ISM 125/225: MOT II
Supply Chain Management

Agenda:

1. What is a supply chain?

2. About the course

3. Supply chain basics
   - stages in a SC
   - processes in a SC
   - flows in a SC

4. Objectives of SC Management

5. Drivers in a Supply Chain

6. Project
   - Project Teams
   - Context
   - Relation to ISM 105 and other courses
1. What is a Supply Chain?

Assume that you (the customer) wants to buy laundry detergent

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Manufacture

Distributor

Retailer

Customer

Proctor & Gamble

- Walmart
- Safeway
- etc.

---

flow of information & cash

flow of product (supply)

---

Chemical suppliers

Plastic suppliers

Packaging supplier

Manufacturer

P & G
2. About the course

Refer to the "course information" sheet

3. Supply Chain Basics

Purpose of the Supply Chain: supply high-quality product to the customer, on-time, and at the lowest possible cost (price)

Objective of Supply Chain Management is to maximize profitability of the entire supply chain.

It's no longer about Company A vs Company B, but about "A's supply chain" vs. "B's supply chain"
Supply chain profitability $= \frac{\text{Value}}{(\text{Revenue from the customer}) - (\text{all the costs incurred in the supply chain})}$

Goal: maximize SC profitability (aka SC surplus)

Stages in a SC

- Suppliers → Manufacturer → Distributor → Retailer → Customer
Processes in a Supply Chain

Cycle View:

Customer

Customer Order cycle

Retailer

Replenishment cycle

Distributor

Manufacturing cycle

Manufacturer

Procurement cycle

Supplier

Cycles occur between 2 stages
Cycles can be Push or Pull

Pull \implies \text{cycle is initiated by a request ("pull") from the customer}

Push \implies \text{cycle is initiated in anticipation of customer demand}

Example: DELL: Build-to-Order

\begin{center}
\begin{tikzpicture}
    \node (suppliers) at (0,0) {Suppliers};
    \node (manufacturer) at (2,0) {DELL (Manufacturer)};
    \node (customer) at (4,0) {Customer};

    \draw[->] (suppliers) -- (manufacturer); % Push
    \draw[->] (manufacturer) -- (customer); % Pull

    \node[below=0.5cm of manufacturer] {Push-pull boundary};
    \node[below=0.5cm of customer] {Dell initiates customer order cycle based on a customer order \implies Pull cycle};
\end{tikzpicture}
\end{center}

Dell also stocks supplies (for making PCs) in anticipation of customer demand \implies Push cycle
FLows in a supply chain

- Product flow
- Cash flow
- Information flow

{ see example on page 1 }

(upstream)

<table>
<thead>
<tr>
<th>Information</th>
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<tbody>
<tr>
<td>cash</td>
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<table>
<thead>
<tr>
<th>Product</th>
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<tbody>
<tr>
<td>(downstream)</td>
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Phases in Supply Chain Management

<table>
<thead>
<tr>
<th>Phase</th>
<th>Time-Scale (Time Horizon)</th>
<th>Example</th>
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</thead>
<tbody>
<tr>
<td>Strategy</td>
<td>years</td>
<td>- Suppliers?</td>
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<tr>
<td></td>
<td></td>
<td>- Facility location</td>
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<tr>
<td></td>
<td></td>
<td>- Etc.</td>
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<tr>
<td>Planning</td>
<td>several months to 1 year</td>
<td>- Inventory management (how much to stock)</td>
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<td>- What modes of transportation to use?</td>
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<tr>
<td>Operations</td>
<td>days to weeks</td>
<td>- Scheduling deliveries,</td>
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<td>- order fulfillment</td>
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<td>- Etc.</td>
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</tbody>
</table>
Function Structure for Supply Chain Management

Deliver products to the customer

- Quality
- Time
- Cost

PLAN
- Supply Chain Strategy
- Supply Chain Network
- ...

SOURCE
- Suppliers for product
- Source for cash

MAKE
- Manufacture Product
- Manage Inventory

Deliver
- Product to Customer (includes transportation)