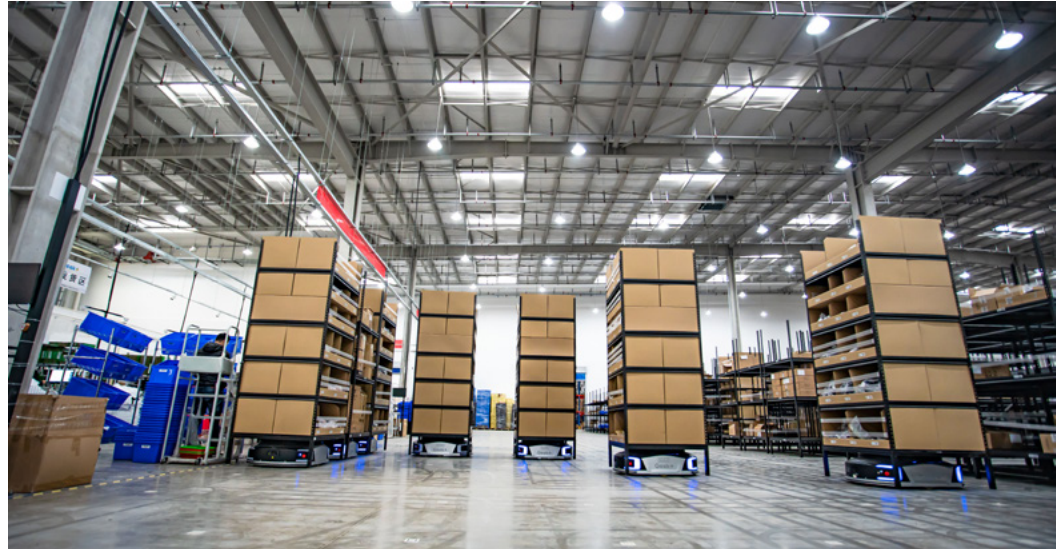
Shelf-to-person

Shelf-to-person solutions use AMRs or automated guided vehicles (AGVs) to transport entire shelving units or racks directly to warehouse workers at ergonomic picking stations.

Workers pick items directly from the shelf while the robotic system manages inventory movement throughout the facility. This approach offers several advantages:

- Reduced worker walking
- Faster onboarding and training
- Flexible scalability
- Efficient handling of large SKU assortments

Shelf-to-person robotics, like the FORTNA Geekplus solution, have become increasingly popular in e-Commerce fulfillment and omnichannel distribution operations.



Totes-to-person

Totes-to-person systems use high-density storage combined with robotic shuttles and AMRs to automate inventory retrieval and delivery. In this solution:

1. A shuttle robot retrieves the tote or carton from storage.
2. The tote is delivered to a transfer location.
3. An AMR or AGV transports the tote to a goods-to-person picking station.
4. The tote is returned to storage or routed to another fulfillment area.

Totes-to-person automation is ideal for operations requiring high throughput, dense storage and rapid order fulfillment.

Pallet-to-person

Like the other picking methods, a pallet-to-person picking solution involves a pallet being transported by shuttle robots and elevators to a zone where it is placed on a pallet AMR or AGV and delivered to a picking station where a worker picks the items for the order.

This approach is especially beneficial for:

- Heavy products
- Bulk picking operation
- Mixed pallet building
- Wholesale and retail distribution

Workers remain at ergonomic workstations while robotic systems transport inventory throughout the fulfillment process.

The future of robotic picking

Warehouse automation continues to grow rapidly as organizations seek greater flexibility, resilience and efficiency in their supply chains.

Emerging trends in robotic picking include:

- AI-powered robotic systems
- Machine learning optimization
- Autonomous decision-making
- Multi-robot orchestration
- Increased integration with warehouse software platforms

As robotics technology continues to advance, fulfillment operations will gain new opportunities to improve throughput, reduce costs and adapt to changing customer demands.

FORTNA

FORTNA CAN HELP

FORTNA helps organizations evaluate, design and implement robotic warehouse solutions tailored to their unique fulfillment challenges. Our experts combine software, automation and operational expertise to identify best-fit solutions that improve performance today while supporting future growth.

Contact us today at www.FORTNA.com