The Warehouse of the Future: WMS, Voice, Robotics & Beyond

Presented by: HighJump
Presenters

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Objectives

- Discuss key challenges of today’s supply chain landscape
- Understand today’s role of next-generation technologies in the warehouse
- Learn how these technologies empower you to adapt to future demands
The Current Supply Chain Landscape

Today’s Top Warehousing and Logistics Challenges
We’re Playing in a Big Market

The US e-commerce market is growing at a 10% compound annual growth rate. Total domestic e-commerce revenue will top $650 billion by 2021.

Of the $504,000,000,000 (that’s billions) in e-commerce sales last year, Amazon sales accounted for about 1/3.

Warehouse workers have seen their hourly wage increase by more than 30% since 2001.

While you’ve been reading this slide, 39,642 items have been picked from warehouse shelves in the USA.
Today’s Warehouse Challenge

Piece ("each") Picking
The Amazon Effect

Forecast E-Commerce Revenue Growth (10% CAGR)

E-Commerce Labor

Consumer Expectations

VIP Service
Express Delivery
Gift wrap
The Amazon Effect

- Forecast E-Commerce Revenue Growth (10% CAGR)
- E-Commerce Labor
- Consumer Expectations

VIP Service
Express Delivery
Gift wrap
Demand for Labor is Highly Seasonal

- **Peak Season**: Peak:Average = 4X, Peak:Low = 13X

- **Average Volume**

- **Low Season**

- **Peak Season**
  - Layoff 80% of workforce here
  - Hire here: 5X workforce
  - Train workers @ $1,000 each

- **Average Volume**
  - Workforce

- **Low Season**

- **Typical E-Commerce Warehouse Pick Volume**

- **Month**: January, February, March, April, May, June, July, August, September, October, November, December
Typical E-Commerce Scenarios

Back to School
- Gym shorts
- Spiral notebooks
- Backpack
- Penny loafers

Personal Care Purchases
- Multivitamins
- Razor blades
- Cosmetics

Office Supplies
- Paper clips
- Post-it notes
- USB drives
- File folders

Holiday Shopping
- Katie: camera drone
- Roberto: video games
- Ahmed: Building blocks
- Simone: 3D puzzle
- Caroline: perfume

Household Purchases
- Batteries
- Paper towels
- Dog treats
- Cleaning wipes
Basic E-Commerce Scenario
Exceeding Today’s Demands

Utilizing the technologies of tomorrow to adapt now
Trends – The Supply Chain of the Future

Supply Chain 4.0

- ... faster and efficient
- ... more flexible
- ... more granular
- ... more transparent

SOURCE: McKinsey
The Role of WMS

- Efficient, Flexible Processes
- Multi-ordered picking
- Differentiate Wave Strategies
- Waveless Prioritization
- Dynamic Slotting
The Role of Voice Technology

- Increased Productivity: 10% to 35% → 35%
- Reduction of Errors: 25% to 50% → 25%
- Reduced Training Time: Up to 50% → 50%
- Turnover Reduction: 15% to 30% → 30%
- Reduced Safety Incidents: 5% to 20% → 20%
Voice Technology in Action
The Role of Robotics

- Co-bots: Humans and Robots coexisting
- Addressing different problems in the process
- Flexibility of investment
Workers and robots operate as independent agents, allowing parallel processing, as each robot is shared by many workers.

Orders are assigned to robots to “flood the zone”. I.e., orders are selected for their close proximity to one another, as well as proximity to a worker.

Workers pick to the nearest robot, without worrying about which order they’re picking, or whether a particular order is close to completion.

Robot order assignments are designed to “sweep” across the warehouse, continuously delivering work as associates are directed through the aisles.

3 - 4 robots per worker

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Multi-Bot Pick “Sweeping” in the Real World
Scale to Meet Demands
The Warehouse of Tomorrow

Combining the capabilities of and capitalizing on the adaptability of WMS, Robotics, Voice
Evolution— Tying it all together

Supply Chain 4.0

... faster and efficient

... more flexible

... more granular

... more transparent

SOURCE: McKinsey
Key Takeaways

• With the right solutions, supply chain challenges (labor shortage, seasonality, shorter delivery windows) = opportunities to differentiate

• Next-gen technologies like voice and robotics are viable solutions for today’s warehouses

• Adaptability is key to staying competitive now and beyond
For more information

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