Warehouse Execution Software (WES)
Fact from Fiction

Presented by:
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Presentation Goals

• Separate fact from fiction on the role Warehouse Execution Systems (WES) in fulfillment operations

• Understand how Fortune 500 companies have leveraged WES to improve their operations
Fact vs. Fiction

1. WES is replacing Warehouse Management Systems (WMS).

2. WES is only for highly-automated facilities.

3. WES is only for greenfield implementations.

4. WES is complicated to deploy.

5. WES is expensive.
WES is replacing WMS – FALSE

**Inventory**
- Enterprise Visibility
  - Distributed Order Management
  - Demand Forecasting
  - PO Management
- Procure to Pay
  - PO Management
  - Yard Management
  - Receiving
  - Returns
- Inventory Availability (ATP)
  - Putaway
  - Moves
  - Perpetual Inventory Visibility
  - Recalls/Dispositions/Holds
- Fulfillment Support
  - Inventory Visibility
  - Replenishment
  - Order Status Tracking
- Transportation Management
- Labor Management
  - Engineered Standards
  - Reporting

**Throughput**
- Planning & Alignment
  - Wave Planning
  - Wave-less
  - Hybrid Plans
  - Batching
  - Move Logic
  - Task Interleaving
  - Dynamic Slotting
  - Cubing
- Workflow
  - Replenishment
  - Stocking
  - Pick & Put
  - QC/Audit
  - Pack/VAS
  - Palletize
  - Load
- Warehouse Control
  - Merge
  - Route & Sort
  - Buffering
  - Sequencing
  - Print & Apply
  - Weigh-in-Motion
  - Conveyor Controls
  - HMI

**Inventory**: The line of demarcation. Where does it make sense to make inventory eligible for order fulfillment? The answer dictates your best fit for WES.
WES is only for highly automated facilities – FALSE

- Manual pick solutions
- RapidPut subsystem
- Mid-automation sort and route solutions
- AMCAP, GTP Subsystems
- High automation, fully integrated execution modules
WES is only for Greenfields – FALSE

Brownfields
Get more out of what you have and lower costs with sharper execution.

Greenfields
Get more capacity and flexibility with right software and equipment design.

All
Create certainty, momentum and alignment within your four walls.
WES is complicated to deploy – FALSE
WES is expensive – FALSE...value is real

### Case Study

- Wholesale grocery and non-food products to retailers, convenience stores and restaurants.
- $50B+ revenue.
- Varying order profiles from as small as convenience stores’ to large retail stores’.

### Challenge

- Improve pickers’ productivity
- Reduce picking staff
- Reduce order turn-around time
- Maintain pick accuracy

- Make people & technology successful

### Time-based Simulation

- Order profile to simulate pickers’ decisions over time.
- Labor time standards to simulate how pickers spend time.

### Optimizations

### Results

<table>
<thead>
<tr>
<th>Metrics</th>
<th>Before WES</th>
<th>WES</th>
<th>WES Algo’s</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Pickers</td>
<td>62</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>Pick Rate</td>
<td>350 UPH</td>
<td>421 UPH 20%</td>
<td>510 UPH 46%</td>
</tr>
<tr>
<td>Picker Idle %</td>
<td>17%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Empty Backtrack %</td>
<td>2%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Time to Finish Picks</td>
<td>10.3 Hrs</td>
<td>7.9 Hrs</td>
<td></td>
</tr>
<tr>
<td>Total Labor Hours</td>
<td>457</td>
<td>375</td>
<td>21%</td>
</tr>
</tbody>
</table>
WES is expensive – FALSE...value is real

<table>
<thead>
<tr>
<th>Case Study</th>
<th>Challenge</th>
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<tbody>
<tr>
<td>International, omni-channel electronics (technology, computer services, mobile, etc.) retailer / distributor.</td>
<td>Small orders picked individually required too many work hours.</td>
</tr>
<tr>
<td>$50B+ billion annual revenue.</td>
<td>Facility’s capacity quickly reaching capacity.</td>
</tr>
<tr>
<td>Direct-to-consumer and over 1,000 stores and kiosks throughout the United States, China, Mexico and Canada.</td>
<td>Make people &amp; equipment successful</td>
</tr>
</tbody>
</table>

Put-to-Light Workflow Simulation
- Orders consolidated to increase pick density.
- PTL devices to enable configurable size put locations.
- Waveless processing

<table>
<thead>
<tr>
<th>Metrics</th>
<th>Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picker Idle Time</td>
<td>20%</td>
</tr>
<tr>
<td>SLSU Pick Labor</td>
<td>59%</td>
</tr>
<tr>
<td>MLMU Capacity</td>
<td>100%</td>
</tr>
</tbody>
</table>

Results
SLSU (single-line, single-unit), MLMU (multi-) & SLMU waveless and system directed work engines.
Fact vs. Fiction

1. WES is replacing WMS – FALSE

2. WES is only automated facilities – FALSE

3. WES is only for greenfield implementations – FALSE

4. WES is complicated to deploy – FALSE

5. WES is expensive – FALSE
For More Information:

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