SUPPLY CHAIN MANAGEMENT AND ITS Complementaries

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Abstract: **Supply Chain by its general definition is the flow of material and services from supplier to the end user. This includes all intermediate stages like storage of raw material, work in process, finish goods storage at various stages until it reaches the point of consumption. During the entire process of value addition and logistic the goods is subjected to instruction and control by the various nodes of business. Although each node of business is independent for its functioning, but are reasonably interrelated and inter-linked for overall functioning and creating a net value. For synchronizing supply and demand in this competitive environment this is an important measure of survival for any business organization. Supply chain Management is a multidisciplinary programmed where integration and synchronization of various nodes of business is the essence of success for achieving the overall value for the product or services and serving the customer in an optimal fashion. It cannot deliver its engrossed result without the use of sophisticated information technology. Its role and effect is prevalent at every sector of the business process, thus to make it a success we need to have logical business process integration (BPI) and sound inventory management technique.**

Keywords: **Success of Supply Chain Management is essentially together with Business Process Integration and efficient Inventory management.**

Introduction:

Supply Chain Management is a multi-functional and multi-disciplinary activity, which is quite complex in its nature. It us like an endless helical coil of chain. With the continuous flow of market demand, the magnitude of planning and control is constantly changing. Objective of any supply chain management is to provide a smooth flow of Product, Information, and Finances for maintaining an optimal inventory necessary for competitive advantage, of course with the assumption that the products are available at the time of requirement. Ultimate goal of any supply chain Management is reducing inventory which is neither too little nor too much for maintenance of consistence flow of above said three elements. This provides nascence to another important area of management called "supply chain risk management".

A business's inventory forms a major assets and represents capital blocked until the product is sold or consumed for the production of the end product. Any mismanagement of inventory may result in significant financial problem for any business organization which may be due to either inventory glut or inventory shortage.

The two most common methodology use are [I] Just in Time (JIT) and [II] Material Requirement Planning (MRP). In first case of Just in time, the plant receives material just at the time of Production with the minimal stay period. This is suitable for continuous production and with much less production variation. At the same time material requirement planning operates on the basis of sales forecasts and buying advantages. This is suitable for seasonal products and at very volatile market situation.

The chain formation originates with the market demand, then to suppliers, manufacturing (passing through the various stages of manufacturing aggregating to work in process), finished goods, transportation, storage and again transporting to end customer. Information and material must flow efficiently and smoothly through these stages for which business process must be integrated together with a planned and controlled inventory level to ensure overall inventory is just sufficient for an uninterrupted demand and supply situation.

Business Process Integration (BPI) provides technology to Automate the business process within the organization as well across customers, partners and suppliers. This calls for an expert to create point-to-point integration between application and services. As the business grows the number of integration increases and point-to point architecture becomes complex and expensive to maintain. The automation reduces the redundant tasks and can increase accuracy of information and document from supplier to customer. This improves order processing, removes bottlenecks, and reduces handling time and overheads. This makes people more productive and makes them work more accurately. It provides in-depth information instantly which is helpful in making smarter decision more quickly.

Sense the complexities of the situation imagine a business organization with multiple products, multiple location and interdependency for its final product. It is not only integration of different nodes of business, but the case of integrating different

location which may be in different states or even country, where the inflow of the material may be from more than one location and also number of independent vendors.

We cannot agree to carry on without the application of a sophisticated Information technology tool like ERP, and CIM at each plant level. Beyond a certain size and type of business, it no more a substance of choice, virtually a compulsion on present competitive business environment. Presence of suppliers and customer could be from multiple locations and may not be common.

Methodology:

The very first step is to work out the flow path and logistics of the product considering availability, economics of Purchasing, lot size, demand pattern and all other related factors which has influence on deciding the flow pattern of material/ Parts/final Product. A large number of limitation and constrains need to be considered before arriving at the final conclusion.

Once this is finalized, we arrive at buy or make decisions in which vendors will also be involved. Further in case of vendors, tiers of suppliers and interlinking them for an effective chain formation. EDI or other IT Tools can be used for information flow.

All other nodes of business operation are equally important since they greatly influence the functioning of other. Excellence of any supply chain is judged on the merit of overall performance which should generate a competitive advantage. For accomplishment of these large no. of software are available and they just need to be customized to suit the specific business requirement. Broadly these software are (i) Planning Application software (ii) Execution Application software. Planning Application software uses advance algorithms to determine the best way to fill orders. And the Execution software tracks the physical status of the goods and management of material at various states and financial information involving both suppliers and customers. It also involves the inventory carrying cost at various stages of production and logistic execution.

SCM applications are available in both open and close data models. Close data model are limited to only small business where we need not to share data. Open data models supports the sharing of data both inside and outside the enterprise. This is called extended enterprise which will include major supplier of raw material/parts, interdependent business units, and customer information. These data can be restricted at any desired level safe guarding the individual business interest. These sheared data may reside in diverse database system or data warehouses at centralized or several different locations. As globalization is effecting the type and size of market, supply source there logistic, in countries having low production cost, we may consider China a manufacturing station for most of the Japanese goods. Operation management away from home country, operation research and international business planning & control, transportation and logistics at various locations host country and market place. This demands for a change agent, who may be from within the organization or from an outside source, who is having a holistic vision of various nodes of business, knowledge of international logistics and transportation and in-depth knowledge of decision making tools and IT application.

Supply chain design ought to be thought of a dynamic process of assembling chains of capabilities and not just collaborating organizations. This dynamic view is particularly important in a fast-evolving world where new products and emerging distribution channels necessitate a continuous review of supply chain design decisions. Just like product design has an enormous impact on manufacturing and its performance. The dynamic view of necessitate different prospective of supply chain, these are: Organizational Supply Chain (it illustrates all value-adding activities performed by each organization), Capability Supply Chain (identifying key business process capabilities which currently exists and which are desired in the future), and Technology Supply Chain (dependency upstream to the supplier and downstream to the customers who provides and use respective key technology)

Supply chain formation is the process of determining the participants in the supply chain, who will exchange what with whom, and the terms of the exchanges. Traditionally the supply chain has been maintained over a long period of time by extensive human interactions. But with the acceleration of commercial decision making is creating a need for more advanced support and also in a very rapid way. Almost all major companies are preparing their business models for rapid development, build-to-order, and customized product for achieving optimal customer satisfaction. Also fluctuations in input cost and availability of the same, the company should be able to make rapid decisions to maintain its production capabilities and profitability. As these changes occur very frequently, changing scales and complexity making it unmanageable by humans. This gives rise to an automated supply chain formation.

It is a full time and specialized function and that need to be handle very carefully at each stage. In modern days, Post Graduate in Global Supply Chain is a specific stream of education in some of the Business schools. Unless appropriate skilled man power is deployed for this task, the formation of Supply chain may result into a substantial delay in chain formation and may be very confusing and frustrating. Return on investment shall go invisible.

Following events are inevitable and must be considered very carefully and very intelligently while forming and implementing a supply chain.

Vendor Selection:

Choice of vendors is critical for the success of the ERP project. The vendor should be prepared to match the requirements for the new business model. He must be ready for the change. If he is already using any software for his purpose that should be compatible with the ERP software you intend to use. For this ERP vendor shall play an important role. May be some change in documentation required and information model need to work out.

Choosing Implementation Consultant:

Depending on the size and the scope of ERP implementation, the ERP vendor may be required to provide a consulting team for the implementation. Whether a consultant is required or not depends upon the amount of ERP knowledge is available in house, how much time is available for the implementation and how many modules need to be implementated simultaneously.

Leadership Commitment:

Total commitment of the top executive group is the key factor for the success of the implementation process. This is a Herculean task to achieve and maintain the commitment. At the initial period the results are not visible for several months, should be understood. Needs achieve participation of not only executive group, steering group, but also other members shall be important. Change decision must be communicated to all related members. All feedbacks should be accepted with positive attitude and wherever needed doubts and fear for failure should be removed promptly.

Change Management:

It is about preparing people to accept and have faith on the requirement of change for good business reasons. Change is for the welfares of people and business.

- Identify people who are going to be affected by the change.
- Communicate about the change going to take place.
- Persuade about the necessity of the change for the betterment.
- Explain how they are expected to perform to make this change successful.
- Provide updates regularly and take their participation.

Team Strength and Weakness:

Formation of group of people who will act as key initiators for the change to take place. Considering how these people shall complement and supplement each other in the group. What will be the overall team strength and further what form of training and education required.

Testing:

It is a very flexible and complex system and success depends upon the implementation of aggressive and extensive testing. It is interactive process, which means not only testing, but evaluating problems and fixing them. It means having a valid master data available to support the test and understand the process that is being tested. It means having a dedicated test client which can be controlled and monitored. Each process need to be tested and self certified for its performance and compatibility with the overall system.

End User Testing:

Success largely depends upon the end user training process. There are several levels of escalating contribution that can result from a well executed end user training program. Ensuring that from day one everyone can logon the new system and able to execute all transactions by themselves. Sufficient educational training must be imparted to enhance the competency level.

Spending Wisely:

It is often experienced that ERP implementation program end up with twice the budget planned initially. Review and monitor money flow from the very initial stages. There will be so many wants and needs left out in the process and must know to say "NO" to spending without spoiling interpersonal relationship. We have to be very judicious in curtailing the expanses on training, consultants, and risk management. Is good to have 25% of the budget surplus at the time of going live because there will be so many unforeseen and compulsory expanses even after going live.

Adopting Business Change Process:

One of the most difficult tasks is when to change the business process to confirm to out-of-box ERP. Although only few business process represent a strategic advantage, but still one has to encounter huge percent resistance to any change. ERP systems have been developed and refined by observing best business practices and incorporating them into the design. Even if there are non-confirming processes, yet one will face opposition to change them. This must be done in a very tactful way considering logical and best business practice without taking into account of self-esteem.

Defining Success:

Defining success for an IT process is inherently more difficult than any financial or manufacturing project, it is difficult to quantify directly. It is essential for the implementation team to establish a set of measurable criteria before going live such ERP project, otherwise it will become a matter of infinite opinions.

It is essential to be realistic and logical keeping the organizational goal in focus while framing the success measurements.

Conclusions:

Supply Chain Management is an essential concept for all business operations. For small operation so much of automation may be avoided and in place of IT application manual data entry can be accepted. But this is sure; supply chain cannot function without the integration and efficient information flow. Sometime even this may not be possible because the mother industry expects an easy and accurate flow of information for operation of their supply chain. It can provide a substantial cost gain simply by improving the logistics. In Europe the logistic cost is ranging from 6% to 15%. Market is becoming more transparent and competitive; customer demands are met in more customized manner, all these will have a profound impact on the ways in which supply chains of an enterprise are being managed. In global scenario, countries like India, China, where the cost of production is low, role of SCM becomes even more significant in profit generation for the enterprise.

For any enterprise operating at multi-location or multi-national scale, formation of an efficient SCM is inevitable for survival.

A large number of ERP solution software are available in the market, one must select the appropriate software depending upon the size, type of business and its compatibility with the major customer's software for SCM. No software is ready made, some modulation shall be required since this is a very specialized kind of task an expert must be involved. It is a cost extensive project; hence a sound financial planning must be done well in advance.

Success of SCM depends largely upon the team work, hence we should look for involvement of maximum number of people, preparing and training them for change. An in-depth strategic planning is needed for this change management.

Inventory management at various stages of manufacturing and warehouses without a sound support of supply chain management is unimaginable. No matter what is the size and type of business we have to control, we need to know what's where and when. If we have control on above subject we will find more efficient people and processes, a better handle on costs, happier customer and ultimately, greater profits.

Recommendations:

Functioning of any supply chain management in real- time calls for a large number of data exchange, and timely information with absolute accuracy. This is possible only with the application sophisticated IT networking and appropriate software. Large numbers of enterprise resource planning software vendors are available. For selection of software and implementation an expert change agent should be selected either from inside or outside the enterprise.

Keep in mind, this is a specialty job and can be handle by an expert with appropriate experience and knowledge in the field. Success of such change management largely depends upon such change agents.

Concluded

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