Supply Chain Management

Supply Chain Management:

It is the process of planning, implementing, and controlling the operations of the supply chain with the purpose to satisfy customer requirements as efficiently as possible. Supply chain management 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 management must address the following problems:

- Distribution Network Configuration: Number and location of suppliers, production facilities, distribution centers, warehouses and customers.
- Distribution Strategy: Centralized versus decentralized, direct shipment, cross docking, pull or push strategies, third party logistics.
- Information: Integrate systems and processes through the supply chain to share valuable information, including demand signals, forecasts, inventory and transportation.
- Inventory Management: Quantity and location of inventory including raw materials, work-in-process and finished goods.

Features Of Supply Chain Management:

In electronic commerce, supply chain management has the following features.

- An ability to source raw material or finished goods from anywhere in the world
- A centralized, global business and management strategy with flawless local execution

- On-line, real-time distributed information processing to the desktop, providing total supply chain information visibility
- The ability to manage information not only within a company but across industries and enterprises
- The seamless integration of all supply chain processes and measurements, including third-party suppliers, information systems, cost accounting standards, and measurement systems
- The development and implementation of accounting models such as activity based costing that link cost to performance are used as tools for cost reduction
- A reconfiguration of the supply chain organization into high-performance teams going from the shop floor to senior management.

Components Of Supply Chain Management:

The following are five basic components of SCM.

- **Plan:**

  This is the strategic portion of SCM. You need a strategy for managing all the resources that go toward meeting customer demand for your product or service. A big piece of planning is developing a set of metrics to monitor the supply chain so that it is efficient, costs less and delivers high quality and value to customers.

- **Source:**

  Choose the suppliers that will deliver the goods and services you need to create your product. Develop a set of pricing, delivery and payment processes with suppliers and create metrics for monitoring and improving the relationships. And put together processes for managing the inventory of goods and services you receive from suppliers, including receiving shipments, verifying them, transferring them to your manufacturing facilities and authorizing supplier payments.

- **Make:**

  This is the manufacturing step. Schedule the activities necessary for production, testing, packaging and preparation for delivery. As the most metric-intensive portion of the supply chain, measure quality levels, production output and worker productivity.

- **Deliver:**

  This is the part that many insiders refer to as logistics. Coordinate the receipt of orders from customers, develop a network of warehouses, pick carriers to get products to customers and set up an invoicing system to receive payments.

- **Return:**

  The problem part of the supply chain. Create a network for receiving defective and excess products back from customers and supporting customers who have problems with delivered products.

Measuring A Supply Chain's Performance:

The performance of a supply chain is evaluated by how it reduces cost or increases value. SCM performance monitoring is important; in many industries, the supply chain represents roughly 75 percent of the operating budget expense. Three common measures of performance are used when evaluating SCM performance:

- Efficiency focuses on minimizing cost by decreasing the inventory investment or value relative to the cost of goods sold. An efficient firm is therefore one with a higher inventory turnover or fewer weeks' worth of inventory on hand.
- Responsiveness focuses on reduction in both inventory costs and missed sales that comes with a faster, more flexible supply chain. A responsive firm is proficient in an uncertain market environment, because it can quickly adjust production to meet demand.
- Effectiveness of the supply chain relates to the degree to which the supply chain creates value for the customer. Effectiveness-focused supply chains are called "value chains" because they focus more on creating customer value than reducing costs and improving productivity.

To examine the effect of the Internet and electronic commerce on the supply chain is to examine the impact the Internet has on the efficiency, responsiveness, effectiveness, and overall performance of the supply chain.

Advantages of Internet/E-Commerce Integrated Supply Chain:

The primary advantages of Internet utilization in supply chain management are speed, decreased cost, flexibility, and the potential to shorten the supply chain.

- **Speed:**

  A competitive advantage accrues to those firms that can quickly respond to changing market conditions. Because the Internet allows near instantaneous transfer of information between various links in the supply chain, it is ideally suited to help firms keep pace with their environments. Many businesses have placed a priority upon real-time information regarding the status of orders and production from other members of the supply chain.

- **Cost decrease:**

  Internet-based electronic procurement helps reduce costs by decreasing the use of paper and labor, reducing errors, providing better tracking of purchase orders and goods delivery, streamlining ordering processes, and cutting acquisition cycle times.

- **Flexibility:**

  The Internet allows for custom interfaces between a company and its different clients, helping to cost-effectively establish mass customization. A manufacturer can easily create a custom template or Web site for a fellow supply chain member with pre-negotiated prices for various products listed on the site, making re-ordering only a mouse click away. The information regarding this transaction can be sent via the Internet to the selling firm's production floor and the purchasing firm's purchasing and accounting departments. The accuracy and reliability of the information is greater than the traditional paper and pencil transaction, personnel time and expense is reduced, and the real-time dissemination of the relevant information to interested parties improves responsiveness. These advantages can benefit both firms involved in the transaction.

- **Shortening the supply chain:**

  Dell computers has become a classic example of the power the Internet can have on a supply chain. Dell helped create one of the first fully Internet-enabled supply chains and revolutionized the personal-computer industry by selling directly to businesses and consumers, rather than through retailers and middlemen. In mid-1996, Dell began allowing consumers to configure and order computers online. By 1998, the company recorded

  roughly $1 billion in "pure" Internet orders. By reducing sales costs and attracting customers who spend more per transaction, Dell estimates that it yields 30 percent greater profit margins on Internet sales compared to telephone sales.

Disadvantages of Internet/E-Commerce Integrated Supply Chain:

- **Increased interdependence:**

  Increased commoditization, increased competition, and shrinking profit margins are forcing companies to increase outsourcing and subcontracting to minimize cost. By focusing on its core competencies, a firm should be able to maximize its economies of scale and its competitiveness. However, such a strategy requires increased reliance and information sharing between members of the supply chain. Increased dependency on various members of the supply chain can have disastrous consequences if these supply chain members are unable to handle the functions assigned to them.

- **The costs of implementation:**

  Implementation of a fully-integrated Internet-based supply chain is expensive. This expense includes hardware cost, software cost, reorganization cost, and training costs. While the Internet promises many advantages once it is fully integrated into a supply chain, a significant up front investment is needed for full deployment.

- **Keeping up with the change in expectations:**

  Expectations have increased as Internet use has become part of daily life. When customers send orders electronically, they expect to get a quick confirmation and delivery or denial if the order can not be met. Increasingly, in this and other ways, customers are dictating terms and conditions to suppliers. The introduction of Internet-based supply chains make possible the change to a "pull" manufacturing strategy replacing the traditional "push" strategy that has been the standard in most industries.

What is Supply Chain Planning and Supply Chain Execution?

1. Supply Chain Planning

Supply Chain Planning provides strategic and tactical planning which is forward looking with an outlook for the future. The Supply Chain Planning deals with the supply, distribution, manufacturing, planning, production scheduling, demand planning, forecasting, supply chain collaboration and supply chain network design.

Supply Chain Planning applications coordinate assets to optimize the delivery of goods and services, and information from supplier to customer, balancing supply and demand. Supply Chain Planning application suite sits on top of a transactional system to provide planning, what-if scenario analysis capabilities and real-time demand commitments. Typical software modules of supply chain planning include network design, network planning, capacity planning, demand planning, manufacturing planning and scheduling, and distribution and deployment planning.

2.Supply Chain Execution

Supply Chain Execution applications use the information generated by Supply Chain Planning tools to guide the physical production, storage and movement of raw materials, assembly components and completed products.

Supply Chain Execution applications are able to interface with Supply Chain Planning and other management systems to determine production capacity, both the cost or time constrained, capacities and calculate a production plan which satisfies all requirements.

This plan can also adapt quickly to any change in variables. Supply Chain Execution applications are order management, inventory management, warehouse management, transport management and logistics. These execution applications hence track the physical status of goods, the management of materials, and financial information involving all parties.

a.Warehouse Management Systems

Warehouse Management Systems are applications that manage the operation of a warehouse or distribution center. Its functionality includes receiving, put-away, inventory management, cycle counting, task interleaving, wave planning, order allocation, order picking, replenishment, packing, shipping, labor management and automated material-handling equipment interfaces. Using radio frequency (RF) technology in conjunction with bar codes provides the foundation of a WMS, delivering accurate information in real time.

b.Transportation Management Systems

Transportation Management Systems are used to manage all freight activities across the enterprise. Its functions include planning and procuring freight movements, freight rating and shipping across all modes, route and carrier selection, management of freight, visibility, and freight payment and audit.

c.Manufacturing

Manufacturing Supports tactical planning of plant and material resources to create a master production schedule. Applications contain integrated functionality in two or more of the following areas: resource allocation and status, detailed scheduling, document control, labor management, quality management, process and maintenance management. It can provide feedback from the factory floor on a real time basis and interfaces to Supply Chain Planning, Supply Chain Event Management as well as to accounting oriented software systems.

d.Order Management

Order Management Is a business process and not a specific market. Much of the functionality attributed to order management touches components within the CRM, ERP and SCM markets as it guides products and services through order entry, processing and tracking.

e.Sourcing and Procurement

Sourcing and procurement applications are used to support the automation and management of corporate sourcing and purchasing (or procurement) of direct and indirect goods, suppliers and content (for example, product catalogs, parts databases and supplier directories).

What is Integrated Supply Chain Planning and Supply Chain Execution?

In todays business environment, the supply chain planning processes have to be much more comprehensive in capability and scope and must also be flexible enough to support fast changing market conditions, and evolving business process needs.

There is a requirement for a unified planning platform that can support the full spectrum of planning processes, including the strategic, tactical, and operational which dramatically decrease decision making times.In that perspective both the supply chain planning and execution information be integrated and synchronized in near real time.

What What are the Benefits of Supply Chain Planning and Supply Chain Execution systems?

- Reduced Out-of-stocks
- Faster fulfillment cycles times
- Lower inventory requirements to support target service levels
- Collaboration Platform for all value-chain participants to leverage
- Reduction in lost sales
- Reduced Working Capital Requirements

What is Supply Chain Management Software?

Supply Chain Management software is segmented into planning components and execution components. Planning are activities such as developing demands forecasts, establishing the supplies, planning and scheduling manufacturing operations, and developing key performance metrics to ensure efficient and cost effective operations.

What is the difference between Supply Chain Planning and Supply Chain Execution?

The major distinction between Supply Chain Planning and Supply Chain Execution applications is the business users planning horizon or decision time frame. Supply Chain Planning applications support strategic and tactical planning processes that look several months to years into the future, often in terms of weekly and monthly time buckets. Supply Chain Execution applications deal with tactical and operational planning processes that look hours, days, and weeks into the future, usually measured by small incremental buckets.

In summary

Supply Chain Execution

Supply chain execution (SCE) is focused on execution-oriented applications, including warehouse management systems (WMSs), transportation management systems (TMSs), global trade management (GTM) systems, and other execution applications, such as real-time decision support systems (for example, dynamic routing and dynamic sourcing systems) and supply chain visibility systems within the enterprise, as well as throughout the extended supply chain. Sometimes, order management systems are also included in SCE, but, generally, Gartner does not include order management in its definition of SCE. Typical modules and applications include:

- warehouse management systems:
  - Labour management systems
  - Yard/dock management
  - Returns management
  - Inventory control
- transportation management systems:
  - Domestic transportation management software
  - Global multimodal transportation management (managing transportation around multimodal processes)
- global trade management systems:
  - Trade compliance

- International/global logistics
- Global order management
- Global trade financial management

Supply Chain Planning (SCP)

Supply chain planning (SCP) is the forward-looking process of coordinating assets to optimize the delivery of goods, services and information from supplier to customer, balancing supply and demand. An SCP suite sits on top of a transactional system to provide planning, what-if scenario analysis capabilities and real-time demand commitments, considering constraints. Typical modules include:

- Available/capable to promise
- Sales and operations planning/integrated business planning
- Collaborative planning (including forecasting and replenishment)
- Vendor-managed inventory/direct point of sale
- Event planning (promotion, life cycle)
- Demand planning
- Inventory planning
- Production/factory planning and scheduling
- Distribution planning (unconstrained, distribution requirements planning [DRP] and deployment)
- Strategic network design
- Inventory strategy optimization (simultaneous, multitiered)
- Supply planning (optimized, DRP and deployment)
- Production/multiplant capacity planning (master production scheduling, rough-cut capacity planning)

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