



**ON THE  
MOVE**   
Webinar Series

Dan Gauss  
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## OFFSET LABOR CHALLENGES WITH AS/RS SHUTTLE AUTOMATION

**Honeywell**  
**I**ntegrated®

# Presenter



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Dan is responsible for developing written content and managing media relations for Honeywell Intelligrated. Working with the brand since 2011, he has a deep understanding of the materials handling and supply chain industries, with a specialization in automated equipment and software.

Dan earned a bachelor's degree in journalism from the University of North Carolina at Chapel Hill.

# Agenda



Challenging fulfillment landscape



Fulfillment workflows



Shuttle solutions



Other AS/RS technologies



ROI – Key value drivers



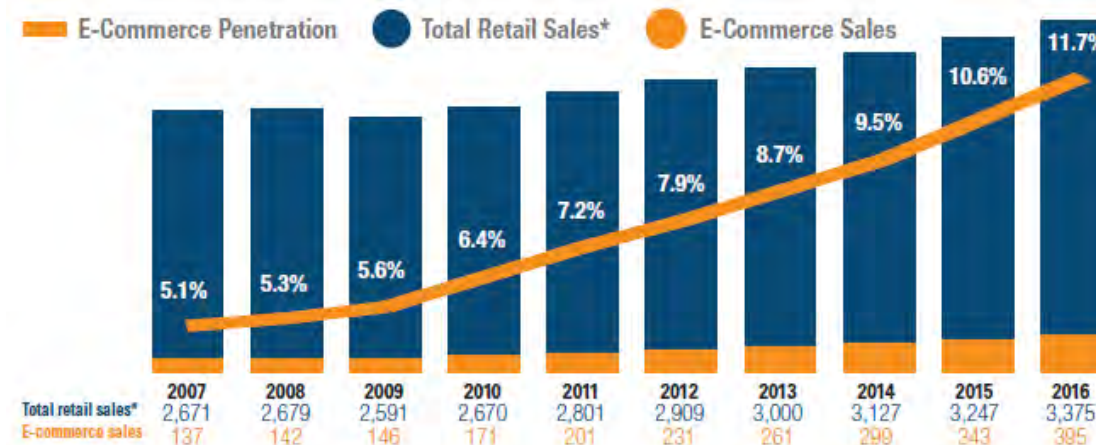
Questions

# A Challenging Fulfillment Landscape — Customer Demands

- Frequent online ordering
  - E-commerce order volumes are increasing three times faster than the retail industry at large
- Greater product variety
  - Larger, more volatile inventories
- Fast (and free) delivery
  - Growing fulfillment costs
- Mass urbanization
  - Limited space, more expensive land

## A Decade of U.S. E-Commerce Growth

E-commerce vs. total retail sales, in \$billions, 2007-2016



Source: Internet Retailer, U.S. Department of Commerce

\*Factoring out the sale of items not normally purchased online such as fuel, automobiles and sales in bars and restaurants.

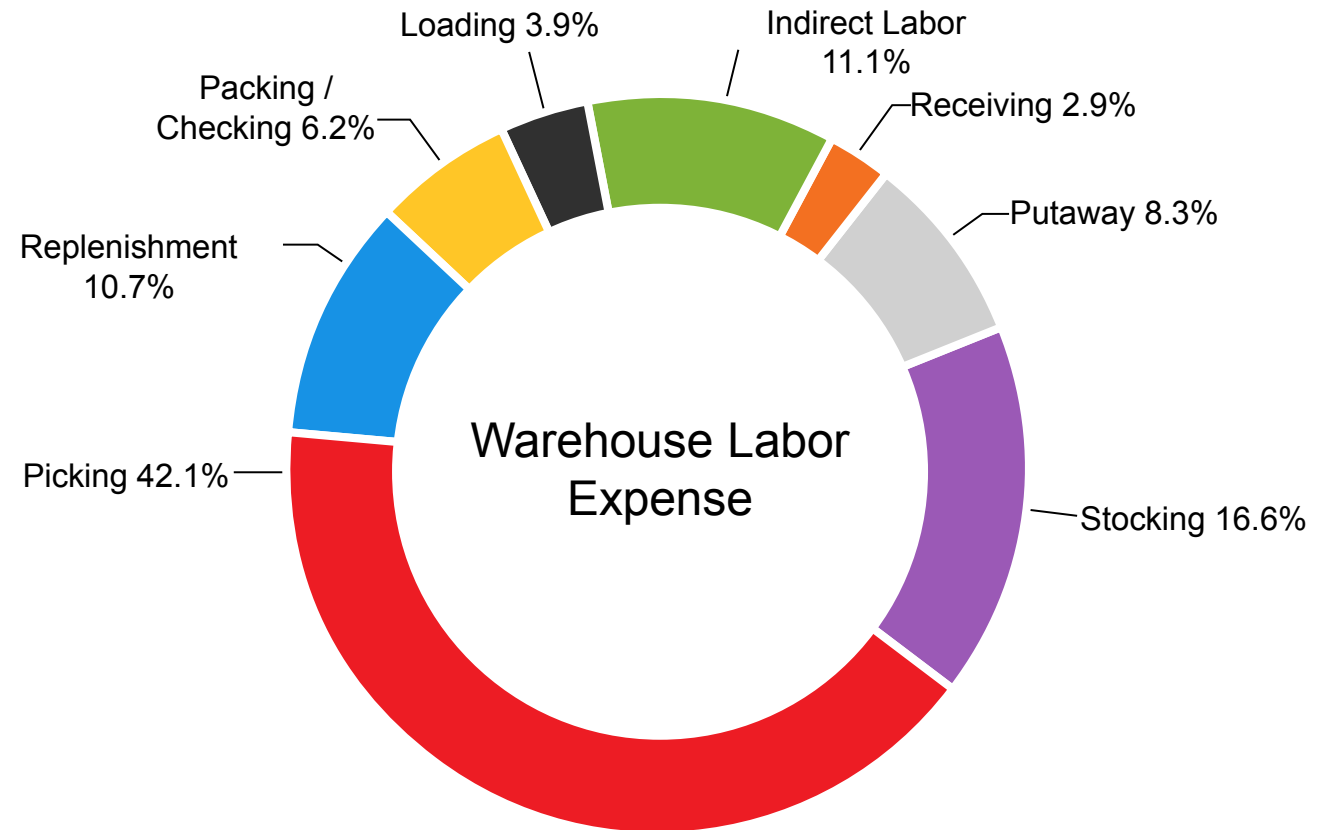
3.8%

14.5%

5 Yr. CAGR

# A Challenging Fulfillment Landscape — Labor

- Order fulfillment is the most crucial and labor-intensive process in a DC
  - Labor pool shrinking
  - Growing pressures from wage increases
  - 4 of the top 10 WERC DC metrics are labor-related



# Poll Question #1

What do you consider the greatest labor challenge for your fulfillment operation?

- Recruiting
- Retaining
- Training
- Cost
- Efficiency
- Other

# Good Help is Hard to Find — and Retain

- U.S. warehouses face:
  - 600,000 unfilled jobs
  - 25% turnover rate
  - 270,000 new jobs expected by 2018



## Poll Question #2

Which of the following is your operation considering or already implementing to address fulfillment labor challenges?

- Workflow adjustments
- Automated equipment
- Mobile technology
- Other



# Re-engineering the Fulfillment Workflow

Shift from **operator-to-goods** to **goods-to-operator** fulfillment



# Comparing the Two Workflows — OTG

- Labor intensive
- High walk times
- Low pick rates
- Diminishing efficiency return
- Low capital investment, high operating cost

*Workers can spend up to half their time walking between pick locations, rather than actually picking.*

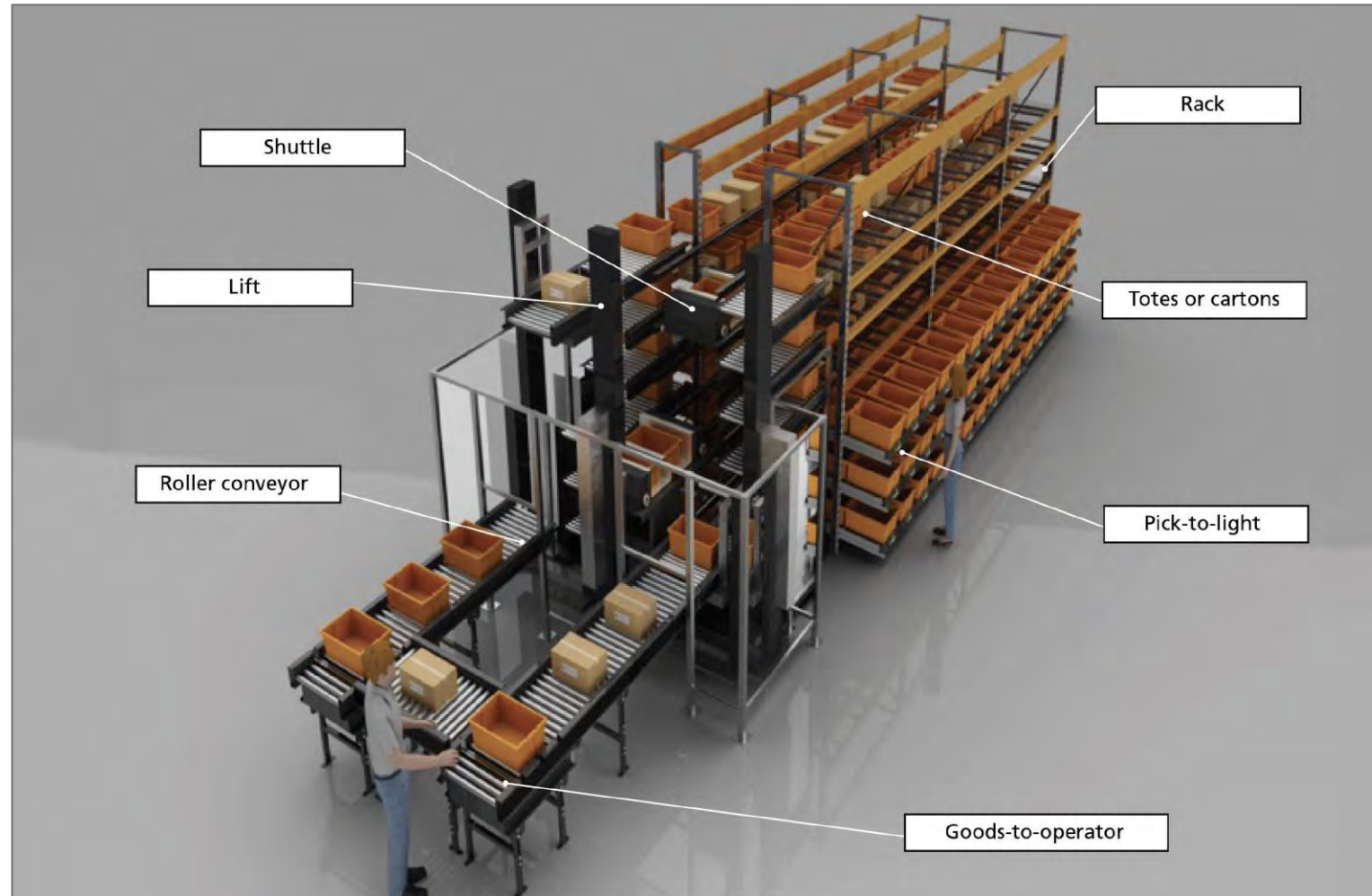


# Comparing the Two Workflows — GTO

- No walk time
- High pick rates
- Low labor requirements
- Maintains high efficiency as order volumes rise
- Large capital investment, low operating expense



# GTO Overview



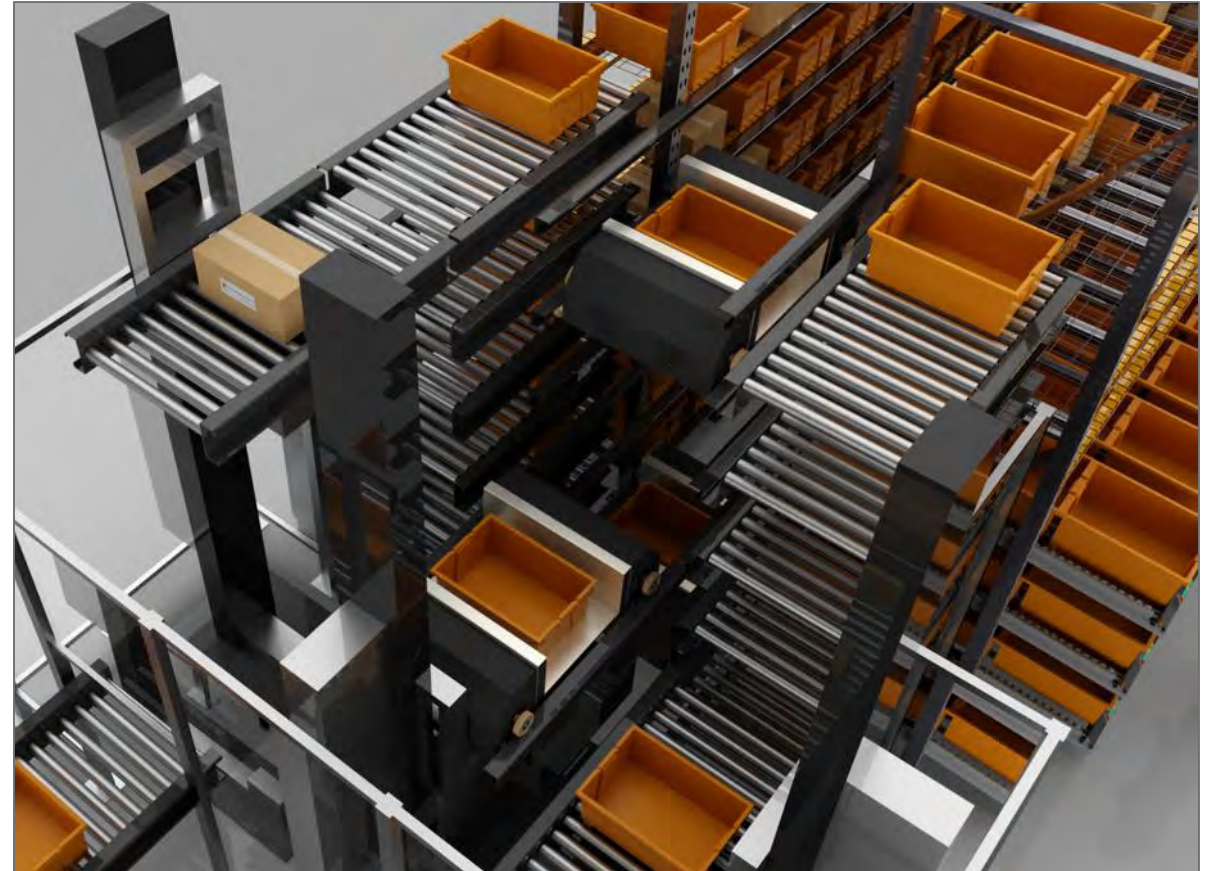
# GTO Effects on Labor

- Improved ergonomics
- Increased safety
- Improved focus
- Greater long-term productivity

*More orders filled with greater accuracy in less time, using fewer employees*

# AS/RS Shuttle Systems: The Key GTO Enabler

- Greater storage density
- More storage capacity
- Flexible to accommodate layout constraints
- Scalable to accommodate growth
- Quicker access to inventory to feed downstream processes



# How do they work?

1

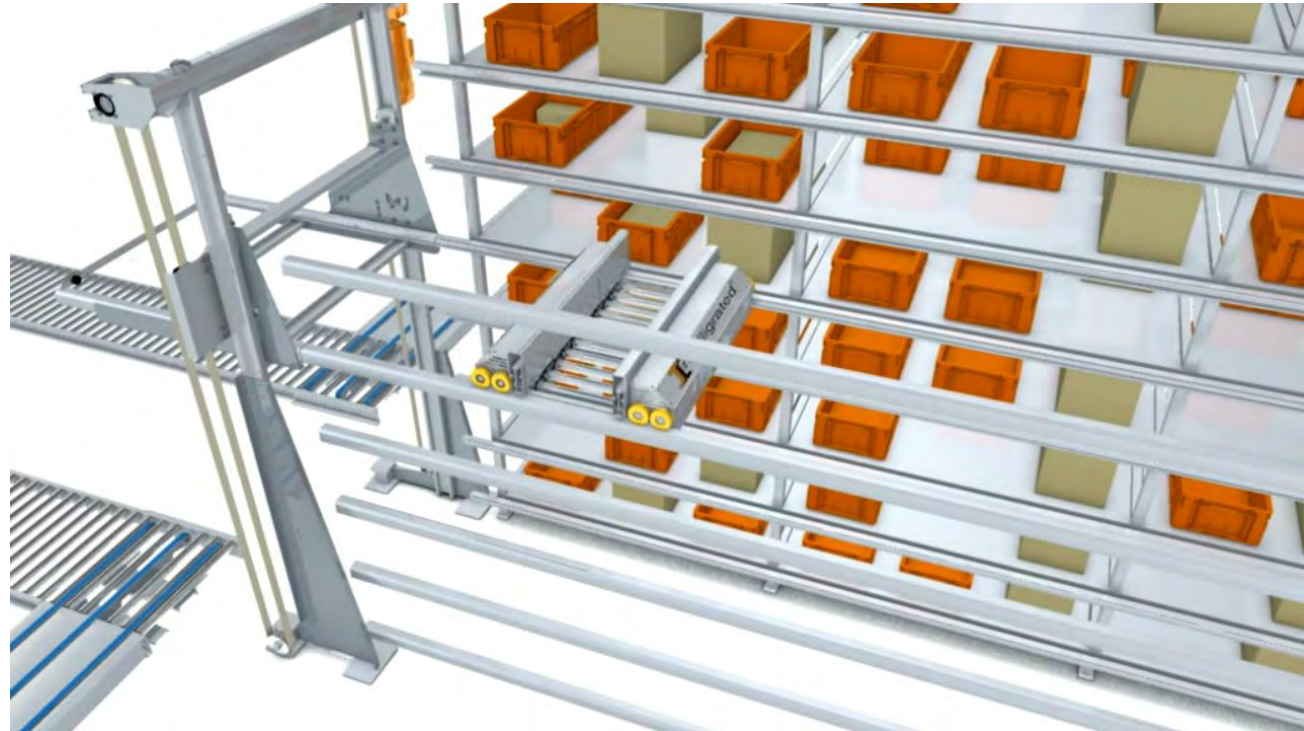
Shuttles retrieve inventory in cartons, totes, cases or other storage media from narrow aisles.

2

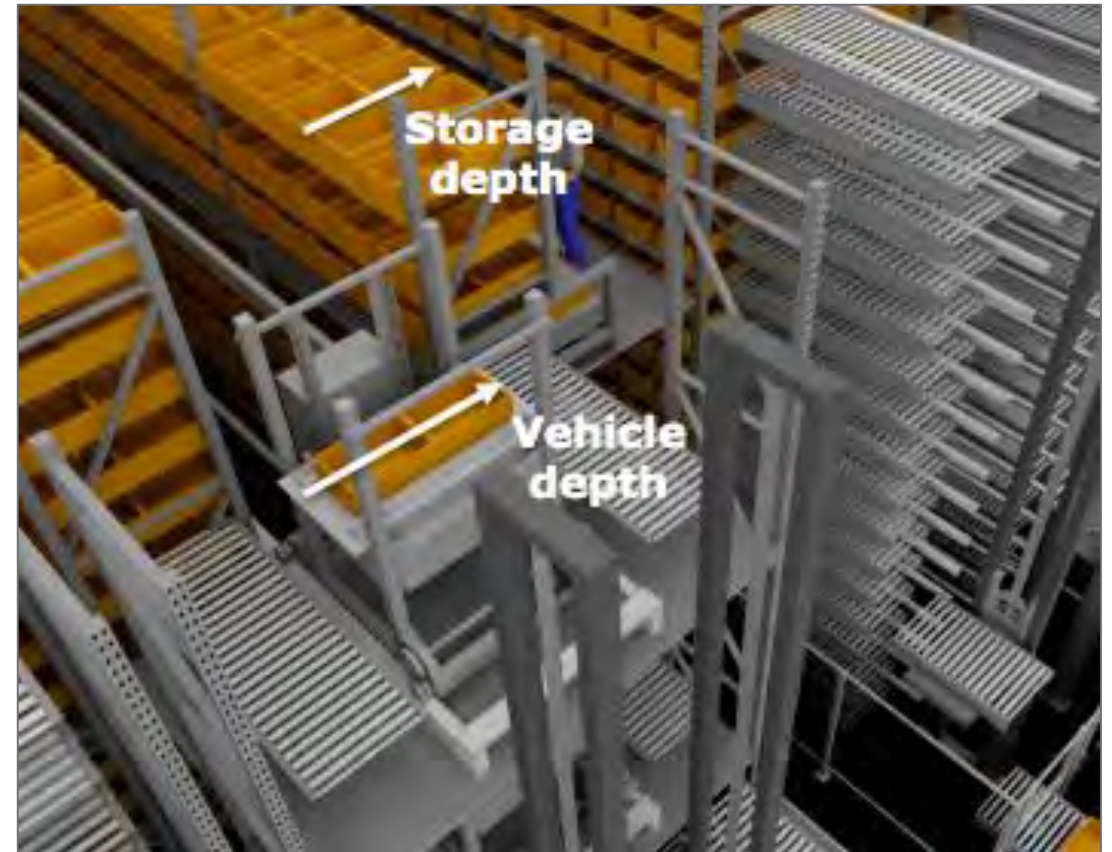
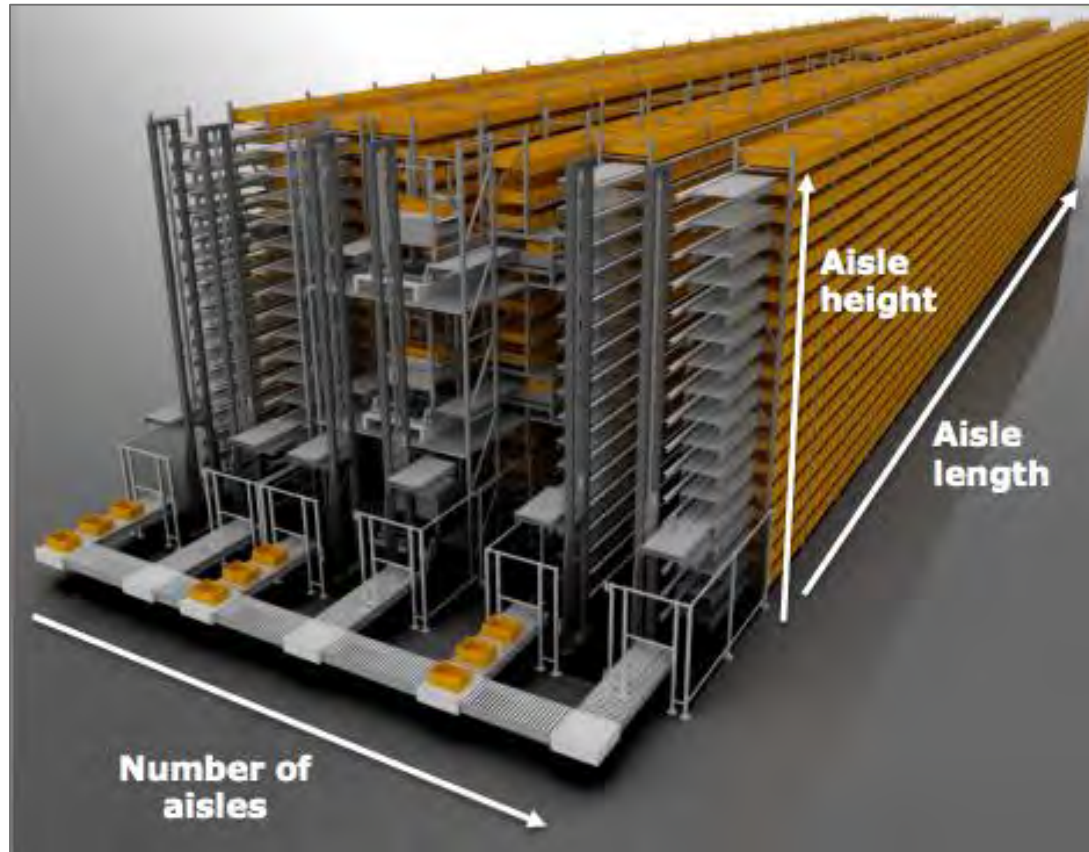
Shuttles can travel between levels via shuttle lifts.

3

Multiple shuttles can operate in the same aisle to increase throughput capabilities.







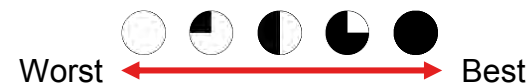
# System Flexibility, Reliable Support





# Other AS/RS Solutions

AS/RS technology	How it works	Load type	Throughput capability	Best-suited applications
Unit load	Maximum one crane per aisle, serving all storage levels	Pallets		Wholesale distribution - pallet loads, agricultural storage
Carousel	Series of bins revolving on an oval track	Bins		E-commerce distribution - goods-to-operator order fulfillment; sequencing and buffering
Mini-load	Generally one crane per aisle, serving all storage levels	Trays, totes or cartons		E-commerce distribution - goods-to-operator order fulfillment; sequencing and buffering
Shuttle	Several shuttles serve a single aisle	Trays, totes, cartons or bins		E-commerce distribution - goods-to-operator order fulfillment; sequencing and buffering



Unit load



Carousel



Mini-load

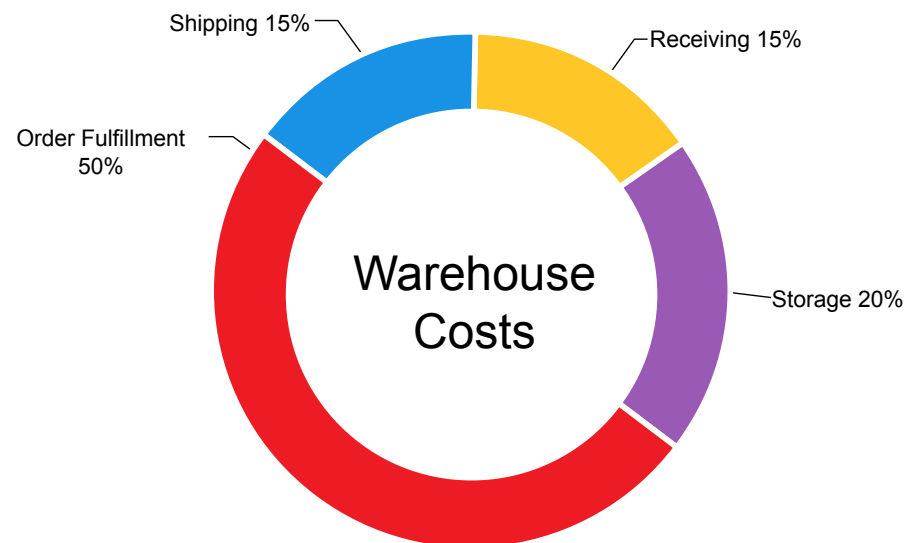
## Poll Question #3

What fulfillment metric does your organization feel is most important?

- Cost per pick
- Throughput
- Labor efficiency
- On-time shipments
- Mean time to fulfill an order
- Inventory turnover

# Operational Benefits that Drive the ROI Equation

- Space utilization
  - Greater storage density
  - Avoid/delay facility expansion or new construction
  - Handle expanding inventories
- Labor
  - Direct labor savings
  - Workers' comp savings
  - Combat turnover
  - Reduce long-term training, recruitment burden
- Throughput
  - Scale as transactional or storage demands increase
  - Increase throughput using same amount of labor
  - Reduce order cycle time
  - Reduce cost per pick



# Questions?