OSU Capstone – Gate 4 Review
End to End Supplier Replenishment
End to End Supplier Replenishment

Background

- Industrial Manufacturer Supply Chain
  - Move from “Procurement” to “Materials Management”
  - Increased Responsibility for
    - Demand Planning
    - Non-WIP Inventory
    - Reduced Supplier Lead-time

- Challenges
  - Consistency of Operation
  - Order Efficiency-Company to Supplier
  - Company Receiving Efficiency
End to End Supplier Replenishment

Current Condition – Enterprise Goals

• DSI Goal
  – Enterprise Goal to Obtain “xx” DSI per Division
  – 50% of Inventory Supply Chain Based

• Supplier Continuous Improvement
  – 2% - 10% Annually per Supplier

• “Deflation” Goal
  – 3% of Spend Annually per Division
    • Efficiency
    • Price
    • Value
End to End Supplier Replenishment
Current Condition - Enterprise

• Process
  – Supplier Loop Supermarket Sizing
    • Average Demand Based
  – Replenishment Triggering
    • Card Based - Internal
    • Purchase Order - External
  – Receiving Process
    • Manual
    • Inspection Based
End to End Supplier Replenishment
Current Condition - Enterprise

• Technology
  – Supermarket/Warehouse
    • Plan for Every Part (PFEP)
    • Demand Forecasting/Supply Planning (Logility)
  – Purchasing
    • Back-Office Purchasing
    • Back-Office Kanban
  – Supplier
    • E-Commerce Buy Side – Kanban/Release
    • E-Commerce Buy Side – Shipping
  – Receiving
    • Limited
End to End Supplier Replenishment Goals

• Reduce Supplier Replenishment Lead Time by 2 Days
• Reduce Days of Purchased Inventory by 2 Days
• Reduce the Number of Part Numbers Required to be Processed through Inspection by 50%
End to End Supplier Replenishment
Current Value Stream Map

Lead Time
Loop 1: 3.1 Days
Loop 2: 14 Days
End to End Supplier Replenishment
Future Value Stream Map

**End to End Replenishment**
Future State Value Stream Map
June 2013

- **Single-Point Initialization**
  - Production Control sets the priorities
  - MRP
  - Signal to release Parts or PO

- **Pitch (Visual Mgmt Timeframe)** = 1 hour
  - Tugger routes are hourly

- **Continuous Flow**
  - Receive – Inspect – Stock Process

- **Work-Flow Cycle around incoming supplier parts**

**Design Guidelines for Business Processes**

1. **Takt Time** = \((440 \text{ min/day}) / (200 \text{ lines ordered/day})\) = 2.2 minutes
2. **FIFO** – FIFO lanes installed between processes
3. **Integration Events** – N/A
4. **Standard Work** – for each process (A10, A20, A30 & A40)
5. **Changes in Demand** – Plan B will be developed for influx of parts (i.e., Crate from overseas)

<table>
<thead>
<tr>
<th>Process</th>
<th>Time</th>
<th>Lead Time</th>
<th>C/A</th>
<th>%</th>
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<tbody>
<tr>
<td>A10</td>
<td>240</td>
<td>1 Hrs</td>
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<tr>
<td>A20</td>
<td>300</td>
<td>1 Hrs</td>
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<td>%</td>
</tr>
<tr>
<td>A30</td>
<td>30</td>
<td>4 Hrs</td>
<td>100</td>
<td>%</td>
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<tr>
<td>A40</td>
<td>30</td>
<td>2 Hrs</td>
<td>100</td>
<td>%</td>
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**Lead Time** = 11 days
**Process Time** = 39.5 mins
**Correct & Accurate** = 100%
# End to End Supplier Replenishment Counter Measures

<table>
<thead>
<tr>
<th>Cause</th>
<th>Description</th>
<th>Impact</th>
<th>Challenge</th>
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<tbody>
<tr>
<td>Unnecessary Inspections</td>
<td>Receiving process to indicate at time of receipt whether &quot;light&quot; inspection is sufficient and to be completed at time of receipt.</td>
<td>H</td>
<td>L</td>
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<tr>
<td>Inconsistent Supplier Labels</td>
<td>Create consistent supplier label generation through Phconnect</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>Lost Kanban Cards</td>
<td>Eliminate receiving card rack and replace with a digitized board</td>
<td>M</td>
<td>M</td>
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<tr>
<td>Late Supplier Delivery</td>
<td>Eliminate order administrative lead time by having picker trigger supplier order/replenishment</td>
<td>H</td>
<td>L</td>
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<tr>
<td>Late Supplier Delivery</td>
<td>Digitize inbound ASN at the time the supplier ships to reduce bottlenecks at the receiving dock</td>
<td>H</td>
<td>M</td>
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<tr>
<td>Stockouts</td>
<td>Establish standard work for analyzing part balances and transactions on a regular basis to determine if adjustments to kanban's are necessary</td>
<td>H</td>
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Kanban – Supplier View

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<tr>
<th>Part Nbr</th>
<th>Need Date</th>
<th>Open Sched Qty</th>
<th>PO Nbr</th>
<th>PO Rel</th>
<th>Promise Date</th>
<th>Requested Card Nbr</th>
<th>Nbr of Cards</th>
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Ordered by Part Number Ascending
Showing: 1 - 18 Found: 18
## Shipment Management

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<th>Part No.</th>
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<th>MOQ Rest</th>
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<th>Contract No.</th>
<th>PO Nbr</th>
<th>Line Nbr</th>
<th>Open Sched</th>
<th>Qty</th>
<th>Need Date</th>
<th>Promised Date</th>
<th>Delivery Date</th>
<th>Status</th>
<th>Code</th>
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Filter and Sort

Click to go to Shipping Dock

Move to Shipping Dock

Items per page: 25 | 50 | 100 | 200