Warehouse Automation & Robotics: Expectations vs Reality

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Driving Forces For Automation: What We Know.

• Unemployment Down
• Labor Shortages
• Skilled Labor At Premium
• Hourly Wages Continue To Increase
• Workplace Injuries
• Rising Insurance Costs
• Increasing Safety Regulations
What’s Holding You Back?

• Uncertainty
• Downtime
• Return On Investment
• Upfront Expense
• Training Costs/Time
Rising Labor Costs

Average Hourly Warehouse Wages (2009 – 2019)

(Source: Bureau of Labor Statistics)
160,000 Square Foot Manual Operation
Warehouse Layout

Where most DC’s start
Zoned Conveyor Implementation
Pallet Pick and Carton Flow with Pick-to-Light
Slotting/Inventory Analysis

- 80 / 20 rule is more 70 / 30
- Lower 50% SKU just a few % lines
- Slotting and slotting software
Goods-to-Man

- 400 lines (transactions)/hr
- Replenishment off shift?
- Not ideal for A-movers
- Limited by Tote Size
Automated Goods-to-Man
Example One

- $1m+ per aisle
- Storage over 32’
- Manufactured in NJ
- Local Maintenance Staff
Automated Goods-to-Man

Example Two

- ~$5m per 13,000 square feet
- Storage to 16’
- 1 Receiving Station
- 2 Pick Stations
Example 1: Put Wall vs Goods-to-Man
Pick Module

- ~ 90 to 200 pick per hour
- Nominally 40 foot storage aisle
- Must be correctly slotted
- Uses zoned picking
Pick Module
Automated Goods-to-Man Picking
Automated Goods-to-Man Picking - Layout
Example 2: Automating a traditional put wall
Put Wall

- ~ 400 puts per hour
- Normally no longer than 20 feet
- Must have the correct order profile
- Next batch starts when wall is 50% emptied
Put Wall - Demonstration
Put Wall in Action
Put Wall Layout
Automated Sortation Put Wall

- ~2400 puts per hour
- No longer than ~50 feet
- Must have the correct product size
- Standard software API
Automated Sortation Put Wall
Example 3: Autonomous Robotics
Pallet Jacks/Forklifts

- Personnel costs
- Safety hazards
- Maintenance costs
- Potential for damage to products/equipment
Autonomous Robotics

- 3 to 4-year ROI
- Self driving with collision detection
- Low maintenance requirements
- Software integration is key
Autonomous Robotics
Robotic Movement Path
THANK YOU!

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