Definition, Nature and Objectives of Supply Chain Management
Session Objectives

• To understand the role of Supply Chain Management in Manufacturing and Service Organisations

• To assimilate differences and similarity between Supply chain and logistics

• To know the impact of Supply Chain in gaining competitive advantage
Session Outline

• History of Logistics and Supply Chain Management (SCM)
• Defining and Nature of SCM
• Examples of SCM
• Importance of SCM
• Benefits & Goal of SCM
• Challenges & conflicts in SCM
• Bullwhip effect
Which companies will survive in the long run?

- Cost effective products and services
- Production and delivery cost minimal
- Enhanced Quality and Productivity
- Innovativeness
- Timely delivery
- Time to market
- Effective management
- Business process re-Engineering (Speed)
- Benchmarking
- Effective Supply Chain Management
Challenges today and tomorrow

- Uncertainty is certain
  - Increased –
    - Complexity
    - Competition
    - Compliance
SCM Importance

- Company Aberdeen, UK conducted a survey of 128 companies and discovered that growing supply chain complexity is the top business pressure with 44% companies citing it. Complexity also means cost.

- Pressure because of increased freight cost

[www.theloadstar.co.uk](http://www.theloadstar.co.uk) 4.2012
What are the key challenges of industries in India?
Success stories in SCM

• Wal-Mart

• Dell Computer

• Seven-Eleven
One Variant
> 6,200 Distinct Parts
Imported from 17 Countries
From > 300 Suppliers
Assembled in 1 Plant
Within few minutes
Exported to 34 Countries
Same day
Without becoming inventory!
The Supply Chain

CONSUMERS → Consumer Demand → Consumer Purchase → Inventory → Shipment to Retailer → Inventory

Retailer → Shipment to Wholesaler → Inventory → WHOLESALER

WHOLESALER → Order to Distributor

Distributor → Order to Manufacturer

Manufacturer → Production Order → PRODUCTION

MPS, Beergame.ppt

11/11/96
Leaders win through logistics

“Leaders win through logistics. Vision, sure. Strategy, yes. When you go to war, you need to have both toilet paper as well bullets at the right place and right time. In other words, you must win through logistics. Go back to the gulf war. After that war ended, media stories focused on the strategy devised by Colin Powell and executed by Norman Schwarzkopf. The guy who won the Gulf war was Gus Pagonis, the genius who managed all logistics “ – Tom Peters on Leadership
Case study of SCM: Mother Dairy

• Supplying milk everyday without fail means that many principles of SCM is in work
• Mother Dairy obtains milk from hundreds of co-operatives
• It is collected at centralised place near Delhi where milk is homogenized, pasteurized & gets loaded into special tankers
• Handles capacity of 650000 liltres/day
Case study of SCM : Mother Dairy

• Supplies to more than 560 of its own booths across Delhi and hundreds of other dealers
• Handles many varieties – skimmed, double toned, full cream milk in many sizes
• Makes more than 30 flavours of icecream
• Milk being crucial logistics, demand planning & production scheduling very critical
• Its performance can be measured by responsiveness, availability, timeliness, cost of distributions, level of inventory at various points.
SCM at work

Magic done by Mr. Lalu Prasad as railway minister in 2007

- Technology up-gradation
- Use of IT and communication
- Improved freight loading
- Increased axle-loading capacity of wagon
- IRCTC launch
SCM: Schematic
SCM emphasis

Between Supplier and till end customer there are many many activities. If the emphasis is on a particular operation, it is called process. If emphasis is on value-addition, it is called value-chain. If the emphasis is on movement (material, information, money) then it is called supply chain
Flow in SCM
SCM : Definitions

- SCM is a total system Approach to manage flow of informations, materials and services from raw material suppliers through factories and ware houses to the end customer.

- Supply chain is a network of facilities that procures raw materials, transforms them into intermediate goods and then final products and delivers the products to customers through a distribution system.

- SCM is a strategy to integrate Marketing – Distribution – Planning – Manufacturing – Purchase functions to manage individual conflicts.
SCM : Definitions

- SCM spans all movement and storage of raw materials, work in process inventory and finished goods from point of origin to point of consumption (supply chain)

- SCM is design, planning, execution, control and monitoring of supply chain activities with the objective of creating net value synchronizing supply with demand.

- Supply chain management focuses on how firms utilize their supplier’s processes, technology, capability to enhance competitive advantage, and the coordination of the manufacturing, logistics and materials management functions within an organization (Farley)
What is Supply Chain Management (SCM)?

Here are two more definitions:

The design and management of seamless, value-added process across organisational boundaries to meet the real needs of the end customer

Institute for Supply Management
What is Supply Chain Management (SCM)?

Managing supply and demand, sourcing raw materials and parts, manufacturing and assembly, warehousing and inventory tracking, order entry and order management, distribution across all channels, and delivery to the customer.

-The Supply Chain Council
Supply Chain Management

Integrating and Managing Business Processes Across the Supply Chain

Information Flow

Product Flow

- Tier 2 Supplier
- Tier 1 Supplier
- Manufacturer
- Purchasing
- Logistics
- Marketing & Sales
- Production
- R&D
- Finance
- Customer
- End Customer

Supply Chain Management Processes

- Customer Relationship Management
- Supplier Relationship Management
- Customer Service Management
- Demand Management
- Order Fulfillment
- Manufacturing Flow Management
- Product Development and Commercialization
- Returns Management

Source: scm-institute.org
Types of Supply chain

- Static and dominated by Customer in chain e.g. Toyota, IKEA
- Static and no domination by any one. E.g. supply to textile machines
- Dynamic and dominated by Customer E.g. Nokia
- Dynamic and no domination by customer E.g. Supply to electronics Industry
SCM Phases

SCM has passed through three phases

**Phase 1:** Physical distribution Management – Where manufacturing was handled in isolation & output was pushed to finished goods warehouse

**Phase 2:** Integrated Logistics Management – Operations of sales, procurement, manufacturing, Warehousing, transportation are integrated to achieve efficient & effective distribution system
SCM Phase - contd

Phase 3: Logistics management graduated to SCM to include scope to link external partners like suppliers, distributors, service providers and customers with a view to deliver enhanced value to customer by synchronized management of flow of physical goods, information and cash between source to customer.
Why Focus on SCM

1) Customer expectations are moving in the direction of
   - Increased Value Addition & Cost Consciousness
   - Response Time & Information Sensitivity
   - Need for Reliability

2) Increased competition forcing industries towards
   - Reducing Lead Times
   - Reduce Cost

3) Change of attitude forcing industry managers
   - Need for Integration and Partnerships
   - Continuous Improvement of Processes
What SCM is not?

SCM is not:

- Buying
- Developing suppliers
- Logistics
- Warehousing
- Inventory Control
- Kanban
- Make-Buy decision
- Manufacturing
- Distribution

○ Blind man touching elephant
○ All these together?
SCM : History

- 1960’s - Inventory Management Focus, Cost Control
- 1980’s - MRPII, JIT - Materials Management, Logistics
- 1990’s - SCM - ERP - “Integrated” Purchasing, Financials, Manufacturing, Order Entry
- 2000’s - Optimized “Value Network” with Real-Time Decision Support; Synchronized & Collaborative Extended Network

SCM term coined by Keith Oliver from consultancy firm Booz Allen Hamilton in 1982
Evolutionary Timeline of SCM

- **1950 - 1970**: Logistic in SCM
  - 1950: Initiate Logistic Concept
  - 1970: Mature Logistic Concept

- **1980 - 1990**: SCM in Manufacturing Industry
  - 1980: Initiate the SCM Concept
  - 1985: SCM in Manufacturing Industry

- **1990 - 2008**: Integrate SCM in Service Industry
  - 1995: Initiate SCM in Service Industry
  - 2007: Educational SCM
Do you see SCM at work here?

When online air/train ticket ordered?

When you buy soap in supermarket?

When you order computer at Dell?

Grain to cereal selling?

More examples
What is special in this car?
Under umbrella of SCM

Purchasing
Inbound transportation
Quality control
Demand and supply planning
Receiving, material handling & storage
Inventory control
Order processing
Production planning, scheduling & control
Warehousing/Distribution
Shipping
Outbound transportation
Customer service
Enablers for success of SCM

- Human resources
- Organization structure
- Information Technology
- Measurement
Goal of SCM

- To fulfill demand of:
  - Right Place
  - Right Time
  - Right Quality
  - Right Quantity
  - Right Price
Benefits of SCM

- Inventory reduction
- Productivity Improvement
- Personnel reduction
- Procurement Cost reduction
- High customer satisfaction
- Increased profit
- On-time delivery fulfillment
- Revenue/profit increase
- Better cash management
- Better order management
- Logistic cost reduction
- Financial close cycle improvement
Importance of Supply Chain Management?

Cost savings and better coordination of resources are reasons to employ Supply Chain Management.

- *Reduced Bullwhip Effect*- the magnified reduction of safety stock costs based on coordinated planning and sharing of information

- *Process Integration*- Interdependent activities can lead to improved quality, reduced cycle time, better production methods, etc.
Characteristics of SCM

SCM Includes:
* Material Flows
* Information Flows
* Financial Flows

SCM Facilitated by:
* Process
* Structure
* Technology

SCM Focus on:
* Revenue growth
* Better asset utilization
* Cost reduction
SCM : Underlying Principles

- Compression (Planning / Manufacturing / Supply)
- Conformance (Forecasts / Plans / Distribution)
- Co-Operation (Cross functional)
- Communication (Real Time Date)
SCM : Activities

- **Strategic:**
  - Supply Chain Design
  - Resources Acquisition
  - Long-term Planning (1 Year+)

- **Tactical:**
  - Production / Distribution Planning
  - Resource Allocation
  - Medium Term Planning (Quarterly, Monthly)

- **Operational:**
  - Shipment Scheduling
  - Resource Scheduling
  - Short – Term Planning (Weekly, Daily)
SCM : Challenges

- **Internal**
  - Customer Orientation
  - Culture of Innovation
  - Organizational Structure

- **External**
  - Infrastructure – Road, Rail…
  - Procedural – Customs, Taxation…

- JIC or JIT – Discipline / Work culture
- Logistics as mere Transport
- Level of Technology in logistics low
- Decisions not based on system cost
- Suppliers reliability and dependability ?
SCM : Challenges

- Values, skill and Training
- Uncertainties-Breakdown, political, weather, strike
- Matching supply and Demand
- Balancing between cost and service level
- Shorter product cycles of High Technology products
- Managing conflicts
- Recent trend of lean, out-sourcing and global sourcing
- Variation over time because of seasonality, trends, promotions, competitor strategies…
- Bullwhip effect
Upstream Supply Chain

**Procurement**
- Activities related to obtaining materials from outside suppliers
- Inbound logistics

**Manufacturing Support**
- Activities related to planning, scheduling, and supporting manufacturing operations

**Customer Accommodation**
- Activities related to providing customer service
- Outbound logistics
Purchasing

Sourcing

Procurement
Supply Chain Processes : Cycle View

Customer

Customer order Cycle

Retailer

Replenishment Cycle

Distributor

Manufacturing Cycle

Manufacturer

Procurement Cycle

Supplier
Supply Chain

- Organisations must embrace technologies that can effectively manage and oversee their supply chains
Supply Chain Processes: Push and Pull

- **Pull Process:** Execution is executed after customer’s order is received. Here customer demand is known with certainty – Reactive process.

- **Push Process:** Execution is initiated in anticipation of a customer’s order, Demand is forecasted – speculative process.
Conflicts of Interest

Sales & Marketing
- High revenue through:
  - High levels of availability
  - Rapid introduction of new products

Production
- Cost effective production:
  - High constant capacity utilisation
  - Longer production runs, Fewer set up costs

Finance & Control
- Tight budgets for:
  - Stocks
  - Cost

Logistics
- Higher
- Lower
- Customer Service

More
- Disrupting factors in production
- Fewer
- Stocks

SCM : Managing Conflicts

**Purchasing**
- Low purchase price
- Multiple vendors

**Manufacturing**
- Few changeovers
- Stable schedules
- Long run lengths

**Distribution**
- Low inventories
- Low transportation

**Customer Service/Sales**
- High inventories
- High service levels
- Regional stocks

**SOURCE**

**MAKE**

**DELIVER**

**SELL**
Debate in group:

1. Factors in SCM to lead to high customer affecting
2. Factors in SCM leading to lower costs
Few measures of SCM performance

Cost related

• Inventory Turnover = Sales/Inventory
• Inventory days
• Days of sales outstanding = (Accounts receivable/annual sales) * 365
• RM Inventory against value of RM consumed
• WIP Inventory against Value of production
• FG Inventory against Value of sales
• Total Supply chain costs as % of revenue
Few measures of SCM performance

Cost related

- Inventory carrying cost
- Transportation costs
- Material handling costs
- Cost of excess capacity
- Cost of capacity shortfall
- Administrative costs
- Cost reductions
- Stock outs/backorder
Few measures of SCM performance

Time related

- On-time delivery index (delivery date committed against delivery) and delivery fulfillment
- Order cycle time
- Order cycle time variability
- Response time
- .......

M.S Ramaiah School of Advanced Studies - Bangalore
Few measures of SCM

Quality related

• Overall customer satisfaction
• Completeness of order
• Damage-free supply
• Accurate Invoice
• Forecast accuracy
• Planning accuracy
• Number of deliveries without any quality problem
Session Summary

• Meaning and definition of Supply Chain Management has been explained.

• Benefits, Goal, Challenges, Characteristics, Enablers of SCM has been discussed.

• Measurements in SCM, conflicts in managing SCM highlighted