How To Support Your Supply Chain Operations with Lean Inbound Logistics

Supply Chain Management Series
Lean Inbound Logistics
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www.scl.gatech.edu/lil
Your Presenter: Brad Bossence

Career Focus:
20 years of third party logistics and consulting experience with a specific focus in Lean Culture Transformation, Executive Coaching and Supply Chain Advancement.

Currently Responsible For:
Leading LeanCor Consulting services, including end to end supply chain strategy, tactical material flow improvement, strategy deployment and people development.

Industry Group Speaker:
Atlanta WERCouncil President, AME, CSCMP, GTSCL, Institute of Industrial Engineers, Lean Enterprise Institute, Georgia Center for Logistics, Honda Lean Network
As Director of Distribution Center Operations for HUGO BOSS, Reemer Youmans leads company-wide initiatives to manage inventory, reduce costs, improve processes and procedures, enhance scheduling, and reduce labor costs—while meeting or exceeding productivity goals and quality assurance standards.

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Supply Chain & Logistics Management

- Logistics are sections of the orchestra
- Supply Chain Management is the conductor who sets the rhythm for all logistics functions
- Trying to optimize each logistics function independently will sub optimize the supply chain
- Optimize the supply chain by enabling the logistics functions to work systematically
The goal of a business is to maximize customer value, at the lowest possible total cost, while treating people and the world with respect.

Supply Chain Performance of an organization is a reflection of the overall performance of the organization.

Business decisions are made in all parts of a business, but the good and bad of a decision will manifest itself in the supply chain (another department usually).

Waste manifested in the Supply Chain will be most evident in: customer fill rates, inventories, working capital, rework, lead time and operating costs. (Inbound Logistics!)
Transportation as Part of the Overall Supply Chain Strategy

- **Total Cost of Fulfillment**: Build models and lead and make decisions based on Total Cost of Fulfillment.

- Recognize that all decisions have unintended consequences and as leaders we must become systems thinkers.
Inbound Logistics Performance = Organizational Performance

The goal of a business is to maximize customer value, at the lowest possible total cost, while treating people and the world with respect.

Overall performance of an organization is reflected as the 10 Rights:

- Fulfill the Right Product to the Right Customer
- in the Right Quantity
- in the Right Quality
- at the Right Time
- from the Right Source
- at the Right Price
- at the Right Cost
- with the Right Service
- all within the Right Complexity
Inbound Logistics as Part of the Overall Supply Chain Strategy

- **Total Cost of Fulfillment**: Build models and lead and make decisions based on Total Cost of Fulfillment.
- Recognize that all decisions have unintended consequences and as leaders we must become systems thinkers.
Lean vs Traditional Inbound Logistics

Definition A:
- Suppliers provide visibility to shipments
- Routes are designed and tendered daily
- Rate per mile is rigorously managed
- Cost per supplier is rigorously managed
- Incorrect shipment quantities are managed at delivery

Definition B:
- Shipping days are communicated to each supplier
- Network is designed by engineers and is adjusted based on plan vs. actual
- Total landed cost is rigorously managed
- Incorrect shipment quantities are managed at pick-up

Poll Question
Which best describes Lean Inbound Logistics?
Step 1: Make Demand Visible, Select Your Pilot

A TMS must easily integrate with our other systems

- Provide visibility to data in real-time for proactive problem solving
- Find value in your transportation
  - Opportunity to ensure **optimal routing** in terms of customer business rules and service (i.e. transportation cost)
  - Connect transportation to **manufacturing and inventory strategy**

Poll Question
A: Forecast data drives our inbound material flow
B: Demand data drives our inbound material flow
Pilot Selection: Find Stability

Stable Route Plan Benefits:
- Carrier Capacity
- Purchasing Power (trans)
- Predictability & Visibility for DCs, Plants, Trucking, etc.

LTL Challenges:
- Lead Times
- Damages
- Value Added Services
- Control

Problem Solve to Maximize Visibility for Planning

Ideal for Static Truckload
Static Milk Run
Dynamic Milk Run / LTL Consolidation
Of These 4 Suppliers, Where Would You Start?

Poll Question
Which supplier would you pilot milk run activity?

<table>
<thead>
<tr>
<th>Volume</th>
<th>Fill rate</th>
</tr>
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<tbody>
<tr>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Priority # ?</td>
<td>Priority # ?</td>
</tr>
<tr>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>Priority # ?</td>
<td>Priority # ?</td>
</tr>
<tr>
<td>B</td>
<td>D</td>
</tr>
</tbody>
</table>
Pilot Selection: Solve Material Flow Problems

Priority # 1
A
High Volume
Low Fill rate

Priority # 2
B
Low Volume
Low Fill rate

Priority # 3
C
High Volume
High Fill rate

Priority # 4
D
Low Volume
High Fill rate
Step 2: Milk Run Design & Plan For Every Part (PFEP)

- Central database of all critical information required to make business decisions relative to material flow

- Planned Pull systems: connects consumption through replenishment

-- 53' Dry Van Utilization:
  - Traditional Transportation Design:
    - 26 Floor Spots (standard skids)
    - 44,000 Pounds
  - Lean Transportation Design:
    - Liquid Cube: $52.5' \times 8.17' \times 8.67'$
      - 3948 Cubic Feet
      - 146.21 Cubic Yards
    - Design Cube: $52.5' \times 8.17' \times 104''$
      - 3719 Cubic Feet
      - 137.73 Cubic Yards
Lean Logistics Concept 1 of 3: Lot Size

Customer Daily Requirements = x75

Day 1: 100
Day 2: 75
Day 3: 25
Day 4: 25
Day 5: 100

Order Lot Size = 50

Day 1: 75
Day 2: 75
Day 3: 75
Day 4: 75
Day 5: 75

Order Lot Size = 25

What Happens Here?
What are the Implementation Challenges?
Lean Logistics Concept 2 of 3: Frequency

Delivery Frequency Analysis
1 Truck Load = 1 Week Store / Distribution Center Requirements

<table>
<thead>
<tr>
<th></th>
<th>Monthly</th>
<th>Weekly</th>
<th>Daily</th>
<th>2X Day</th>
<th>4X Day</th>
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<tr>
<td><strong>Delivery Frequency (One Part or SKU #)</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Space Used for Inventory (SQ Feet)</td>
<td>2000</td>
<td>500</td>
<td>100</td>
<td>50</td>
<td>25</td>
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<tr>
<td>Average Days on Hand (Days Inventory)</td>
<td>10</td>
<td>2.5</td>
<td>0.5</td>
<td>0.25</td>
<td>0.125</td>
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<tr>
<td>Minimum Order Lead Time</td>
<td>1 month</td>
<td>1 week</td>
<td>1 day</td>
<td>12 hours</td>
<td>6 hours</td>
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<td><strong>Percent Improvement from Increased Frequency</strong></td>
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<td></td>
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<td></td>
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<tr>
<td>Space Used for Inventory (SQ Feet)</td>
<td>75%</td>
<td>80%</td>
<td>50%</td>
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<tr>
<td>Average Days on Hand (Days Inventory)</td>
<td>75%</td>
<td>80%</td>
<td>50%</td>
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<td>75%</td>
<td>80%</td>
<td>50%</td>
<td>50%</td>
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Lean Logistics Concept 3 of 3: Level Flow

Where can we use this concept tomorrow?
Transportation Design & Velocity

- Customers
- Suppliers

200 Cubic Yards / Day

1200 Cubic Yards / Day... X 12 day

400 Cubic Yards / Day

600 Cubic Yards / Day... X 6 day
Step 3 and Beyond: PDCA

- Disciplined Route Management
- Disciplined PO / Supplier Management through real-time communication
- Disciplined Carrier Management Program
- Total Cost Management

Do - Check - Adjust

<table>
<thead>
<tr>
<th>Part #</th>
<th>Supplier</th>
<th>Avg. Daily Usage</th>
<th>Parts per Container</th>
<th>Length (IN) / Container</th>
<th>Width (IN) / Container</th>
<th>Depth (IN) / Container</th>
<th>Cubic Inches used per day</th>
<th>Cubic Feet</th>
<th>Cubic Yards/Day</th>
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</table>

TOTAL 73.09

Route Total 267.43

Liquid Cube

Design Cube = 52.5 feet long x 98 inches wide x 104 inches high
= 52.5 feet long x 8.17 feet wide x 8.67 feet high
= 3719 Cubic Feet
= 3719 Cubic Feet / 27 = 137.73 Cubic Yards

Frequency 1.94

Design Cube = 52.5 feet long x 98.5 inches wide x 110 inches high
= 52.5 feet long x 8.2 feet wide x 9.17 feet high
= 3948 Cubic Feet
= 3948 Cubic Feet / 27 = 146.21 Cubic Yards
Q&A with Reemer Youmans

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