



# Warehouse & Logistics Solutions

## Machine Vision

SCLG Meet  
23-Nov-2023



# Agenda

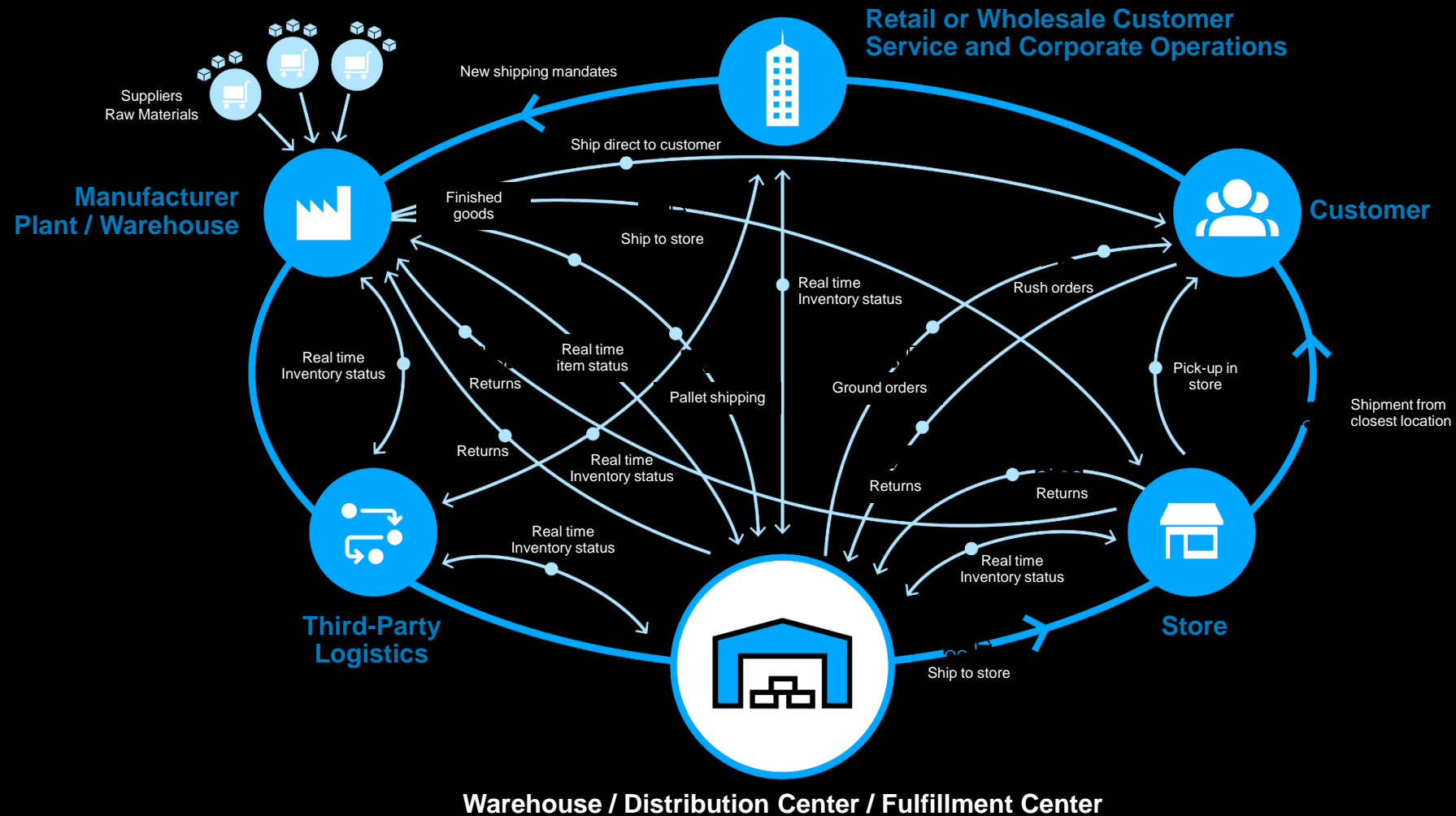
## Machine Vision for Warehouse & Logistics

- Challenges in the warehouse & logistics
  - Today's supply chain is complex
  - Warehouse operations must keep pace
  - What do you need to solve to get to where you want to be?
- Machine Vision use case
  - Pack Bench
  - Scan Tunnel
  - Forklift Scanning
  - Dock Door
  - How does it work? What can it help you achieve?



# Today's Supply Chain is Complex

## Satisfying customers is no simple matter



# Warehouse Operations Must Keep Pace

By solving today's challenges

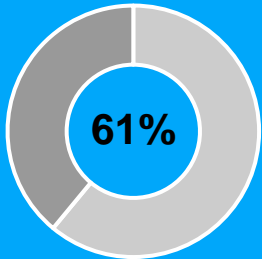
- Isolated systems and visibility gaps
- Labor shortages and more volume
  - ~50% of all warehouse labor invested in picking operations
- Disconnected workers and workflows
  - Annual warehouse turnover rates are 30+%
- Bottlenecks and asset inventory blind spots
- Rising workflow complexity
- Errors and non-compliance are costly
  - Onboarding workers may involve a 90-day ramp up



# What Do You Need To Solve To Get To Where You Want To Be?

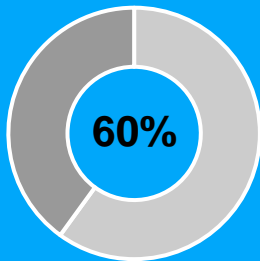


Reduced labor force



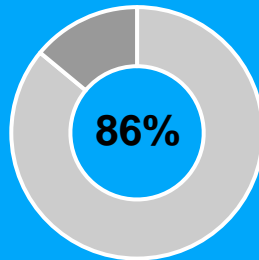
Plan to rely on a combination of humans and technology by 2024

Streamlining picking



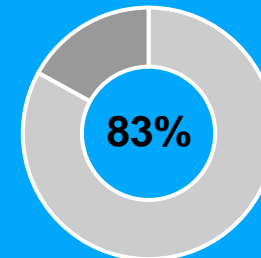
View labor efficiency and productivity as a top challenge

Turning around outbound processes



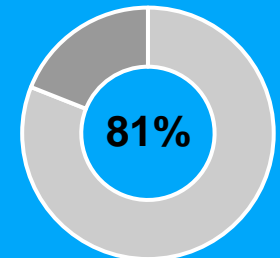
Plan to increase volume of items shipped by 2024

Reducing inbound congestion

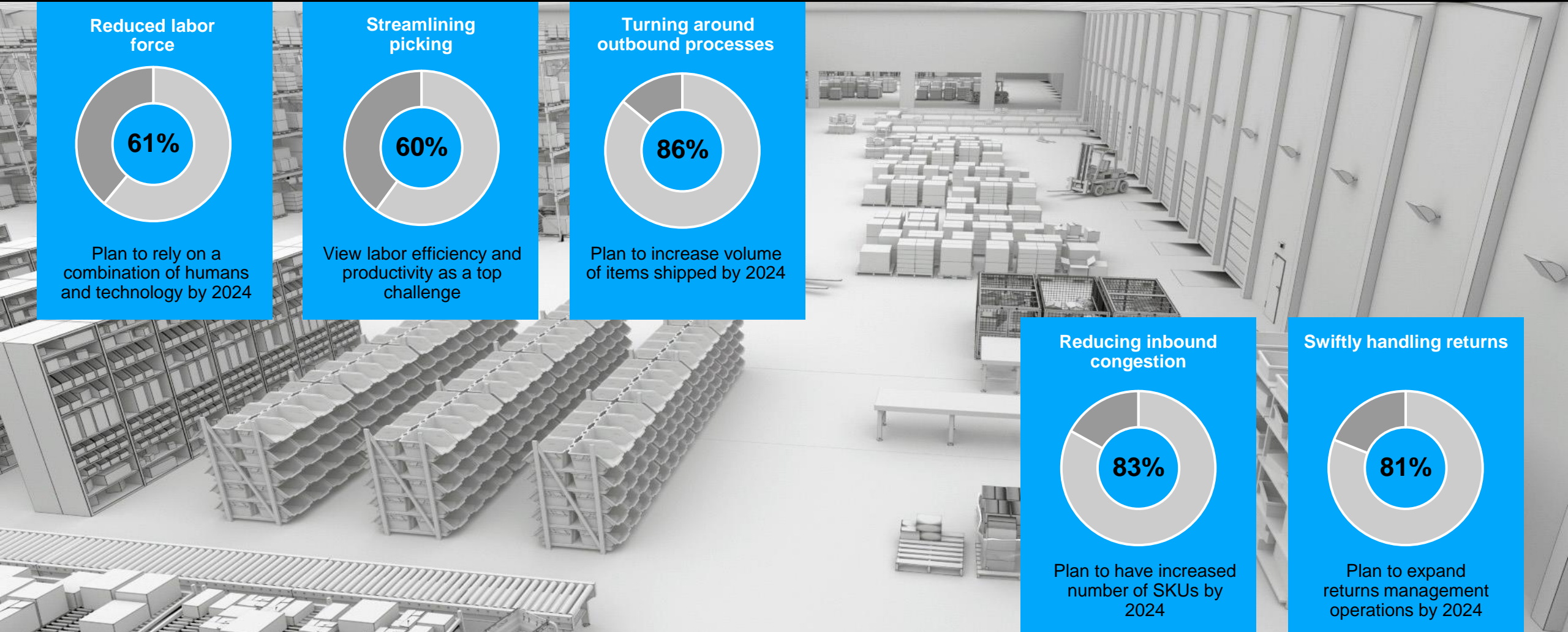


Plan to have increased number of SKUs by 2024

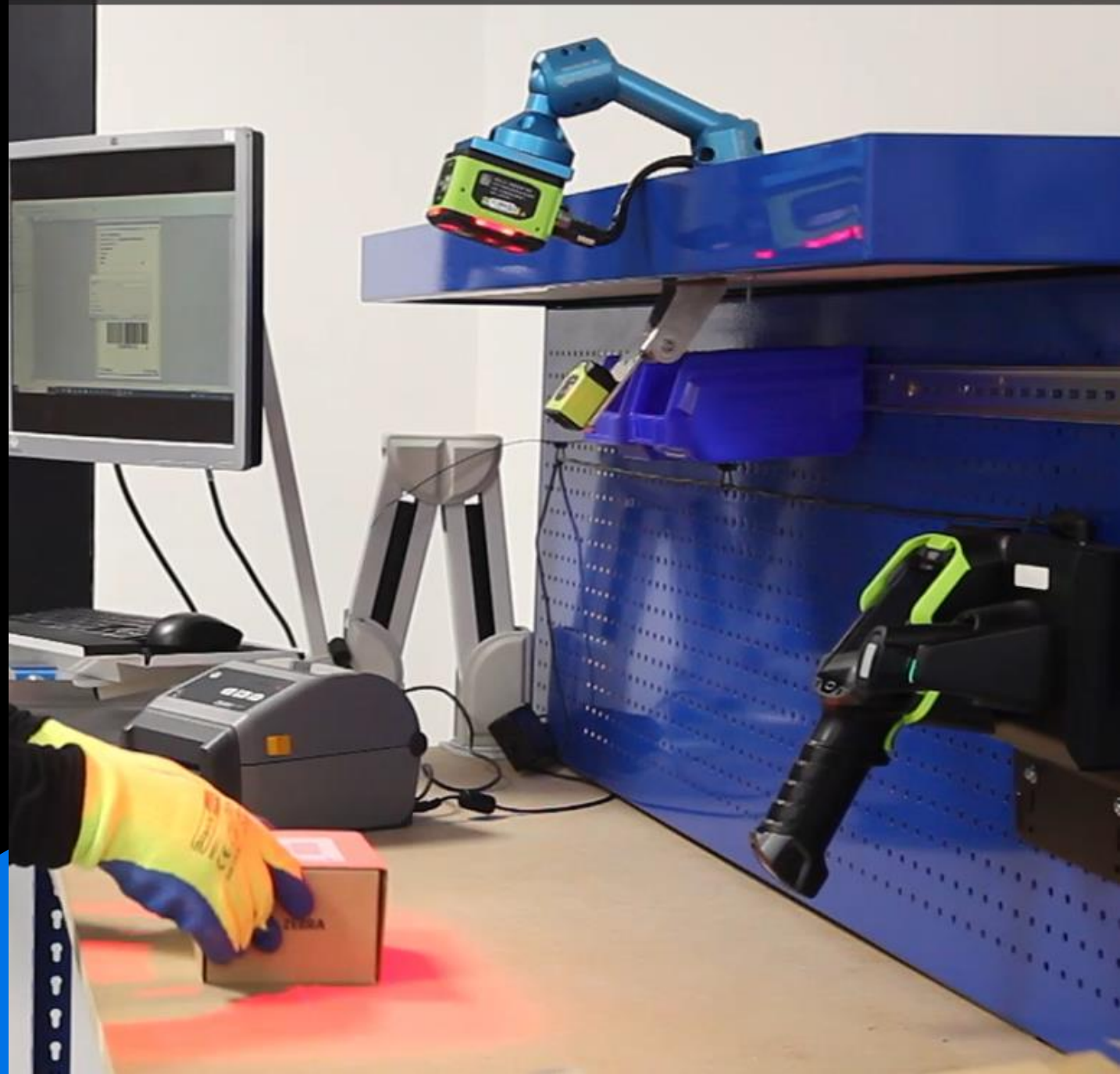
Swiftly handling returns



Plan to expand returns management operations by 2024



# Packing Bench





# Packing Bench

What can it help you achieve? → 24% throughput improvement

- **Greater efficiency:** Adding fixed industrial scanners and machine vision technology to existing warehouse processes improves inspection capabilities like volume verification and package integrity assessment
- **Better speed and productivity:** Packing benches streamline high-volume warehouse process by automating quality checks and reducing manual inspection time
- **Reduced labor and material costs:** Zebra's range of print technology supports multiple sizes, speeds and mediums. Linerless printing goes a step further, eliminating the need to peel labels—saving valuable seconds on every pack
- **Enhanced quality control:** Packing errors can result in costly returns and customer dissatisfaction; packing bench solutions minimize errors through automated verification and content validation
- **Fewer operational errors:** Reduced human intervention improves data quality and accuracy, and streamlines operations



# Scan Tunnels

## Why a use a scan tunnel?

- Capture data reliably without stopping goods regardless of:
  - Package size
  - Package orientation
  - Label location
  - Number and type of labels





# Zebra Warehouse Solutions: Scan Tunnels

What can they help you achieve? → 4x faster image acquisition

- **Better barcode reading and verification:** Accurate code and label reading is crucial for tracking, tracing and inventory management. Scan tunnels quickly verify barcode accuracy, preventing errors in shipping and logistics
- **Improved product inspection:** Scan tunnels can help with quality control and compliance, inspecting items for defects, contamination, or damage and automatically diverting problematic products from production lines
- **Labor reduction and cost savings:** Scan tunnels reduce the need for manual inspection and handling, leading to cost savings and increased throughput

# Forklift Scanning





# Zebra Warehouse Solutions: Forklift Scanning

What can it help you achieve? → Savings valued 3x within 6 months

- **Better inventory accuracy:** Machine vision-equipped forklifts automatically capture data from barcodes, RFID tags, or visual cues, reducing need for manual documentation and improving inventory accuracy
- **Picking and putaway efficiency:** Forklift operators need to locate, pick, and put away items quickly. Machine vision technology guides operators to the precise location of items, improving picking and putaway efficiency and reducing the likelihood of errors
- **Labor reduction and cost savings:** Forklift scanners reduce the need for manual inspection and handling, leading to cost savings and increased processing speeds
- **Fewer operational errors:** Reduced human intervention improves data quality and accuracy, and streamlines operations

# Dock Doors







# Zebra Warehouse Solutions: Dock Doors

What can they help you achieve?

**→ Savings valued 3x within 6 months & 16 data-points from a single trigger**

- **Better inventory accuracy:** Dock door scanning helps reduce discrepancies and ensures accurate stock levels
- **More efficient order fulfillment:** Dock door technology enhances order accuracy and speeds up the picking and packing processes
- **Simplified compliance and reporting:** Machine vision technology simplifies data collection and ensures adherence to regulatory requirements, reducing the risk of fines and penalties
- **Improved operational visibility:** Building smarter and more connected environments delivers better visibility to make informed decisions and improve business outcomes
- **Greater traceability:** Fixed industrial scanners automatically identify and capture data on packages, pallets and containers for real-time asset tracking and utilization

# Thank You



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