Introduction to Supply Chain Management

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FUEL SUPPLY CHAIN

UPSTREAM
Oil and Natural Gas Exploration and Production

World Marketplace

DOWNSTREAM
Refining

MIDSTREAM
Oil and Natural Gas Transportation

Transportation

Storage

Gasoline Transportation

Retail Location / Marketplace

Design and Construction

Spot Gasoline Market

©2005 Chevron Corp.
Australian Meat/Livestock Industry Food Safety Traceability Systems
EAN•UCC standards for Bar Coding and Electronic Messaging

Livestock Production
Livestock Slaughter
Carcase Boning
Case Ready Production
Distribution/Transport
Retail

Ear Tags with EAN•UCC and/or RFID (MFI)

Trace Back
SUPPLY CHAIN MANAGEMENT
Paddock to Plate Traceability
Track Forward
What Is A Supply Chain?

- The system of suppliers, manufacturers, transportation, distributors, and vendors that exists to transform raw materials to final products and supply those products to customers.

- That portion of the supply chain which comes after the manufacturing process is sometimes known as the distribution network.
What Is the Goal of Supply Chain Management?

- Supply chain management is concerned with the *efficient integration* of suppliers, factories, warehouses and stores so that merchandise is produced and distributed:
  - In the right quantities
  - To the right locations
  - At the right time

- In order to
  - Minimize *total system* cost
  - Satisfy customer service requirements
Sequential Optimization vs. Global Optimization

Sequential Optimization

- Procurement Planning
- Manufacturing Planning
- Distribution Planning
- Demand Planning

Global Optimization

Supply Contracts/Collaboration/Information Systems and DSS

- Procurement Planning
- Manufacturing Planning
- Distribution Planning
- Demand Planning
Why is Global Optimization Hard?

- The supply chain is complex.
- Different facilities have conflicting objectives.
- The supply chain is a dynamic system.
- The system varies over time.
Conflicting Objectives in the Supply Chain

1. Purchasing
   - Stable volume requirements
   - Flexible delivery time
   - Little variation in mix
   - Large quantities

2. Manufacturing
   - Long run production
   - High quality
   - High productivity
   - Low production cost
Confliciting Objectives in the Supply Chain

3. Warehousing
   - Low inventory
   - Reduced transportation costs
   - Quick replenishment capability

4. Customers
   - Short order lead time
   - High in stock
   - Enormous variety of products
   - Low prices
Why Is Uncertainty Hard to Deal With?

- Matching supply and demand is difficult.
- Forecasting doesn’t solve the problem.
- Inventory and back-order levels typically fluctuate widely across the supply chain.
- Demand is not the only source of uncertainty:
  - Lead times
  - Yields
  - Transportation times
  - Natural Disasters
  - Component Availability
Dealing with Uncertainty

- Pull Systems
- Risk Pooling
- Centralization
- Postponement
- Strategic Alliances
- Collaborative Forecasting
The Bullwhip Effect

Suppliers

Manufacturers

Warehouses and Distribution Centers

Customers
Supply Chain Variability

Source: Tom Mc Guffry, Electronic Commerce and Value Chain Management, 1998
Supply Chain Management Wants…

![Supply Chain Management Diagram](source: Tom Mc Guffry, Electronic Commerce and Value Chain Management, 1998)
Key Issues on SCM

- Distribution Network Configuration
- Inventory control
- Supply Contracts
- Distribution Strategies
- Integration and Partnerships
- Procurement Strategies and Outsourcing
- Product Design
- Information Technology
New Concepts

- Push-Pull strategies
- Direct-to-Consumer
- Strategic alliances
- Manufacturing postponement
- Dynamic Pricing
- E-Procurement
The End

Thanks for your attention.

Your questions or comments will be greatly appreciated.

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