GITAM
(DEEMED TO BE UNIVERSITY)
VISAKHAPATNAM • HYDERABAD • BENGALURU

SCM
UNIT-II

By
Dr K Suresh
Department of Mechanical Engineering,
GITAM Institute of Technology,
GITAM (Deemed to be University)

Supply Chain Drivers & Metrics

Drivers of Supply Chain

The major drivers of Supply chain performance consists of three logistical drivers & three cross-functional drivers.

Logistical drivers:

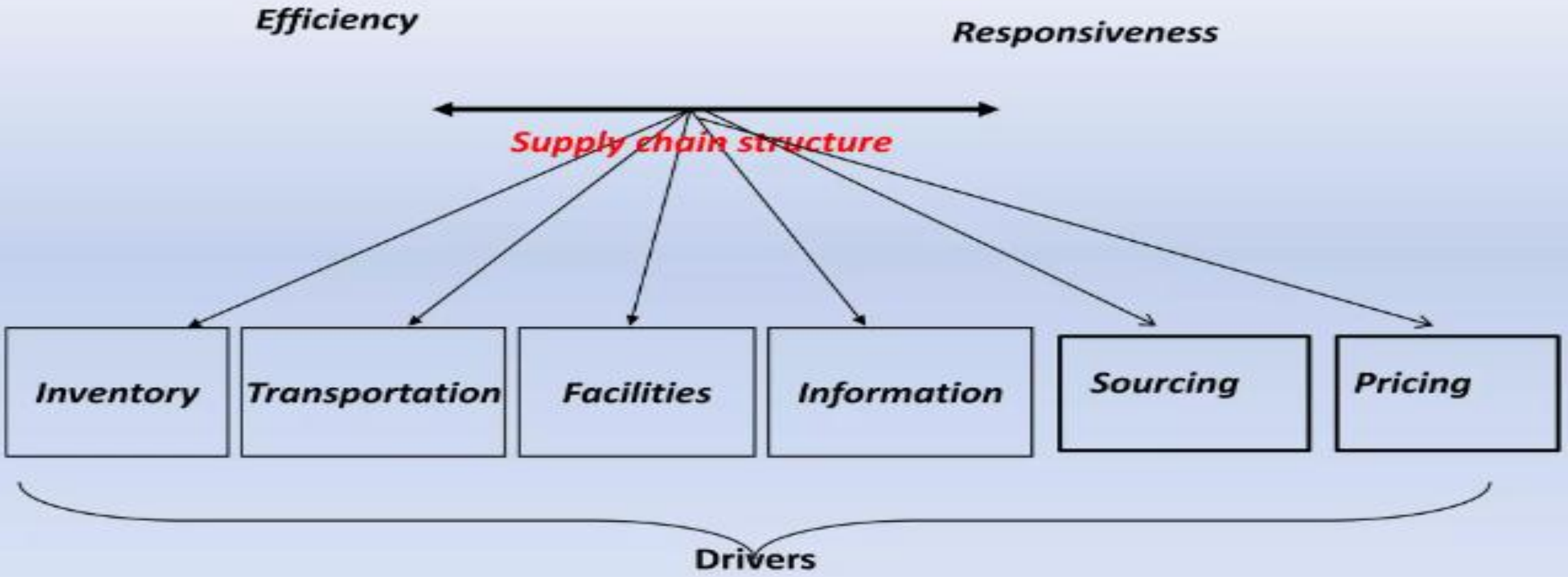
- Facilities
- Inventory
- Transportation

Cross-functional drivers:

- Information
- Sourcing
- Pricing

Company's supply chain achieve the balance between responsiveness & efficiency that best meets the needs of the company competitive strategy.

Drivers of Supply Chain Performance



FACILITY

Facility are the actual physical locations in the supply chain network where product are stored, assembled or fabricated. The two major types of facilities are :

- Production sites(factories)
- Storage sites(warehouses)

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 focus approach concentrates on performing just a few operations such as only making a select group of parts or doing only assembly

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Warehousing: There are three main approaches to use in warehousing:

1. *Stock keeping unit(SKU) storage:* In this approach all of a given type of product is stored together.
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.
3. *Crossdocking:* 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 product to their final destination.

So the fundamental trade-off that managers face when making facilities decision between the cost of the number, location & type of facilities(efficiency) & the level of responsiveness that these facilities provide the company's customer.

INVENTORY

Inventory encompasses all the raw materials, work in process, and finished goods within a supply chain. Changing inventory policies can dramatically alter the supply chain's efficiency & responsiveness.

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.
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.

TRANSPORTATION

Transportation entails moving inventory from point to point in the supply chain . Transportation can take the form of many combinations of modes & routes, each with its own performance characteristics. There are six basic modes of transport that a company can choose from:

- Ship which is very cost efficient but also the slowest mode of transport. It is limited to use between locations that are situated nest to navigable waterways & facilities such as harbor & canals.
- Rails 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.
- Pipelines can be very efficient but are restricted to commodities that are liquid or gases such as water, oil & natural gas.
- Trucks are a relatively quick & 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 road varies.
- Airplanes are a very fast mode of transport and are very responsive. This mode is also very expensive mode & is somewhat limited by the availability of appropriate airport facilities.
- Electronic transport is the fastest mode of transport and it is very flexible & cost efficient. However , it can be only be used for movement of certain types of products such as electric energy, data, & products composed of data such as music, pictures & text.

INFORMATION

Information serves as the connection between various stages of a supply chain, allowing them to coordinate & maximize total supply chain profitability. It is also crucial to the daily operations of each stage in a supply chain for e.g a production scheduling system.

Information is used for the following purpose in a supply chain:

1. Coordinating daily activities related to the functioning of other supply chain drivers: facility, inventory & transportation.
2. Forecasting & planning to anticipate& meet future demands. Available information is used to make tactical forecasts to guide the setting of monthly & quarterly production schedules & time table
3. Enabling technologies: many technologies exist to share & analyze information in the supply chain. Managers must decide which technologies to use & how to integrate these technologies into their companies like internet, ERP, RFID.

SOURCING

Sourcing is the set of business processes required to purchase goods & services. Managers must first decide which tasks will be outsourced & those that will be performed within the firm.

Components of sourcing decisions

- In-House or outsource: The most significant sourcing decision for a firm is whether to perform a task in-house or outsource it to a third party. This decision should be driven in part by its impact on the total supply chain profitability.

- Supplier selection: It must be decided on the number of suppliers they will have for a particular activity. The must then identify the criteria along which suppliers will be evaluated & how they will be selected like through direct negotiations or resort to an auction.

PRICING

Pricing determines how much a firm will charge for goods & services that it makes available in the supply chain. Pricing affects the behavior of the buyer of the good or services, thus affecting supply chain performance, for example, if a transportation company varies its charges based on the lead time provided by the customers, it s very likely that customers who value efficiency will order early & customers who value responsiveness will be willing to wait & order just before they need a product transported. This directly affects the supply chain in terms of the level of responsiveness required as well as the demand profile that the supply chain attempts to serve. Pricing is also a lever that can be used to match supply & demand.

Components of Pricing Decisions:

- Fixed Price versus Menu pricing: A firm must decide whether it will charge a fixed price for its supply chain activities or have a menu with prices that vary with some other attribute, such as response time or location of delivery.
- Every day low pricing versus High-Low pricing

Obstacles to Achieving Strategic fit

- Increasing variety of products
- Decreasing product life cycles
- Increasingly demanding customers
- Fragmentation of supply chain ownership
- Globalization

THANKS