

Lesson Proper for Week 13

What is SCM?

Legacy supply chains are clogged with unnecessary steps and redundant stockpiles. For instance, a typical box of breakfast cereal spends an incredible 104 days getting from factory to supermarket, struggling its way through an unbelievable maze of wholesalers, distributors, brokers, and consolidators, each of which has a warehouse. The e-commerce opportunity lies in the fusing of each company's internal systems to those of its suppliers, partners, and customers. This fusion forces companies to better integrate interenterprise supply chain process to improve manufacturing efficiency and distribution effectiveness.

So, **supply chain management** is a cross-functional interenterprise system that uses information technology to help support and manage the links between some of a company's key business processes and those of its suppliers, customers, and business partners. The goal of SCM is to create a fast, efficient, and low-cost network of business relationships, or supply chain, to get a company's products from concept to market.

What exactly is a company's supply chain? Let's suppose a company wants to build and sell a product to other businesses. Then it must buy raw materials and a variety of contracted services from other companies. The interrelationships with suppliers, customers, distributors, and other businesses that are needed to design, build, and sell a product make up the network of business entities, relationships, and processes that is called a supply chain. And since each supply chain process should add value to the products or services a company produces, a supply chain is frequently called a *value chain*, a different but related concept we discussed in Chapter 2. In any event, many companies today are using Internet technologies to create interenterprise e-business systems for supply chain management that help a company streamline its traditional supply chain processes.

Figure below illustrates the basic business processes in the supply chain life cycle and the functional SCM processes that support them. It also emphasizes how many companies today are reengineering their supply chain processes, aided by Internet technologies and supply chain management software. For example, the demands of today's competitive business environment are pushing manufacturers to use their intranets, extranets, and e-commerce Web portals to help them reengineer their relationships with their suppliers, distributors, and retailers. The objective is to significantly reduce costs, increase efficiency, and improve their supply chain cycle times. SCM software can also help to improve interenterprise coordination among supply chain process players. The result is much more effective distribution and channel networks among business partners.

Electronic Data Interchange

Electronic data interchange (EDI) was one of the earliest uses of information technology for supply chain management. EDI involves the electronic exchange of business transaction documents over the Internet and other networks between supply chain trading partners (organizations and their customers and suppliers). Data representing a variety of business transaction documents (such as purchase orders, invoices, requests for quotations, and shipping notices) are automatically exchanged between computers using standard document message formats. Typically, EDI software is used to convert a company's own document formats into standardized EDI formats as specified by various industry and international protocols. Thus, EDI is an example of the almost complete automation of an e-commerce supply chain process. And EDI over the Internet, using secure *virtual private networks*, is a growing B2B e-commerce application.

Formatted transaction data are transmitted over network links directly between computers without paper documents or human intervention. Besides direct network links between the computers of trading partners, third-party services are widely used. Value-added network companies like GE Global Exchange Services and Computer Associates offer a variety of EDI services for relatively high fees. But many EDI service providers now offer secure, lower-cost EDI services over the Internet. Below figure illustrates a typical EDI system.

EDI is still popular data-transmission format among major trading partners, primarily to automate repetitive transactions, though it is slowly being replaced by XML-based Web services. EDI automatically tracks inventory changes; triggers orders, invoices, and other documents related to transactions; and schedules and confirms delivery and payment. By digitally integrating supply chain, EDI streamlines processes, saves time, and increases accuracy. And by using Internet technologies, lower-cost Internet-based EDI services are now available to smaller businesses.

How does supply chain management work?

According to CIO¹, there are five components of traditional supply chain management systems:

- * **Planning**

Plan and manage all resources required to meet customer demand for a company's product or service. When the supply chain is established, determine metrics to measure whether the supply chain is efficient, effective, delivers value to customers and meets company goals.

- * **Sourcing**

Choose suppliers to provide the goods and services needed to create the product. Then, establish processes to monitor and manage supplier relationships. Key processes include: ordering, receiving, managing inventory and authorizing supplier payments.

- * **Manufacturing**

Organize the activities required to accept raw materials, manufacture the product, test for quality, package for shipping and schedule for delivery.

- * **Delivery and Logistics**

Coordinate customer orders, schedule deliveries, dispatch loads, invoice customers and receive payments.

- * **Returning**

Create a network or process to take back defective, excess or unwanted products.

Why is supply chain management important?

Effective supply chain management systems minimize cost, waste and time in the production cycle. The industry standard has become a just-in-time supply chain where retail sales automatically signal replenishment orders to manufacturers. Retail shelves can then be restocked almost as quickly as product is sold. One way to further improve on this process is to analyze the data from supply chain partners to see where further improvements can be made.

By analyzing partner data, the CIO.com post¹ identifies three scenarios where effective supply chain management increases value to the supply chain cycle:

- **Identifying potential problems.** When a customer orders more product than the manufacturer can deliver, the buyer can complain of poor service. Through data analysis, manufacturers may be able to anticipate the shortage before the buyer is disappointed.
- **Optimizing price dynamically.** Seasonal products have a limited shelf life. At the end of the season, these products are typically scrapped or sold at deep discounts. Airlines, hotels and others with perishable “products” typically adjust prices dynamically to meet demand. By using analytic software, similar forecasting techniques can improve margins, even for hard goods.
- **Improving the allocation of “available to promise” inventory.** Analytical software tools help to dynamically allocate resources and schedule work based on the sales forecast, actual orders and promised delivery of raw materials. Manufacturers can confirm a product delivery date when the order is placed — significantly reducing incorrectly-filled orders.

Key features of effective supply chain management

The supply chain is the most obvious “face” of the business for customers and consumers. The better and more effective a company’s supply chain management is, the better it protects its business reputation and long-term sustainability.

IDC’s Simon Ellis in *The Path to a Thinking Supply Chain*² defines what is supply chain management by identifying the five “Cs” of the effective supply chain management of the future:

- **Connected:** Being able to access unstructured data from social media, structured data from the Internet of Things (IoT) and more traditional data sets available through traditional ERP and B2B integration tools.
- **Collaborative:** Improving collaboration with suppliers increasingly means the use of cloud-based commerce networks to enable multi-enterprise collaboration and engagement.
- **Cyber-aware:** The supply chain must harden its systems and protect them from cyber-intrusions and hacks, which should be an enterprise-wide concern.
- **Cognitively enabled:** The AI platform becomes the modern supply chain's control tower by collating, coordinating and conducting decisions and actions across the chain. Most of the supply chain is automated and self-learning.
- **Comprehensive:** Analytics capabilities must be scaled with data in real time. Insights will be comprehensive and fast. Latency is unacceptable in the supply chain of the future.

Many supply chains have begun this process, with participation in cloud-based commerce networks at an all-time high and major efforts underway to bolster analytics capabilities.