STRATEGIC SUPPLY CHAIN MANAGEMENT

CERTIFIED PROCUREMENT AND SUPPLY PROFESSIONAL OF KENYA

CPSP-K

2019

PART 4

CHAPTER 1
OVERVIEW OF STRATEGIC SUPPLY CHAIN MANAGEMENT

Definition of Supply Chain Management Concepts

***A supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers.

Supply chains exist in both **service** and **manufacturing** organizations

The term—supply chain management arose in the late 1980s and came into wide spread use in the 1990s.Priortothattime, businesses used terms such as—logistics and—operations management instead.

—A supply chain is the alignment of firms that bring products or services to the market.

—A supply chain consists of all stages involved, directly or indirectly, in fulfilling a customer request. The supply chain not only includes the manufacturer and suppliers, but also transporters, warehouses, retailers, and customers themselves.

The **Supply Chain** is a Network of Suppliers (feeding in to the organisation) and intermediaries/distributors (interface between organisation and customer).

Supply chains are sometimes referred to as **value chains,** a term that reflects the concept that value is added as goods and services progress through the chain

****In short**, **Supply chain management (SCM)** is the management of a network of interconnected business involved in the ultimate provision of product and service packages required by end customers. 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.

****According to the Council of Supply Chain Management Professionals (CSCMP), supply chain management encompasses the planning and management of all activities involved in sourcing, procurement, conversion, and logistics management.

It also includes the crucial components of coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers

Elements of SCM

- ✓ Inventory management
- ✓ Warehousing
- ✓ Transportation

Evolution of supply chain management

There is a basic pattern to the practice of supply chain management.

Each supply chain has its own unique set of market demands and operating challenges and yet the issues remain essentially the same in every case.

Companies in any supply chain must make decisions individually and collectively regarding their actions in five areas:

1. Production Decisions

2. Inventory Decisions

3. Location Decisions

4. Transportation Decisions

5. Information Decisions

1. **Production Decisions -**what products does the market want? How much of which products should be produced and by when? This activity includes the creation of master production schedules that take into account plant capacities, workload balancing, quality control, and equipment maintenance. (*Readon MRP)*

2. Inventory Decisions-what inventory should be stocked at each stage in a supply chain? How much inventory should be held as raw materials, semi-finished, or finished goods? The primary purpose of inventory is to act as a buffer against uncertainty in the supply chain. However, holding inventory can be expensive, so what are the optimal inventory levels and reorder points?

3. Location Decisions-where should facilities for production and inventory storage be located? Where are the most cost efficient locations for production and for storage of inventory? Should existing facilities be used or new ones built? Once these decisions are

made they determine the possible paths available for product to flow through for delivery to the final consumer.

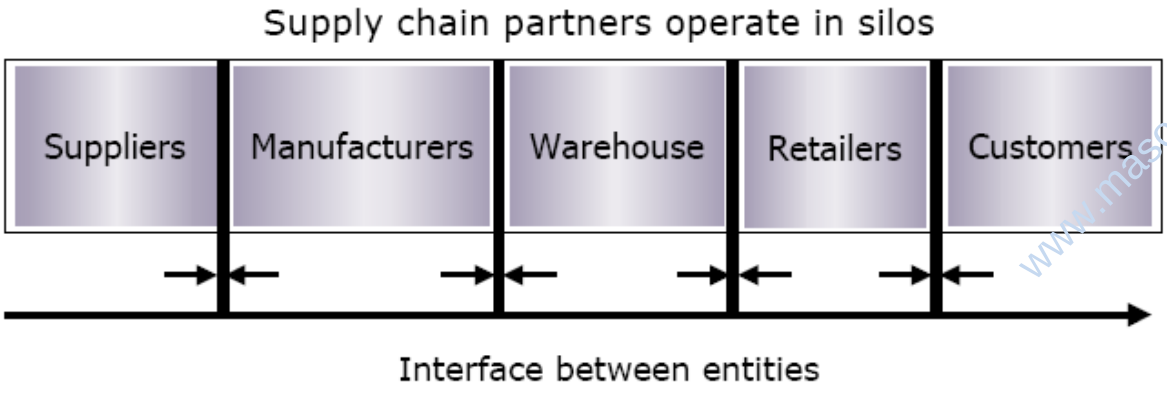
4. **Transportation Decisions**-How should inventory be moved from one supply chain location to another? Air freight and truck delivery are generally fast and reliable but they are expensive. Shipping by sea or rail is much less expensive but usually involves longer transit times and more uncertainty. This uncertainty must be compensated for by stocking higher levels of inventory. When is it better to use which mode of transportation?

5. Information Decisions-how much data should be collected and how much information should be shared? Timely and accurate information holds the promise of better coordination and better decision making. With good information, people can make effective decisions about what to produce and how much, about where to locate inventory and how best to transport it.

The sum of these decisions will define the capabilities and effectiveness of a company's supply chain.

Traditional versus strategic supply chain management

Traditional strategic supply chain management



Traditional organizations set performance goals for each function to be managed in isolation with no or little attention given to inter-functional relationships.

Role of the supply chain management department in an organization

- ✓ Increased market share and sales growth
- ✓ Reduced inventory levels and total SCM costs
- ✓ Decreased order cycle/fulfillment time
- ✓ Increased asset and capital utilization
- ✓ Improved delivery performance
- ✓ Faster response to changing customer requirements
- ✓ Improved return on assets and sales

- ✓ Increased forecast accuracy
- ✓ Reduced cash-to-cash cycle time

Enablers of supply chain management

There are five areas where companies can make decisions that will define their supply chain capabilities:

- ✓ **Production;**
- ✓ **Inventory;**
- ✓ **Location;**
- ✓ **Transportation;**
- ✓ **Information**

These areas are defined as performance drivers that can be managed to produce the capabilities needed for a given supply chain.

Effective supply chain management calls first for an understanding of each driver and how it operates.

a) **Production**

Production refers to the capacity of a supply chain to make and store products. The facilities of production are factories and warehouses. The fundamental decision that managers face when making production decisions is how to resolve the trade-off between responsiveness and efficiency.

Factories can be built to accommodate one of two approaches to manufacturing:

1. **Product focus**—A factory that takes a product focus performs the range of different operations required to make a given product line from fabrication of different product parts to assembly of these parts.

2. **Functional focus**—A functional approach concentrates on performing just a few operationssuchasonlymakingaselectgroupofpartsoronlydoingassembly.Thesefunctionscanbea ppliedtomakingmanydifferentkindsofproducts.

As with factories, warehouses too can be built to accommodate different approaches. There are three main approaches to use in ware-housing:

1. **Stock keeping unit (SKU)** storage, in this traditional approach, all of a given type of product is stored together. This is an efficient and easy to understand way to store products.
2. **Job lot storage**, in this approach, all the different products related to the needs of a certain type of customer or related to the needs of a particular job are stored together. This allows for an efficient picking and packing operation but usually requires more storage space than the traditional SKU storage approach.
3. **Cross docking**, an approach that was pioneered by Wal-Mart in its drive to increase efficiencies in its supply chain. In this approach, product is not actually warehoused in the facility. Instead the facility is used to house a process where trucks from suppliers arrive and unload large quantities of different products. These large lots are then broken down into smaller lots. Smaller lots of different products are recombined according to the needs of the day and quickly loaded onto outbound trucks that deliver the products to their final destination.

b) **Inventory**

Inventory is spread through out the supply chain and includes everything from raw material to work in progress to finished goods that are held by the manufacturers, distributors, and retailers in a supply chain.

Again, managers must decide where they want to position themselves in the trade-off between responsiveness and efficiency.

Holding large amounts of inventory allows a company or an entire supply chain to be very responsive to fluctuations in customer demand.

However, the creation and storage of inventory is a cost and to achieve high levels of efficiency, the cost of inventory should be kept as low as possible.

There are three basic decisions to make regarding the creation and holding of inventory:

1. **Cycle Inventory**—This is the amount of inventory needed to satisfy demand for the product in the period between purchases of the product. Companies tend to produce and to purchase in large lots in order to gain the advantages that economies of scale can bring.

2. **Safety Inventory**—Inventory that is held as a buffer against uncertainty. If demand forecasting could be done with perfect accuracy, then the only inventory that would be needed would be cycle inventory.

3. **Seasonal Inventory**—This is inventory that is built up in anticipation of predictable increases in demand that occur at certain times of the year. For example, it is predictable that demand for text books /school uniform will increase when schools re-open etc.

Then the only inventory that would be needed would be cycle inventory. The trade-off here is to weigh the costs of carrying extra inventory against the costs of losing sales due to insufficient inventory

c) **Location**

Location refers to the geographical sitting of supply chain facilities. It also includes the decisions related to which activities should be performed in each facility.

The trade-off here is the decision whether to centralize activities in fewer locations to gain economies of scale and efficiency, or to decentralize activities in many locations close to customers and suppliers in order for operations to be more responsive.

When making location decisions, managers need to consider arrange of **factors that relate to a given location including**:

- ✓ The cost of facilities,
- ✓ The cost of labor,
- ✓ Skills available in the work force,
- ✓ Infrastructure conditions,
- ✓ Taxes and tariffs,
- ✓ Proximity to suppliers and customers

Location decisions tend to be very strategic decisions because they commit large amounts of money to long-term plans.

Location decisions have strong impacts on the cost and performance characteristics of a supply chain.

Once the size, number, and location of facilities is determined, that also defines the number of possible paths through which products can flow on the way to the final customer.

Location decisions reflect a company's basic strategy for building and delivering its products to market.

d) **Transportation**

This refers to the movement of everything from raw material to finished goods between different facilities in a supply chain. Fast modes of transport such as airplanes are very responsive but also more costly. Slower modes such as ship and rail are very cost efficient but not as responsive. Since transportation costs can be as much as a third of the operating cost of a supply chain, decisions made here are very important.

There are six basic modes of transport that a company can choose from:

1. Ship which is very cost efficient but also the slowest mode of transport. It is limited to use between locations that are situated next to navigable waterways and facilities such as harbours and canals.

2. Rail which is also very cost efficient but can be slow. This mode is also restricted to use between locations that are served by rail lines.

3. Pipelines can be very efficient but are restricted to commodities that are liquids or gases such as water, oil, and natural gas.

4. Trucks are a relatively quick and very flexible mode of transport. Trucks can go almost anywhere. The cost of this mode is prone to fluctuations though, as the cost of fuel fluctuates and the condition of roads varies.

5. Air planes area very fast mode of transport and are very responsive. This is also the most expensive mode and it is somewhat limited by the availability of appropriate airport facilities.

6. Electronic Transport is the fastest mode of transport and it is very flexible and cost efficient. However, it can only be used for movement of certain types of products such as electric energy, data, and products composed of data such as music, pictures, and text. Someday technology that allows us to convert matter to energy and back to matter again may completely rewrite the theory and practice of supply chain management

Given these different modes of transportation and the location of the facilities in a supply chain, managers need to design routes and net-works for moving products.

e) **Information**

Information is the basis upon which decisions are made regarding the other four supply chain drivers. It is the connection between all of the activities and operations in a supply chain.

Information is used for two purposes in any supply chain:

1. Coordinating daily activities related to the functioning of the other four supply chain drivers: production; inventory; location; and transportation. The companies in a supply chain use available data on product supply and demand to decide on weekly production schedules, inventory levels, transportation routes, and stocking locations.
2. Forecasting and planning to anticipate and meet future demands.

✓ Available information is used to make tactical forecasts to guide the setting of monthly and quarterly production schedules and timetables. Information is also used for strategic forecasts to guide decisions about whether to build new facilities, enter a new market, or exit an existing market.

- ✓ The more information about product supply, customer demand, market forecasts, and production schedules that companies share with each other, the more responsive everyone can be.

i. **Structure of supply chain management**

Supply chain business process integration involves collaborative work between buyers and suppliers, joint product development, common systems, and shared information. According to Lambert and Cooper (2000), 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. The key supply chain processes stated by Lambert (2004 are:

- Customer relationship management
- Customer service management
- Demand management style
- Order fulfilment
- Manufacturing flow management
- Supplier relationship management
- Product development and commercialization
- Returns management

ii. **The role of cross functional teams**

A **cross-functional team** is a group of people with different functional expertise working toward a common goal. It may include people from finance, marketing, operations, and human resources departments.

Typically, it includes employees from all levels of an organization. Members may also come from outside an organization (in particular, from suppliers, key customers, or consultants).

The cross-functional team works together to reach a goal or objective such as ***developing new products***, ***reducing defects*** or ***increasing the efficiency*** in a process.

a) **To encourage Diversity**

Cross-functional teams include members from different areas of the business, which creates a group of members with diverse educational backgrounds, skill sets and talents. The diversity of the group allows the group to share ideas and skills to reach the objective of the team. For example, if the team is developing a system to reduce defects, team members with engineering skills and knowledge can develop new tools and equipment to reduce defects

while members from production can provide input on the efficiency of the new tooling or equipment.

b) **Conflict**

The diversity of a cross-functional team gives it an advantage when evaluating a problem from all angles, but it can also create conflict among the group. Team members may have difficulty understanding the viewpoint of other members of the group. For example, if team members with an engineering background create a tool or new method for production and the production team members provide negative feedback, it may create conflict.

c) **Encourages Shared Purpose**

The cross-functional team allows groups from various areas of the company to share a purpose or objective. The team leader, with input from the members, creates the goals and objectives of the team as the first step. On a cross-functional team, workers complete assignments together using their skills and talents to further the goals of the team.

d) **Management Difficulty**

Managing a cross-functional team may be difficult. Team members work in different areas of the company, which can create scheduling difficulties. The team leader of a cross-functional team must work with the group and act as a liaison to management. It is the leader's responsibility to ensure the team has the tools and resources to meet the objective while ensuring the objective aligns with the goals of the company.

CHAPTER 2
SUPPLY MARKET ANALYSIS

Supply market Environmental factors

There are three levels of the environment that affect any supply market

- Micro (internal) environment – small forces within the company that affect its ability to serve its customers.
- Meso environment – the industry in which a company operates and the industry's market(s).
- Macro (national) environment – larger societal forces that affect the microenvironment.

Changing Ideas of Management and Organizational behaviour

i. **Institutional economics**

Institutional economics, known by some as institutionalism political economy, focuses on understanding the role of human-made institutions in shaping economic behaviour.

Institutional economics is concerned with the social systems, or institutions, that constrain the use and exchange of resources (goods and services) and their consequences for economic performance.

ii. **Traditional model on management and organization versus the business process**

Difference between Traditional Management and Business Process Management

Because we make our living implementing process-based management systems that improve organization outcomes, we are often asked to compare Business Process Management (BPM) with more traditional – vertical and hierarchical – organization structures. What follows is a comparison between traditional and BPM approaches within ten key organization characteristics.

1. Structure. Traditionally, the organization structure is aligned by departments, functions, and jobs at the desk level. Through BPM, the organization is aligned around business systems, business processes, tasks, and knowledge. By structuring around the work, the organization is able to execute better, match responsibilities directly to workflow, and hold people accountable to meaningful work-based outcomes.

2. Work flow. In a traditional organization, workflow is generally undefined or sometimes defined solely through IT architecture. Under BPM, workflow is specifically standardized through employee defined business systems and business processes. By involving those who

do the work directly in defining and improving the work, the organization is taking advantage of human assets that are capable of contributing far more value than usually seen.

3. Accountability. Accountability is traditionally defined through a top-down, hierarchical organization structure, with responsibilities assigned from vice president to director to manager to supervisor to front line employee. Accountability in a BPM structure has far fewer layers and is defined by enterprise owner, business system owner and process owner. By clearing out excess layers, the organization can save expensive overhead costs and assign responsibilities directly to work-based business systems and processes.

4. Boundaries. In a traditional organization, department silos are a common occurrence. Organization boundaries are typically undefined; creating barriers that must be overcome. Clearly defined boundaries are key to BPM, in addition to well understood and documented customer needs. Almost 20% of all improvement opportunities come from unclear boundary specifications, which lead to internal suppliers not meeting internal customer needs. The lack of boundary specifications represents one of the most common and difficult problems to improving organization performance.

5. Knowledge. Knowledge is typically concentrated and centralized in a traditional organization. It is often held close to the vest by front line employees and treated in a parochial fashion to protect one's own job and self-interest. Through BPM, knowledge is documented, shared and distributed; it is transparent and stored at the point of use. BPM based knowledge management makes the valuable intellectual property assets owned by the organization readily available to all who need it.

6. Measurement. Performance measurement is traditionally collected and managed at the department level, usually in the form of key performance indicators. These measures are lagging and reactive. With BPM, organization performance measures are captured and monitored at the business process level, which provides leading, proactive, and actionable indicators of trends in the business.

7. Improvement. In a traditional organization, performance improvement is typically managed as a series of projects designed to address isolated problems. These projects are treated as discrete events designed to solve a specific problem. BPM performance improvement is managed as an ongoing series of business system and process improvement projects with a never-ending purpose. Projects are designed to improve a business system or process in whatever manner delivers a better customer experience.