Supply Chain, Five Main Components

Historically, the three fundamental stages of the supply chain, procurement, production and distribution, have been managed independently buffered by large inventories. Increasing competitive pressures and market globalization are forcing firms to develop supply chains that can quickly respond to customer needs. To remain competitive, these firms must reduce operating costs while continuously improving customer service. With recent advances in communications and information technology, as well as a rapidly growing array of logistics options, firms have an opportunity to reduce operating costs.
What is supply chain management?

Supply chain management (SCM) is the combination of art and science that goes into improving the way your company finds the raw components it needs to make a product or service and deliver it to customers.

**Five basic components of SCM:**

1. **Plan**

This is the strategic portion of SCM. Companies need a strategy for managing all the resources that go toward meeting customer demand for their product or service. A big piece of SCM 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.

2. **Source**

Next, companies must choose suppliers to deliver the goods and services they need to create their product. Therefore, supply chain managers must develop a set of pricing, delivery and payment processes with suppliers and create metrics for monitoring and improving the relationships. And then, SCM managers can put together processes for managing their goods and services inventory. This includes receiving and verifying shipments, transferring them to the manufacturing facilities and authorizing supplier payments.

3. **Make**

This is the manufacturing step. Supply chain managers schedule the activities necessary for production, testing, packaging and preparation for delivery. This is the most metric-intensive portion of the supply chain—one where companies are able to measure quality levels, production output and worker productivity.

4. **Deliver**

This is the part that many SCM insiders refer to as logistics. Where companies 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.

5. **Return**

This can be a problematic part of the supply chain for many companies. Supply chain planners have to create a responsive and flexible network. This network helps for receiving defective and excess products back from their customers and supporting customers who have problems with delivered products.

Supply chain business process integration involves collaborative work between buyers and suppliers, joint product development, common systems, and shared information. According to studies and researches, operating an integrated supply chain requires a continuous information flow. However, in many companies, management has concluded that optimizing product flows cannot be accomplished without implementing a process approach.

Generally speaking Supply Chain Management includes number of main processes to achieve integration.

**Supply Chain Management Processes:**

a) Customer service management process.

b) Procurement process.

c) Product development and commercialization.

d) Manufacturing flow management process.

e) Physical distribution.

f) Outsourcing/partnerships.

g) Performance measurement.

h) Warehousing management.
The supply chain manager supervises all the related Supply Chain processes for the organization. Effective supply chain management involves the coordination of all of the various elements of the chain as quickly as possible by harmonizing the contributions at each stage, including partners, Vendors and customers. This must be done as cost-effectively as possible with an eye always on the customer.

Being more attentive to the stages throughout the length of the chain helps companies to stay competitive, reduces overall costs, increases efficiency and ultimately, keeps the customers happy. Supply chains are becoming increasingly integrated and complex, and as such now require dedicated and well-trained managers.

Supply chain integration is not new; many companies have already pursued it as a way to gain competitiveness. Information technology has long been a major factor. Relational databases, client/server architecture, TCP/IP network protocols, multimedia, wireless technology, and most recently, the Internet, have each, in their way, spurred new innovation and new possibilities.

How and where do we see the impact of e-business on supply chain integration? There are four key dimensions in which the impacts can be found:

1. Information integration
2. Planning synchronization
3. Workflow coordination, and
4. New business models

“Outsourcing organizations need to use models to help develop strategies and tactics for assessing and managing project risk”
Taken in order, these four represent escalating degrees of integration and coordination among supply chain members, culminating in whole new ways of conducting business.

**Information integration**

Refers to the sharing of information among members of the supply chain. This includes any type of data that could influence the actions and performance of other members of the supply chain. Some examples include: demand data, inventory status, capacity plans, production schedules, promotion plans, and shipment schedules. Ideally, such information can be accessible by the appropriate parties on a real-time, on-line basis without significant effort.

**Planning synchronization**

Refers to the joint design and execution synchronization of plans for product introduction, forecasting and replenishment. In essence, planning synchronization defines what is to be done with the information that is shared; it is the mutual agreement among members as to specific actions based on that information. Hence, members in a supply chain may have their order fulfillment plans coordinated so that all replenishments are made to meet the same objective – the ultimate customer demands.

**Workflow coordination**

Refers to streamlined and automated coordination workflow activities between supply chain partners. Here, we take integration one step further by defining not just “what” we would do with shared information, but “how.” For example, procurement activities from a manufacturer to a supplier can be tightly coupled so that efficiencies in terms of accuracy, time, and cost, can be achieved. Product development activities involving multiple companies can also be integrated to achieve similar efficiencies. In the best-case situation, supply chain partners would rely on technology solutions to actually automate many or all of the internal and cross-company workflow steps.

**New Business Models**

Adopting e-business approaches to supply chain integration Models promises more than just incremental improvements in efficiency. Many companies are discovering whole new approaches to conducting business, and even new business opportunities not previously possible. E-business allows partners redefine logistics flows so that the roles and responsibilities of members may change to improve overall supply chain efficiency. A supply chain network may jointly create new products, pursue mass customization, and penetrate new markets and customer segments. New rules of the supply chain game can emerge as a result of integration fueled by the Internet.

**Integration Cooperation**

Integration cannot be complete without a tight linkage of the cooperation organizational relationships between companies. This linkage must take place on many planes.

- Channels of communication must be well defined and maintained, with roles and responsibilities clearly articulated.
- Performance measures for members of the supply chain also need to be specified and monitored. A member of the supply chain may be held accountable for some performance measures of another member, and there may be some performance measures for which multiple organizations are jointly held accountable. Such extended performance measures encourage closer collaboration and coordination.

- Incentives must be aligned for all members in order for supply chain integration to work. Incentive alignment requires a careful definition of mechanisms in which the risks and associated gains of integration efforts are equitably shared. Moreover, the incentive for each member must commensurate with her investment and risk. The success of any supply chain integration effort is predicated on close cooperation inspired by a perception of mutual benefit. As we will see, e-business approaches can go a long way toward fostering the necessary level of trust and commitment.

Information technology, and in particular, the Internet, play a key role in furthering the goals of
Collaborative Planning, Forecasting and Replenishment, Four Main Phases

Collaborative Planning, Forecasting and Replenishment (CPFR) is a concept that has revolutionized business practices by integrating the organization with its trade partners more effectively to realize mutual benefits. Buyers benefit from reduced prices, better forecasting, collaborative relationships to get better service levels and synchronized operations. There is a longer term collaboration which the two businesses can share risks and rewards. CPFR models require commitment, true collaboration and executive buy-in from both sides. Additionally, concerns over the appropriate technology that integrates with legacy systems have been an issue which has caused many organizations to proceed cautiously.

CPFR model provides a basic framework for the flow of information, goods and services. The consumer drives demand for goods and services while the retailer is the provider of these goods and services. The manufacturer supplies the retail channels/stores with the products as demand for products is pulled through the supply chain by the end user consumer.

CPFR Main phases:

**Strategy & Planning:** establishes the ground rules for the collaborative relationship such as business goals, scope of collaboration, assignment of roles, responsibilities, checkpoints and escalation procedures.
The top three supply chain/procurement solutions:

1) An integrated, supported supply chain and/or procurement strategic plan.

2) A formal and effective enterprise wide supply chain risk management process.

3) An effective corporate wide strategic sourcing process.

Simply highlighting the matter may be enough for a highly probable low risk event, whereas a more detailed and ‘technical’ clause will be appropriate for a high-risk event. The overall aim should always be to make the length and complexity of the contract appropriate to the risks you face.

**Demand & Supply Management:** consists of sales forecasting, order planning/forecasting, inventory positions, and transit lead times.

**Execution:** consists of Order Generation, i.e. transitions forecasts to firm demand, and order fulfillment, i.e. the process of producing, shipping and delivering and stocking products for consumer purchase.

**Analysis:** tasks include Exception management and Performance assessment. Exception management is actively monitoring planning and operations for out of bound conditions, while performance assessment is evaluating the achievement of business.

**Benefits of CPFR**

The key benefits of CFPR falls within five major categories:

**Improved customer service trough better forecasting techniques** – More reliable forecasting allows a more effective way to anticipate consumer demand across the entire supply chain. Therefore allow the business to plan production capacity accordingly. Risks for stock-outs is reduced which improves customer fulfillment orders which thereby increases revenue, delivery and improved customer service.

**Lower Inventories for higher profits** – Accurate predictions of demand as mentioned before will reduce stock-outs and provide a more efficient understanding of production needs. Safety stock inventory for over production would be reduced which decreases carrying costs, storage space and potential spoilage/obsolescence. Additionally, there is improved material flow and release of working capital that can be used in other areas of the production instead of being tied up in inventory.

**Improved ROI on Technology investment** – Effective CPFR technology solutions benefit both manufacturers and retailers from reduced overhead costs because several inefficiencies are eliminated, i.e., antiquated manual processes, custom integrations of different partner IT systems and information searching of multiple sources/systems.

**Improved relationships between trading partners** – Develop when
collaboration takes place. Trading partners gain a better understanding of respective businesses by regularly exchanging information, establishing direct communication on channels and create a win-win situation.

**Cost reduction** – Will occur when production schedule and agreed forecasts are aligned. Costs are reduced by decreasing set-up times, effort duplication and variations. There is also efficient production capacity utilization since planning information is more reliable.

Generally speaking CPFR is one of a series of supply chain initiatives like JIT (Just-In-Time), ECR (Efficient Customer Response) and VMI (Vendor Managed Inventory) , driven by organizations. It allows partners to visualize the bigger picture in terms of the entire supply chain rather than their enterprise alone. As partner collaboration is initiated right from the planning till the replenishment stage. The supply chain as a whole is in a better position to respond to exceptional circumstances making it a more proactive entity rather than a reactive one. On a more abstract level, CPFR aims at creating an environment of trust between trading partners where the benefits of sharing information are known.

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