
Ch 1. Supply Chain Management.

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Supply Chain Management.

Definition.

- The integration of the flow of all activities through improved supply chain relationship to achieve a sustainable competitive advantages.

- The supply chain encompasses all activities associated with the flow and transformation of goods from the raw materials stage to the end user, as well as the associated information.

- Starting within the organization, SCM focuses on managing its resources to complete the following tasks.
  - Meet customer requirements.
  - Provide competitive advantages.
  - Meet business objectives.
Supply Chain Management.

Conceptual Diagram of SCM

MY ORGANIZATION

- Suppliers
- Transformation Process
- Customers

Product/Service Flow

Information Flow

Funds Flow

Supplier 1
Supplier 2
Supplier k

Customer 1
Customer 2
Customer n

[Other Resources]
The Objective of SCM.

- A process consisting of a number of related steps, with each step adding a certain value to the total outcome.
- To effectively manage this value chain, it is important to understand these interrelationships and how efforts to improve one area of the supply chain can inadvertently lead to unintended consequences in other areas of the supply chain.
Supply Chain Management.

The Objective of SCM.

- Total Cost of Ownership.

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<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Price + Internal</td>
<td>20%</td>
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<tr>
<td>Support</td>
<td>16%</td>
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<tr>
<td>End user's maintenance</td>
<td>7%</td>
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<tr>
<td>OEM warranty costs</td>
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<tr>
<td>Transportation costs</td>
<td>5%</td>
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<tr>
<td>Holding costs</td>
<td>8%</td>
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<tr>
<td>Supplier profit margin</td>
<td>21%</td>
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<tr>
<td>Material costs</td>
<td>0%</td>
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</tbody>
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Total cost of ownership = 100%

Price + Internal Support = 90%
The Objective of SCM.

- **Total Cost of Ownership.**
  - The total cost of ownership (TCO) of the supply delivery system is the sum total of all the costs associated with every activity of the supply stream.

  - The main insight that TCO offers the supply chain manager is the understanding that the acquisition cost is often very small portion of the total cost.

  - This process underscore the full magnitude of supply management accountability and identifies the area for improvement.
Supply Chain Management.

The Objective of SCM.

- Total Cost of Ownership.

<table>
<thead>
<tr>
<th>Identified Needs</th>
<th>Acquisition</th>
<th>Delivery</th>
<th>Payment</th>
<th>Usage</th>
<th>Measurement</th>
<th>Value to User</th>
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</thead>
<tbody>
<tr>
<td>Purchase order cost</td>
<td>Acquisition price</td>
<td>Receiving</td>
<td>Payables process costs</td>
<td>Training costs</td>
<td>Laboratory</td>
<td>Training costs</td>
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<td>Internal meeting time</td>
<td>Inventory cost</td>
<td>Freight</td>
<td>Bank charges</td>
<td>Quantity use</td>
<td>Evaluation</td>
<td>Communicat ion</td>
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<td>Payment terms</td>
<td>Warehousing</td>
<td>Scheduling process costs</td>
<td>Waste</td>
<td>Quality control</td>
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<td></td>
<td>Discount or rebates</td>
<td>On-hand inventories</td>
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<td>Defects</td>
<td>Recieving process</td>
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<td>Purchase process costs</td>
<td>Storeroom costs</td>
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<td>Preparation processes</td>
<td>Usage measures</td>
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<td>Scheduling process costs</td>
<td>Internal transportation</td>
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<td>Maintenance</td>
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<td>Repairs</td>
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<td>Laboratory evaluation</td>
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<td>Quality control</td>
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<td>Receiving process</td>
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<td>Usage measures</td>
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Functions of SCM.

Activities in SCM.

- Management of information systems.
- Sourcing and procurement.
- Production scheduling.
- Order processing.
- Cash flow.
- Inventory management.
- Warehousing.
- Customer service.
- After-market disposition of packaging and materials.
Functions of SCM.

Internal Functions of SCM.

• The different processes used in transforming the inputs provided by the supplier network.
• Production scheduling, which translates orders into actual production tasks.
• Activities.
  - Planning.
  - Forecasting upcoming requirements.
  - Scheduling materials flows.
  - Working closely with production schedules.
Functions of SCM.

External Functions of SCM.

- Selecting the right suppliers.
- Making sure the suppliers meet performance expectations.
- Employing the appropriate contractual mechanisms.
- Maintaining a good relationship with the suppliers.
- Acting as liaison between suppliers and other internal members.
Functions of SCM.

External Functions of SCM.

- Activities.
  
  - Acquisition Management.
    Selecting the best suppliers, ensuring that these suppliers meet performance expectations, establishing appropriate contractual mechanisms, and maintaining good relationships with suppliers.
  
  - Logistics Management.
    The transportation management of trucking companies, airlines, railroads, shipping companies, or internal private fleets of carriers.
  
  - Distribution Management.
    The management of packaging, storing, and handling of materials at receiving docks, warehouses and retail outlets.
  
  - Acceptance and disassembly of final products for reuse in new product.
  
  - Repair of networks to handle warranty and quality problems with products.
  
  - Service functions to maintain and ensure customer satisfaction.
Functions of SCM.

Four Key Requirements of SCM.

- A cross-company process.
- Company-wide use of integrated supply process.
- Alignment with internal and external resources, including people, assets, and technologies.
- Training and education in world-class supply management techniques, internal and external market analysis, strategic cost understanding, and process re-engineering.
# Activities of SCM.

## Information Systems.

<table>
<thead>
<tr>
<th>Support Activities</th>
<th>Firm Infrastructure</th>
<th>Human Resource Management</th>
<th>Technology Development</th>
<th>Procurement</th>
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<tbody>
<tr>
<td>Planning models</td>
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<td>Automated personnel</td>
<td>Computer-aided design</td>
<td>On-line procurement of parts</td>
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<td>scheduling</td>
<td>Electronic market research</td>
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<td>Automated warehouse</td>
<td>Flexible manufacturing</td>
<td>Automated order processing</td>
<td>Telemarketing</td>
<td>Remote servicing of equipment</td>
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<tr>
<td>Operations</td>
<td>Outbound Logistics</td>
<td>Marketing and Sales</td>
<td>Routing of repair trucks</td>
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<tr>
<td>Margin</td>
<td>Service</td>
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</tbody>
</table>
Activities of SCM.

Information Systems : Requirement.

- Centralized coordination of information.
- Total logistics management.
- Order-change notices and follow-up modification.
- Global visibility into transportation resources.
- Global inventory management.
- Global sourcing.
- Intercompany information access.
- Data interchange.
- Data capture.
- Transportation of the business from within.
- Improvement in supplier-customer relationships.
Activities of SCM.

Information Systems: Requirement.
Activities of SCM.

Storage Concept.

- **Point-of-use storage.**
  - To keep inventory in special locations on a plant floor near the operation for which it is to be used.

- **Warehouse storage.**
  - To store materials as they move between supplier and customer.
  - It is important to attempt to eliminate warehouse to move material directly to the customer.

- **Containerization.**
  - A material movement method in which commodities are placed in containers. After initial loading, the commodities are not rehandled in shipment until they are unloaded at the destination.
Activities of SCM.

Transportation Concept.

- Repetitive schedules.
- Cross-docking.
- Drop shipping.
- Mixed loads.
- Milk runs.
- Freight consolidation.
- Local warehouses.
- Local final assembly operation.
Activities of SCM.

Transportation: Advantages.

- Transportation is often a major component of total materials acquisition cost. Even if shipment frequency increases, offsetting savings should result in reduced total acquisition costs as follows.
  - Elimination of incoming inspection.
  - Handling damage.
  - Storage costs.
  - Access to capital not tied up in inventory.
  - Taxes.
  - Insurance.
  - Excess or obsolete inventory due to bad timing.
  - Quality and communication problems resulting from excess inventory.
Activities of SCM.

Time Based Management.

- A corporate strategy that emphasize time as the vehicle for achieving and maintaining a sustainable competitive edge.
- Time based competition involves design, manufacturing, and logistical processes.
- Its characteristics are
  - It deals only with those lead times that are important to the customers.
  - The lead time reduction must involve decrease in both the mean and the variance.
  - The lead time reduction must be achieved through system/process analysis.
Activities of SCM.

Time Based Management.

- The effects of quicker time response.
  - Earlier introduction of new products.
  - Higher profits.
  - Increased market share.
  - Control of inventory and overhead costs.
  - Increased customer satisfaction.
  - Decreased in stored inventory.
  - Increased inventory flow.
  - Less rework.
  - Faster company growth.
  - Higher product quality.
Definition.

- In supply chain management, alliance is defined as a process wherein participants willingly modify traditional business practices to reduce duplication and waste while facilitating improved performance.

- Both parties are committed to improve efficiency and effectiveness by eliminating waste and duplication in the supply chain. The following benefits occur in strategic alliance:
  - Proprietary information is shared.
  - Assets are invested in joint projects.
  - Joint improvements are pursed.
  - Risks and benefits are shared.
Alliance Selection.

- In evaluating a partnership for possible alliance development, organizations will often begin by performing an initial assessment of the supplier/customer. Evaluation of a supply chain partner looks at many criteria for an alliance relationship.
  - Company profile information.
  - Management capability.
  - Personnel capabilities.
  - Total quality management philosophy and programs.
  - Process and technological capability.
  - Environmental regulation compliance.
  - Financial capability/stability.
  - Production scheduling and control systems.
  - Information systems capability.
  - Supplier sourcing strategies, policies, and techniques.
  - Long-term relationship potential.
Alliance Maintenance.

- **Some Considerations.**
  - After a relationship is established, partners either meet or fail to meet performance expectations.
  - The secret to a successful joint partnership is in the ability to jointly solve problems in the face of difficulties. Face-to-face contact is necessary to develop a better understanding of the operations of both organization.
  - A study determined that a major barrier to implementation of successful alliances is the inability of abandon traditional strategic and operational practices. The study found that successful partners used a feedback mechanism continually over time to ensure that the ongoing relationship was successful.
Innovative Supplier/Customer Relationship.

- **Vendor-Managed Inventory (VMI).**
  - Vendor-managed inventory is a means for optimizing supply chain performance in which the supplier has access to the customer's inventory data and is responsible for maintaining the required inventory level.

- **Vendor-Owned Inventory (VOI) or Consignment.**
  - Consignment is the process of a supplier placing goods at a customer location without receiving payment until after the goods are used or sold.

- **Quick Response Program (QRP).**
  - This is system of linking final retail sales with production and shipping schedule going back through the chain of supply.
  - It employs point-of-sale scanning and electronic data interchange, and it may use direct shipment from a factory.
Supplier Alliance of SCM.

Innovative Supplier/Customer Relationship.

- **On-site Vendor/Customer Representatives.**
  - A vendor employee sits in the purchasing office of the customer, replacing the buyer, and places orders to his or her own company.
  - The vendor in-plant person is also empowered to practice "concurrent engineering" attending design engineering meetings involving his company's product.
  - The key element is not only to be physically inside the company, but to be empowered within the customer purchasing function as the link between the customer's planning department and the vendor's production plan.
Innovative Supplier/Customer Relationship.

- **Single Source Suppliers**
  - There are multiple possible sources although a single source is selected by the customer.
  - **Opportunities/Benefits**
    - Traceability is simpler.
    - More thorough understanding and better communication with supplier.
    - Enable to improve the process practice and to eliminate waste.
    - Ability to focus on process.
    - Reduction in freight costs.
    - Elimination of paperwork and excess handling.
    - More stable schedule for suppliers.
SCOR Model.

Supply Chain Operation Reference Model.

- A framework to guide managers in supply chain process improvement planning, implementation, and measurement. Process reference models integrate the well-known concepts of business process re-engineering, benchmarking, and process measurement into a cross-functional framework.
  - Define common supply chain management processes.
  - Match these processes against "Best Practice" examples.
  - Benchmark performance data as well as optimal software applications.
Supply Chain Operation Reference Model.

- **Business Process Reengineering**: Capture the “as-is” state of a process and derive the desired “to-be” future state.
- **Benchmarking**: Quantify the operational performance of similar companies and establish internal targets based on “best-in-class” results.
- **Best Practices Analysis**: Characterize the management practices and software solutions that result in “best-in-class” performance.
- **Process Reference Model**: Capture the “as-is” state of a process and derive the desired “to-be” future state. Quantify the operational performance of similar companies and establish internal targets based on “best-in-class” results. Characterize the management practices and software solutions that result in “best-in-class” performance.
Performance Check.

1. Which of the following BEST describes the concept, total cost of ownership, of the supply system?
   A. Total of all acquisition costs.
   B. Total of all costs in a supply chain.
   C. Total cost of all assets in the supply chain.
   D. Total cost of the delivery from suppliers.

2. Collaboration among organizations in a supply chain can reduce the total inventory by
   A. Shifting the inventory to supplies.
   B. Reducing the variability of end-user demand.
   C. Reducing the resupply time.
   D. Increasing the speed of communications.
3. Which of the following has contributed most towards making global sourcing and marketing practical for MOST industry segments?
   A. Advances in transportation and communications.
   B. Rapid adoption of global standards.
   C. Consistent legal treatment of business.
   D. Elimination of non-tariff barriers.

4. Long-term agreements with suppliers may include which of the following types of special arrangements?
   I. Simplified paperwork systems
   II. Returnable containers
   III. Specially designed containers
   IV. Effective personal contacts at each site
   A. I only      B. II and III only       C. I, II, and III only       D. I, II, III, and IV
Performance Check.

5. In a company with poor manufacturing systems, the majority of a purchasing agent's day is spent:
   A. Negotiating.
   B. Identifying and pursuing cost reductions.
   C. Expediting.
   D. Discussing new products with vendors.

6. Which of the following is MOST likely to cause an organization to establish production operations in an economic bloc?
   A. Cultural differences.
   B. Legal requirements.
   C. Not-tariff barriers.
   D. Transportation and customer costs.
7. With regards to purchasing, which of the following should be done as the JIT implementation begins?
   A. Redesign the purchase order.
   B. Make the requisition electronic.
   C. Evaluate a reduction in the number of suppliers.
   D. Hire a supplier quality representative.

8. The system of linking final retail sales with production and shipping schedules going back through the supply chain is called:
   A. Vendor managed inventory.
   B. Virtual corporation.
   C. Quick response program.
   D. Point-of-use inventory.
9. Which of the following is the BEST reason to establish an alliance with another company in the supply chain?
   A. Leverage the tangible assets.
   B. Use the alliance to penetrate markets.
   C. Reduce the cost of material acquisition.
   D. Improve the performance of both companies.

10. Which of the following is MOST critical to the success of supply chain alliances?
    A. Interpersonal relationships.    B. Contract wording.
    C. Information flow.              D. Transportation costs.
11. If a purchasing department is going to attempt to improve the delivery reliability of the supplier base, which of the following techniques could be used?

   A. Electronic Data Interchange.    
   B. Long term contracts with suppliers. 
   C. Improved supplier relations.    
   D. Easy to read MRP reports. 

12. The process of a supplier placing goods at a customer location without receiving payment until the goods are sold or used is called:

   A. Vendor managed inventory.    
   B. Consignment. 
   C. Quick response.    
   D. Outsourcing.
Performance Check.

13. The most important activities in a company's value chain are those which:
   A. Best leverage the company's assets.
   B. Add value to the customer.
   C. Improve performance throughout the chain.
   D. Reflect the values of the organization.

14. All of the following are functions of supply chain management EXCEPT:
   A. Focus suppliers on improvements.
   B. Use supplier resources to create new products.
   C. Manage all materials and reduce costs.
   D. Ensure product designs meet customer criteria.
Performance Check.

15. The term "forward integration" can be BEST described as:
   A. Automation of the downstream operations.
   B. Automation of the shipping functions.
   C. Owning elements of the production cycle towards the final customer.
   D. Implementation of all modules of an ERP system.

16. A decision to decentralize the functions of production scheduling, purchasing, and inventory control from corporate headquarters to the plant would support all of the following competitive initiatives EXCEPT
   A. Delivery speed.
   B. Lowest cost.
   C. Quality.
   D. Delivery reliability.
17. A large furniture manufacturer that uses primarily cherry, cedar, mahogany and pine to manufacture custom made furniture for the up-scale furniture market would most likely locate close to
   A. A source of the wood types used in manufacturing.
   B. Retail purchasers of the furniture.
   C. Cheap transportation.
   D. An abundant supply of skilled labor.

18. Which of the following can be considered internal customers to the purchasing activity?
   I. The supplier salesperson
   II. The production control expeditor
   III. The purchasing expeditor
   IV. The materials manager

19. Supplier linkages are especially important when a firm is
   I. Competing on delivery speed
   II. Using synchronous scheduling
   III. Producing a commodity product

   A) I, II  B) I, III  C) II, III  D) I, II, III

20. Which of the following is the most important reason for establishing an alliance with another organization in the supply chain?
   A. Leveraging the combined assets.
   B. Gaining entry into the partner's markets.
   C. Improving the performance of both organizations.
   D. Reducing the total cost of acquisition.
Performance Check.

Solutions

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