

# SUPPLY CHAIN MANAGEMENT – KEY FACTORS

Viewpoint and  
replies on  
previously  
published articles

---

## Keywords

Communication  
Commitment  
Compensation  
Synchronisation

## JEL Classification

M16

---

## Abstract

*This paper exposes Supply Chain Management by its key factors. Briefly, where the Supply Chain Management is treated as strategic part of a company then maintaining both control and influence throughout the entire supply chain are key factors and critical to success. On the other hand, finding the right partner to manage the non-strategic Supply Chains would be another key factor too. To define the most important key factors within Supply Chain Management means a deeply understanding of both Supply Chain's components, procedures, workflow, processes and the importance of Supply Chain Management into maximizing company's value. SCORE model able to provide solid information about measuring performance and identifying priorities within Supply Chain Management will help us to understand the key factors by analyzing its elements: Plan, Source, Make, Deliver, Return, Enable. These elements covers all the challenging areas from first to third tier of Supply Chain Management.*

## 1. Supply Chain Management in a few words

Supply Chain Management is a cross-functional approach, the management of the activities that procure materials and services, transform them into intermediate goods and final products, and deliver them through a distribution system to point of consumption. The flow includes the information required by each activity or process, movement and storage of both raw materials, work in progress goods inventory, and finished goods too.

Supply Chain becomes the value of each chain. Competitive advantage cannot be understood by looking to a company activities as developing new products, procurement, producing, delivering or supporting them. Each activity can make a difference to its competitors being cheaper or made better. In fact, there is no competition between companies. It's a competition between Supply Chains.

In order to find out the key factors of Supply Chain Management is required a diagnosis of it by looking to its function, activities or processes, strategies and risks, separately and into their interrelationships. (Bowersox DJ, Closs DJ, Cooper MB., 2007)

### 1.1. Supply Chain Management Functions

Are well known three functions of Supply Chain:

- Procurement activities in order to get the right good(raw or pack material) for the manufacturer capacity, inbound logistics
- Production
- Distribution of finished goods to final customer, outbound logistics

Companies involved in different stages of this process are linked to each other through a supply chain. In order to facilitate the flow of goods, information is shared up and down within supply chain allowing to all parties involved planning current and future needs. More information shared, better results achieved and the

concept “win –win –win“ became real, the third “win” belonging to final customer, that one who pay for finished goods utility. A lot of objectives can be achieved through efficient Supply Chain Management:

- inventory can be optimized or minimized
- the whole cost of Supply Chain can be reduced
- delivery time of products to the final consumer can be improved
- flexibility can be enhanced

Example of information shared between a manufacturing plant and its suppliers of raw and packs materials: needs planned, inventory in hand, planned inventory, purchase orders opened and open quantity, quantity delivered, and real consumption.

Inventory management involves determining the optimal amount of stocks to be held, identifying of the right moment for a new purchasing and the right quantity which has to be bought. The stock level of raw and packaging materials is influenced by the actual sales level (coverage of finished goods), sales estimates, production input (production lead time, production cycle time, minimum lot size, quarantine period for food articles) and logistic input as transport time, shelf life, trade life.

Reducing Supply Chain cost can be made by reducing *acquisition cost* by transport cost or better negotiation referring to raw or pack materials, so on, *production cost* by reducing waste level or a better planning, so on, *logistics cost* by improving the pallets policy or minimizing the inventory insurance or inventory level, or reducing time of delivery to final customer, so on.

Outsourcing logistics can reduce Supply Chain costs, improving delivery reliability and speed. A Company would outsource as well the information technology, accounting, legal, and production.

## 1.2. Supply Chain Management Activities

There are many activities within Supply Chain able to provide us clear information and a better understanding of Supply Chain factors. The important activities include determining of transportation suppliers, credit and cash transfers, suppliers as entity, distributors agreed, accounts payable and receivable, warehousing and inventory, order fulfillment, sharing customer, forecasting, and production information. The activities presented are parts of following Supply Chain processes:

- product design, development and its offtake
- acquisition policy
- manufacturing flow management, including outsourcing process
- warehousing management
- physical distribution(trucking, railroads, airfreight, waterways, pipelines)
- customer service
- performance measurement by Key Performers Indicators(KPI's)

Logistic Operations manages the execution of those activities as: transportation, warehousing, handling and delivery at the right time, in the best quality and in the most cost-effective way in order to fulfill customers' requirements.

As a measure of Supply Chain activities performances are used the Key Performers Indicators (KPI's). Related to the goods transport, for example, is relevant the "On Time Loading" (OT), which reflects the number of loadings made in time versus total number of loadings while for reception point the "Invoice Accuracy" (IA) as number of invoices correctly issued versus total number of invoices is the most important.

The mains objectives of those who manage the inventory are to avoid any "out of stock", in order to obtain a good coverage of stock per each category of articles which means less "Days on stock" and to obtained time to time a cost saving.

The cost saving means the same effect with less effort, or a better effect with the same effort. It can be obtained, for example, by replacing a film having 180 my with a new one with the same structure but thinner, or by a better usage of storage space creating a vertical storage space, easy to access, better manipulation and administration.

A kind of cost saving could be the Order Size Rebate which is offered when the quantities ordered by the customer are such that the trucks ordered are fully utilized both in weight and cubic capacity. This allows to get better \$/kg rate on transportation. Benefits would be shared. The company which buy is encouraged to issue orders above certain percentage of truck utilization based on the product specifications.

## 1.3. Supply Chain Management performance

Supply Chain Management performance shows the entire chain's ability to meet end-customer needs through product availability and responsive, on-time delivery but keeping under permanent control the company boundaries. It means up to date Information and deeply analyzing of Supplier performance, Supplier market, Logistics aspects as International Transportation and Customs Clearance, Warehousing, Repacking, Distribution. Some criteria evaluated in order to measure Supplier performance are as follow:

- *Level of innovation* content by its technology and the openness to new research, evolving
- *Production capacity* (flexibility, technical assistance)
- *Physical distribution capability*
- *Quality systems* (Certifications obtained, Quality Standards used)and *performance*
- *Facilities* offered by company location

- *Financial and managerial strength* able to offer stability and cost structure on long term
- *Information systems capability* which means the possibility to use e-Procurement or Enterprise Resource Planning (ERP)
- *Integrity* by environmental compliance and ethics

Measuring Supplier Chain performance means to have information about lead time (days or weeks), time spent placing an order, percentage of late deliveries, percentage of goods complained or rejected number of shortages or out of stock per year.

Better performance is registered by those companies which are using E-Procurement, E- Procurement uses the internet to facilitate purchasing and allows electronic ordering and funds transfer, electronic data interchange (EDI), advanced shipping notice, requests for quotes (RFQs) less costly. Through E-Procurement suppliers selection process is improved, the auctions and inventory tracking are made within real time. Quickly and accurate inputs are obtained by company which are using Enterprise Resource Planning (ERP), a software, a centralized database, able to provide “a cross – functional process view of the organization”, integrating “sales, order, inventory, manufacturing and customer service activities”. The last edition of ERP “Web Integrated ERP” is able to use “the web platform with other business systems”.(Lee, 2006 and Ted, 2011)

### 1.3.1. Supply Chain Management Strategies

The performance of each Supply Chain depends on company strategy.

Process strategy influences the Supply Chain by process performance, marketing strategy and innovation accepted and used by company.

A company may choose one of the following strategies for its Supply Chain: negotiating with many suppliers, long-term

partnering with few suppliers, vertical integration, Joint ventures, Keiretsu, virtual companies that use suppliers on an as needed basis, and Integrated Supply Chain which means collaborative planning, forecasting, and replenishment (CPFR), blanket orders and standardization.

To have many providers as commodity products have means that the acquisition is based on price because the suppliers compete with one another. In this case, each supplier becomes more responsible for technology, expertise, forecasting, cost, quality, and delivery. On the other hand, having only a few Suppliers means that longer terms relationships are agreed, the value can be created through economies of scale and learning curve improvements. It is the situation when Suppliers are more willing to participate in Just in Time (JIT) programs and contribute design and technological expertise. The cost of changing suppliers is huge.

A model of vertical integration is “Farming, Flour milling, Baked goods”. A Vertical Integration may be forward, towards the customer, or backward, towards suppliers. Thus, the cost, the quality and inventory can be improved. Vertical Integration is not a solution for those industries with rapid technological change.

### 2. SCOR model

Reduction of GAPS between links of each Supply Chain in terms of Total Cost of Ownership, in order to obtain an optimum and effective Supply Chain is the biggest challenge within Supply Chain Management. SCOR Model means processes, metrics and best practices and by its elements it covers the challenging areas from first tier to third tier of Supply Chain Management. Five Management Processes as Plan, Source, Make, Deliver and Return are found out within SCOR model.

The SCOR model was designed to enable companies to improve their processes and,

of course, to increase the effectiveness of supply chain based on clear communication or comparison of SCORE elements with competitors and companies both within and outside of their industry.

*Plan* means demand or supply planning and management.

*Source* is indentifying, selecting, managing, and assessing sources.

*Make* refers to management of production execution, testing and packaging.

*Deliver* contents invoicing activity, warehousing including inventory management, and goods transport and install also.

*Return* of raw materials or finished goods is accepted always based on quantity or quality complaint.

Analyzing the individual factors of each process, the activity within Supply Chain can be improved.(Heyl, 2011)

### 3. Critical factors which affect Supply Chain Management

It's impossible to find out two identically Supply Chains.

Analyzing two chains of two different companies which make and deliver the same article will be find out the same factors with different influence on each Supply Chain.

The difference between two Supply Chains appears or from the environmental uncertainty or from the information technology by its communication and planning tools or from relationships with suppliers and customers or from value-added within manufacturing process or from Supply Chain Management performance or from the type of management or from customer satisfaction obtained.

Environmental uncertainty is given by company environment, Government or Authorities support and uncertainty aspects from overseas as political and social uncertainties.

Value-added within manufacturing process can be provided by:

- *Flexibility* which means a good reaction and adjustment to customer's enquiry
- *Quality of goods* which is not a bonus offered, being mandatory and expected by each consumer
- *Production system* able to reduce activity time, cost processes or to identify the bottlenecks which will improve the next production processes

#### 3.1. Risk within Supply Chain

Risks should be considered separately than critical factors. A risk assumed is when a company has more reliance on supply chains, or it is acting with fewer suppliers which increase dependence, or when it's compounded by globalization and logistical system complexity. Vendor reliability, quality accepted, political and currency risks are also risks within any Supply Chain.

To be on any market it means assuming a risk. Well informed a company would mitigate and react, in a best manner, to disruptions in processes, controls and environment evolution. There are companies which pay attention to those risks within process some of them have to improve the control, while some companies keep in a special consideration the environment risks.

In addition to the risks assumed a company has to keep in consideration the Supply Chain Dynamics. Professor Hau Lee (2007) defined the Triple A Supply Chain Model as a possibility to survive the Supply Chain Dynamics. The model refers to Agility, Adaptability and Alignment. By Agility "a Supply Chain must be agile enough in order to respond quickly to the dynamics of demand fluctuations and sudden changes of supply." Trough a good Adaptability any Supply Chain is ready to "deal with more long-term and fundamental changes in the overall external environment, which is often irreversible." "Alignment is a supply chain capability that coordinates and balances

the interests of all members". This aspect aligns the internal dynamics of Supply Chain to external dynamics. (Dawei, 2011)

### Conclusions

Creating value for customers and gaining competitive advantages are the objectives of all companies. In order to achieve them the companies pay attention, increasingly more, to Managing of Supply Chain.

Effectively Managing the Supply Chain requires commitment from all parties involved.

Since Supply Chain Management consists of managing the flow of information, products and services across a network of supply chain partners, manufacturing plants, and customers, the most challenging key factor would be an *accurate communication*. Communication between Supply Chain partners, processes, activities, functions both vertically and horizontally means *efficient information*. Based on it, the management of company takes decision for all business level. Trough information flows Supply Chain Partners share up to date information with regards to sales, demand forecasts, inventory levels, production capacity, minim maxim boundaries, marketing campaigns, and so on.

Inaccurate or distorted information leads to the Bullwhip Effect, the moment when a stable demand becomes lumpy orders through the Supply Chain.

Better results by Managing of Supply Chain are obtained when Key Factors are known and used in an efficient manner. Based on Supply Chains' analyzed elements, can be considered Key Factors of Supply Chain as well:

- internal alignment as clear definition of responsibilities, avoidance of redundancy, Risk Management Procedure
- maintaining Supply Chain Strategies
- consistent quality within processes and delivered goods
- compatible organizational cultures

- the level of innovation
- technologies used, hardware and software included
- technical assistance within goods delivery
- smooth synchronization of activities
- mutual agreement on goals
- authentic commitment to partnership
- trust and truth
- visibility across the supply chain which always is considered critical
- timely delivery both of raw materials and packaging to manufacturing plant and of finished goods to the final customer
- ensuring and maintaining appropriate cost for the materials purchased
- continuous Supply Chain Cost reduction
- fair compensation for services
- fact-based evaluation of performance and, the list is open.

The importance of Supply Chains' Key Factors is according to what the company is striving to do with its own Supply Chain.

### Bibliography

- [1] Bowersox DJ, Closs DJ, Cooper MB. (2007) *Supply Chain Logistics Management* New York: McGraw-Hill Irwin, pages 4 -8
- [2] Lee, H. (2006) *The Triple – A supply chain*, New York: Havard Bussines School Press, pages 87-116
- [3] Dawei L., Dr. Dawei Lu &bookboon.com (2011) *Fundamental of Supply Chain Management* ISBN 978-87-7681-798-5, page 111 Retrived from [bookboon.com](http://bookboon.com) at March 15<sup>th</sup>, 2014
- [4] Ted J., Ted James & bookboon.com (2011) *Operation Strategy* ISBN 978-87-7681-828-9, page 20 Retrived from [bookboon.com](http://bookboon.com) at March 15<sup>th</sup>, 2014
- [5] Heyl J.,(Prentice Hall) (2011) *Supply Chain Management*, Pearson Education Retrieved from [http://en.wikipedia.org/wiki/Supply\\_chain\\_management#Origin\\_of\\_the\\_term\\_and\\_definitions](http://en.wikipedia.org/wiki/Supply_chain_management#Origin_of_the_term_and_definitions) at March 17<sup>th</sup>, 2014