Chapter IV

Role of Information Technology in the Supply Chain Management

4.1 IT and Tracking in the Supply Chain
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Role of Information Technology in the Supply Chain Management

Information Technology (IT) must be considered as an strategic asset for an organisation practicing supply chain management, as it has a significant impact on the real-time information results, coordination, and benefits to all the participants. Also, the cost of Information Technology and rapid advances are encouraging organisations to consider it seriously. It helps to synchronize and stimulate the activities along the supply chain. It helps to reduce cost, response time, and risk to fluctuations in demand.

The Government of India in collaboration with UNCTAD’s International Trade Center has introduced an IT-based benchmarking tool “The Fit” which would enable textile firms to compare their performance with that of
competitors, both at the domestic as well as international levels. The Center and the Textile Committee (which is implementing the scheme on behalf of Ministry of Textiles) have initiated a collaborative effort to introduce to garment units through a series of workshops. This particular tool can also be used to find out where do they need to strengthen their supply chain.¹ Some of the companies like Benetton is using Radio Frequency Identification Device (RFID) tags to their shipments. Enterprise Resource Planning (ERP) is not in much use but still some companies are using to leverage up their resources.

IT is helpful in the following areas of supply chain management:

- Building flexibility in operations
- Planning and measuring accurately
- Getting lean by simplicity and speed
- Optimizing information flows
- Segmenting and stratifying to target customers more specifically
- Operating globally
- Practicing collaboration with virtual co-location
• Cutting down transaction costs
• Leveraging human resources
• Operationalizing new products and phasing out old ones
• Postponing part of the process to customer’s vicinity

IT will reduce paper based order processing, invoicing errors and costs and facilitate timely and effective exchange of information both inter-firm and intra-firm. There are few very prominent alternatives for effective and efficient use in the supply chain management.

1. EDI  
2. Intranets/Extranets
3. Internet  
4. Various Software Packages

While making decision regarding supply chain, IT managers should keep in mind the following general ideas:

1. Select an IT system that addresses the company’s key success factors.
2. Use IT systems to support decision making, not to make decision.
3. Think about the future.
Information Technology in the supply chain requires various technical process and certainly they have implications on the supply chain. Fig. No. 4.1 shows such elements and their implications as well their state in India.²

<table>
<thead>
<tr>
<th>Technical / Process</th>
<th>Supply Chain Management Implication</th>
<th>State in India</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Warehousing</td>
<td>Data for fast and efficient retrieval – helps in all parts of Supply Chain Management</td>
<td>Most data still on databases &amp; servers, few data warehouses</td>
</tr>
<tr>
<td>Data Mining</td>
<td>Extraction of precise, real time data for use in modules of Supply Chain Management</td>
<td>Products already exist; greatest use in interfacing legacy systems with ERP</td>
</tr>
<tr>
<td>Business Intelligence</td>
<td>Direct effect on forecasting – a vital Supply Chain Management component</td>
<td>Proprietary systems; high reliance on individuals, standalone databases.</td>
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Fig. No. 4.1 – Trendy Tools & Elements for Supply Chain Management

There is various software, which offer different services in implementing supply chain management. These softwares are equipped with various features. Researcher has discussed, how these features are going to help in the supply chain management.
a. Strategic Planning Features

Network design and scenario Analysis provides analysis of cost, profit and service trade-offs in the supply chain for alternate outsourcing, manufacturing, distribution, and transportation scenarios. KPI Analysis, analyses Key Performance Indicators and provides alerts to deviations from target KPIs. It allows stimulation of worst-case scenarios to validate a strategy before deployment.

b. Collaborative Planning

The demand planning feature of the software helps an enterprise in creating, managing and optimizing future demand, collaboratively with customer, suppliers and channel partners. The demand collaboration facility communicates projected demand signals from buyer to supplier and committed supply back from supplier. Merchandising planning facility integrates financial, merchandising, assortment and stores plans for retailers. It monitors, evaluates and adjusts the plan to accommodate current realities.
c. Collaborative Supply Planning

Multi-Enterprise, Multi-tier Collaborative supply planning feature helps in determining quantity and timing of production, purchasing and transportation to optimally synchronize supply across multiple tiers of supply chain. The supply collaboration facility enables the communication of material requirement and replacement signals between buyers and suppliers and collaboration between buyers and suppliers in order to resolve inventory and supply plans. Inventory collaboration enables the communication of material pulls, inventory status, inventory targets and replenishment schedules between buyers & suppliers and enables them to collaboratively resolve exceptions due to inventory level violations. Profit optimization feature determines the best product mix based on optimizing constrained resources and materials for maximizing profitability. Replenishment planning facility develops recommended order quantities to replenish items while tracking lead time, shipping and vendor constraints. Transportation planning feature devices replenishment plans by simultaneously considering delivery date requirements, inventory constraints, transportation costs etc.
d. Supply Chain Execution

End to end logistics and fulfillment process with supply chain event management facility provides accurate, reliable and profitable delivery of both outbound sales order and inbound replenishment orders across transportation, warehousing. Transportation management feature distributes loads across multiple transportation modes, unlimited carriers and tariffs and complex consolidation and deconsolidation scenarios all while tracking the exact costs and revenue stream for each item being shipped. Fulfillment center management facility includes fulfillment planning and warehouse management for pick pack and ship process.

4.1 IT and Tracking in the Supply Chain

Long back organisations used to track their goods by conventional method. The following are the developments in the tracking system. Earlier the truck drivers used to stop at a STD / PCO booth and they make a call to the supplier and buyer spending around Rs. 25/ call. Then companies used to give a card to the truck drivers which they could swap at booth and it will automatically send e-mail to both the parties. Later on a device was
attached to the trucks which when passed by the side of certain booths would automatically tracked and an information about the location would be send. Presently the latest development is in the field of geographical information system and geographical positioning system.

Geographical Information System (GIS)

Geographical Information System helps in logistics by providing information not easy to collect and analyse due to geographical and volume limitations. Its direct implications are of course on transportation. It helps in tracking, tracing and dynamic reallocation of routes even while trucks or trains have left the base. At any point the transportation can be controlled, stopped or rerouted offering a greater flexibility in inventory planning. The value of geographical information system lies in enabling users to integrate different sets of data through a common geographical reference system such as longitude and latitude. Geographical information system can be best used at an operational level like routing, scheduling, tracking, tracing or navigation.
4.2 IT Trends in Outsourcing in the Supply Chain

Outsourcing is becoming a strategic concern in the Supply Chain Management area. Information technology is playing very important role in the outsourcing. Now the companies are able to get tenders via internet from global players in a very short span of time. Opening the horizons of sources and at the same time reducing the time. Such systems have been developed that now we need not to buy some very costly packages, we can outsource its services at a very low expense. One of them is the Computer Added Designing (CAD) system. Automatic lay planning has been around for a few years. The traditional route was to purchase a software license and run it on a company's own CAD system. This route was very expensive necessitating the purchase of software and high specification hardware, whilst maintenance, capacity and upgrade costs all needed to be considered. Using the internet, automaker's web service provides automatic lay planning at a very high speed and efficiency without any of the heavy upfront cost. Besides number of companies have developed online ordering system provide a large amount of combination. This reduces the time consumption as well as cost saving occurs.
Having acquired and transmitted data, it has to be processed on hard ware
plate forms. Hardware used for supply chain software can range from the
huge and expensive mainframes to the small PC based system.

The major venders like IBM and Compaq. Typically, hardware vendors
have formed alliances for implementation and Annual Maintenance
Contact (AMC). Sun Microsystem is another hardware provider going into
supply chain applications.

Several trends are visible in the use of hardware for supply chain. Across
the industries cost and reliability are the two prime concerns for all users of
both enterprise resources planning (ERP) and supply chain management
(SCM). The third major concern is scalability of hardware. Major
companies had completed ERP/ SCM software based on projection. Many
found that their hardware are not able to support increased number of
users and memory requirements for processing the data. Today SAP, Baan,
IBM, Compaq and Sun all have their offices in India and provide annual
maintenance etc.
References

