Agenda

Lecture topic: Distribution Structures

- Customer service and customer satisfaction
- Different distribution structures
- Warehousing
Customer Service & Customer Satisfaction

**Customer satisfaction**: The degree to which customers are satisfied with the product and/or service received, and may apply to internal customers or external customers (Benita M. Beamon 1998).

**Customer satisfaction is comprised of three elements** (M. Christopher 1994):

1. **Pre-transaction satisfaction**: satisfaction associated with service elements occurring prior to product purchase.

2. **Transaction satisfaction**: satisfaction associated with service elements directly involved in the physical distribution of products.

3. **Post-transaction satisfaction**: satisfaction associated with support provided for products while in use.
Kano model for customer satisfaction (Bergman & Klefsjö, 2004).
Customer Service in Different Time Phases

Customer Service

- Pre-order service
- Service from order to delivery
- Service during delivery
- Post-delivery service
Elements of Customer Service

Pre-transaction elements
- Written statement of policy
- Statements in hands of customer
- Organizational structure
- System flexibility
- Technical services

Transaction elements
- Stock-out level
- Ability to back-order
- Elements of order cycle
- Time
- Transship
- System accuracy
- Order conveniences
- Product substitution

Post-transaction elements
- Installation, warranty, alterations, repairs, parts
- Product tracking
- Customer claims, complaints
- Product packaging
- Temporary replacement of product during repairs

Customer Service as a component of the distribution system (Bernard J. LaLonde & Paul H Zinszer, 1975)
Delivery Service Elements

- Inventory Service Level
- Delivery precision
- Delivery Reliability
- Delivery Time
- Delivery flexibility
Customer Service & Customer Satisfaction

Cost trade-offs required in marketing and logistics - (Stock & Lambert -2001).
Communication & Marketing

Communication enables the supplier to know and to clarify the buyer’s needs and expectations, and the buyer to identify their suppliers’ capacities (Dwyer et al., 1987; Jap & Ganesan, 2000; Claycomb & Frankwick, 2004). Communication is also important in problem solving and conflict resolution, improving performance measures with suppliers and customers, and creating competitive advantage that helps to maintain effective relationships (Stuart & McCutcheon, 2000; Rao et al., 2006).

**Offering and Timeframe Matrix** *(Christy, Oliver & Penn-1996)*.

<table>
<thead>
<tr>
<th>Transaction Type</th>
<th>Commodity Offering</th>
<th>Differentiated Offering</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Commodity Offering</strong></td>
<td>Commodity Transaction</td>
<td>Premium Transaction</td>
</tr>
<tr>
<td><strong>Call-off Contact</strong></td>
<td></td>
<td><strong>Marketing Relationship</strong></td>
</tr>
<tr>
<td><strong>Long Term</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SCMS Hierarchical Structure

SCMS hierarchical structure (Ming-Lang a & others, 2009)
Cooperation between Manufacturer and Wholesaler

Background and outcomes of cooperation between manufacturer and wholesaler
(R. Va´zquez & others, 2005)
Distribution utility values

✓ Form utility: represents added value created through value refinement of input goods to finished products.

✓ Place utility: represents added value created through making products available for acquisition at the right place.

✓ Time utility: represents added value created through making products available for acquisition and at the right time.

✓ Ownership utility: represents added value created when ownership rights or rights of use of a product delivered are transferred to a customer.
Distribution Structures - Intermediary Roles

Model of the relationship between utilities, gaps and roles

<table>
<thead>
<tr>
<th>Gaps</th>
<th>Roles</th>
<th>Utilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity gap</td>
<td>Aggregation role</td>
<td>Place utility</td>
</tr>
<tr>
<td>Distance gap</td>
<td>Spreading role</td>
<td>Time utility</td>
</tr>
<tr>
<td>Range gap</td>
<td>Consolidation role</td>
<td>Ownership utility</td>
</tr>
<tr>
<td>Variant gap</td>
<td>Creating variants role</td>
<td>Form utility</td>
</tr>
</tbody>
</table>
Distribution Structures - Intermediary Roles

The aggregation role

Manufacturer → Distributor → Customer
Delivery of 100 units

Delivery of 2 units

The spreading role

Manufacturer → Distributor → Customer
Delivery time: 2 weeks

Delivery time: 1 day

The consolidation role

Manufacturer → Distributor

Manufacturer → Distributor

Manufacturer → Distributor

Manufacturer → Distributor

Customer

Customer

Customer

Customer

Customer

Customer
Distribution Structures

**Direct deliveries**
- Few consumers
- Make to order
- Tendering
- Probable returns
- Lack of industry wholesaler

**Intermediaries**
- Several small consumers
- Frequent customer orders
- Fast delivery requirements
- Widespread customer base
- Mature standard product
Distribution Channels

**Transaction channels**
- Transaction channels for consumer products
- Transaction channels for industrial goods

**Material flow channels**
- Separate Transaction and material flow channels
  - Direct material flow channel
  - Direct transaction channel
- Shared transaction and material flow channels
  - Traditional warehousing and distribution
  - Cross-docking with sorting
  - Direct cross-docking and merge-in-transit
Alternative distribution channels with separated transaction and material flow channels
Distribution Channels

Alternative distribution channels with shared transaction and material flow channels
Distribution Channels

Material flows in cross-docking

Material flows in merge-in-transit
Storage

Why using a storage?

- Reduce transportation-production cost
- To coordinate supply and demand
- To assist in the production and process
- To assist in the marketing process
Storage & Material Handling Functions

Storage Functions:
- Holding
- Consolidation
- Break-Bulk
- Mixing

Material handling Functions:
- Loading and unloading
- Movement to and from storage
- Order filling
Different Types of Warehouses

- Commodity warehouses
- Bulk storage warehouses
- Temper-controlled warehouses
- Household goods warehouses
- General merchandise warehouses
- Mini-warehouses
Warehouse Structures

a) Decentralised structure

b) Centralised structure
### Postponement and speculation strategies

<table>
<thead>
<tr>
<th>Speculation</th>
<th>Postponement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery of finished product from downstream distributor stock</td>
<td>Delivery of finished product from manufacturer stock or from upstream distributor stock</td>
</tr>
<tr>
<td>Customer specific product made from standard components stored at downstream distributor</td>
<td>Customer specific product made and distributed by manufacturer (or upstream distributor)</td>
</tr>
</tbody>
</table>

**Material flow**

**Manufacturing**

**Speculation**

**Postponement**
Value-adding Distributions

- Simple assembly
- Supplementing with accessories
- Mixing
- Kitting
- Sorting
- Sequencing
- Adjustment
- Packing
- Labeling
RFID and Barcode Technologies

<table>
<thead>
<tr>
<th>Bar code</th>
<th>RFID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar codes require line of sight to be read</td>
<td>RFID tags can be read or updated without line of sight</td>
</tr>
<tr>
<td>Bar codes can only be read individually</td>
<td>Multiple RFID tags can be read simultaneously</td>
</tr>
<tr>
<td>Bar codes cannot be read if they become dirty or damaged</td>
<td>RFID tags are able to cope with harsh and dirty environments</td>
</tr>
<tr>
<td>Bar codes must be visible to be logged</td>
<td>RFID tags are ultra thin and can be printed on a label, and they can be read even when concealed within an item</td>
</tr>
<tr>
<td>Bar codes can only identify the type of item</td>
<td>RFID tags can identify a specific item</td>
</tr>
<tr>
<td>Bar code information cannot be updated</td>
<td>Electronic information can be over-written repeatedly on RFID tags</td>
</tr>
<tr>
<td>Bar codes must be manually tracked for item identification, making human error an issue</td>
<td>RFID tags can be automatically tracked, eliminating human error</td>
</tr>
</tbody>
</table>

RFID and Bar codes compared, Wyld (2006).