Ten Tips for Implementing a Fulfillment Warehouse

Presented by:

John Ashodian      Kevin Reader      Gary Master
John Reichert      David Schwebel
Space

• Not just about square footage…what’s the volume?
• Inventory- how many active SKUs-think about the future
• Product mix/assortment…expansion?
• Consider special functional areas (ie. returns)
• # dock doors inbound/outbound…configuration
• Workflow...building shape, obstructions
• Automation and equipment, storage solutions
• Employee needs (environment, parking, access)
Energy

- Construction methods impact energy use
- Lighting and controls
- Space utilization planning
- Vehicle power alternatives
- Renewable- Solar and wind farms
- Worker comfort,
- Energy savings is good for environment and reduces cost for higher customer satisfaction
Software

• Create Joint Ops/IT team
• Better leverage existing capabilities
  – Invest in additional education / consulting
  – Pilot unused features
• Optimize across applications (e.g. WMS, WCS, WES)
• Futureproof Replacements
  – Adaptability trumps more features
  – Bi-directional scalability – volume, automation, complexity
  – Ease of decision making / predictive analytics
  – Risk reduction enablers – turn-over, facility relocations, etc.
Picking Method

- One size does not fit all
  - Consider multiple methods
  - Anticipate future trends

- Match method to order profiles / SKU’s
  - Batch / Cluster / Zone
  - Pick-and-Pass, Pick-and-Consolidate
  - Waveless / Workload balancing

- Person-to-Goods, Goods-to-Person, Fully Automated
  - SKU characteristics, storage density, volumes
  - Spike variances and downtime risks
Reduce Carbon Footprint - Sustainability

• Culture driven – process enabled
• Not a normal “project process”
• Opportunities:
  – Building Size (design, equipment, software)
  – Energy (equipment, lighting)
  – Heating/Cooling
  – Water (consumption & conservation)
  – Re-use, Recycle (corrugated & packing)
  – Recycled Plastic (totes)
Operations Technology: Is there any doubt that emerging technology will drive fundamental change in the Supply Chain?

“Hey, my sensors detect that you are scanning my cards!”
Operations Technology: Control Towers

- Reduction in cost per order, cost per case, overall operating cost
- Reduction in personnel and increase in efficiency and utilization
- Visibility and transparency in operator skill management & performance
- Best Practice, data based foundation for process and performance management
- AI - System learning approach to continuous improvement
# Location – Urban Fulfillment

<table>
<thead>
<tr>
<th>E-Commerce Building Types</th>
<th>Building Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Site Selection</td>
</tr>
<tr>
<td>Last Mile</td>
<td>Last Mile</td>
</tr>
<tr>
<td>Last 50 Miles</td>
<td>Metro Sortation</td>
</tr>
<tr>
<td>Last 500 Miles</td>
<td>Regional/ National Sortation</td>
</tr>
</tbody>
</table>
Last Mile / Urban Distribution Center

- Pallet Receiving
- Bulk Storage
- Outbound shipping lane
- Drive Through Bay for order Pickup
- Viewing Windows
- Retail Store
- Vehicle Entrance Ramp
Logistics – Last Mile

- Still in early stages
- Wide Variety – New & Infill
- High Intensity of use
- Location, Location & Flexibility
- Omni-Fulfillment Experimentation
The Labor Shortage

• In the past two years 90% of firms have had trouble hiring staff in their logistics operations
• 36% have had to pay 7% or more in compensation
• 50% are hiring through staffing agencies, 84% are using overtime
• Why the shortage? 39% say Amazon, 61% not enough workers with the skill they need and 63% say strong economy
### Rural areas
Density of <50,000 inhabitants

<table>
<thead>
<tr>
<th>Regular parcel¹</th>
<th>High reliability</th>
<th>Same day</th>
<th>Instant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drones</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(same day, if fulfillment times feasible)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Urban areas
Density of 50,000–1 million inhabitants

<table>
<thead>
<tr>
<th>Autonomous ground vehicles with lockers</th>
<th>Fulfillment likely not possible at economical cost levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e-grocery with today’s delivery model)</td>
<td>TUOYAN’s delivery model</td>
</tr>
</tbody>
</table>

### Urban areas
Density of >1 million inhabitants

<table>
<thead>
<tr>
<th>Droids or bike couriers</th>
</tr>
</thead>
</table>
Labor Shortage - Tips

• Where to get labor?
• Vets to WERC helps with sourcing Vets (military spouses)
• Women- We NEED more women in our workforce.
• Partnerships with local technical schools and colleges
• Using talent or hiring agencies
• Creative solutions to get labor in markets that are underserved to your facility
• Automation- where it makes sense and provides a return
Turn Returns Into Profits
(Data from Mikhail Ledvich/Shippo)

- Return in-store OR ship back for free using prepaid label: 82% Likely to complete sale, 14% Neutral, 5% Unlikely to complete sale
- Return not accepted in-store BUT ship back for free using prepaid label: 67% Likely to complete sale, 20% Neutral, 13% Unlikely to complete sale
- Return in-store OR buyer pays for return shipping: 45% Likely to complete sale, 31% Neutral, 24% Unlikely to complete sale
- Return in-store OR ship back for free using prepaid label BUT there is a restocking fee: 33% Likely to complete sale, 35% Neutral, 32% Unlikely to complete sale
- Return not accepted in-store AND buyer pays for return: 20% Likely to complete sale, 29% Neutral, 51% Unlikely to complete sale
For More Information:

John Ashodian: john.ashodian@sick.com
Website: www.sickusa.com

John Reichert: john.reichert@tecsys.com
Website: www.tecsys.com

Kevin Reader: kevin.reader@knapp.com
Website: www.knapp.com
For More Information:

David Schwebel: david.schwebel@swisslog.com
Website: www.swisslog.com

Gary Master: gmaster@dcvelocity.com
Website: gmaster@dcvelocity.com