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Supply Chain Management in Textile Sector: A Sequential Process

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Abstract:- *The Textile industry is a long chain including raw materials production, complement production, clothing production and so on. SCM concept is made possible as a conventional management tool for all manufactures are to strive to improve their product quality, to reduce their product and service cost and to shorten their product delivery and response time in a highly competitive market.*

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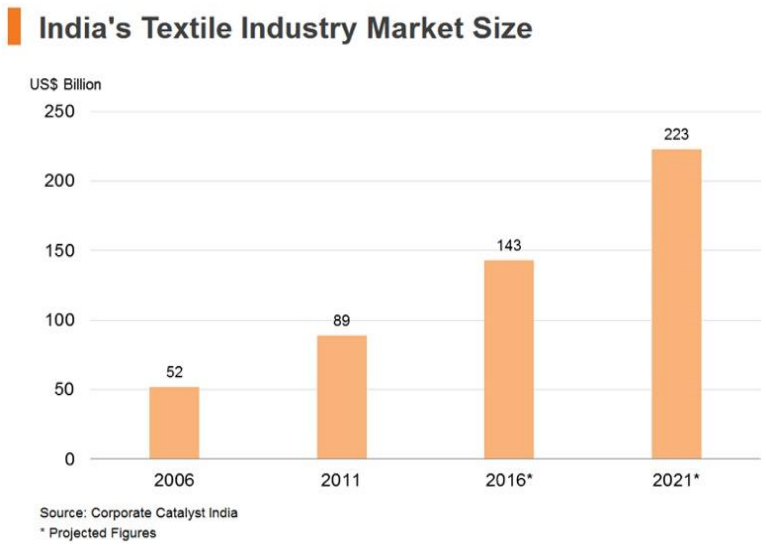
I. Textile Sector: An Overview

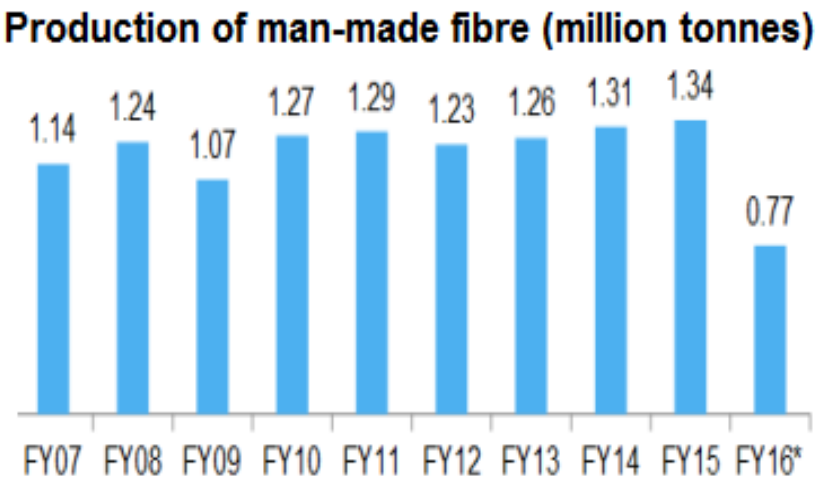
India's textiles sector is one of the oldest industries in Indian economy dating back several centuries. Even today, textiles sector is one of the largest contributors to India's exports with approximately 11 per cent of total exports. The textiles industry is also labor intensive and is one of the largest employers. The textile industry has two broad segments. First, the unorganized sector consists of handloom, handicrafts and sericulture, which are operated on a small scale and through traditional tools and methods. The second is the organized sector consisting of spinning, apparel and garments segment which apply modern machinery and techniques such as economies of scale.

The Indian textiles industry, currently estimated at around US$ 108 billion, is expected to reach US$ 223 billion by 2021. The industry is the second largest employer after agriculture, providing employment to over 45 million people directly and 60 million people indirectly. The Indian Textile Industry contributes approximately 5 per cent to India's Gross Domestic Product (GDP), and 14 per cent to overall Index of Industrial Production (IIP).

The Indian textile industry has the potential to reach US$ 500 billion in size according to a study by Wazir Advisors and PCI Xylenes & Polyester. The growth implies domestic sales to rise to US$ 315 billion from currently US$ 68 billion. At the same time, exports are implied to increase to US$ 185 billion from approximately US$ 41 billion currently.



An estimate of production of man-made fiber (million tons) is shown below:



Source: Ministry of Textiles, TechSci Research
Note: FY16* - Data is for April-October 2015
CAGR- Compound annual growth rate

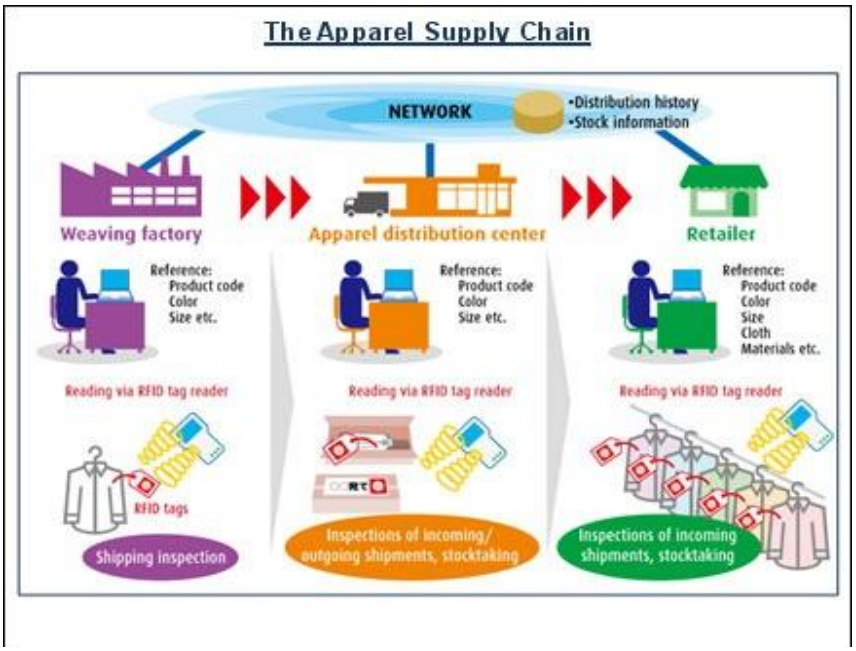
II. Textile Sector Supply Chain Management: An Overview

Supply chain management is the oversight of materials, information, and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. Supply chain management involves coordinating and integrating these flows both within and among companies. It is said that the ultimate goal of any effective supply chain management system is to make products available when needed.

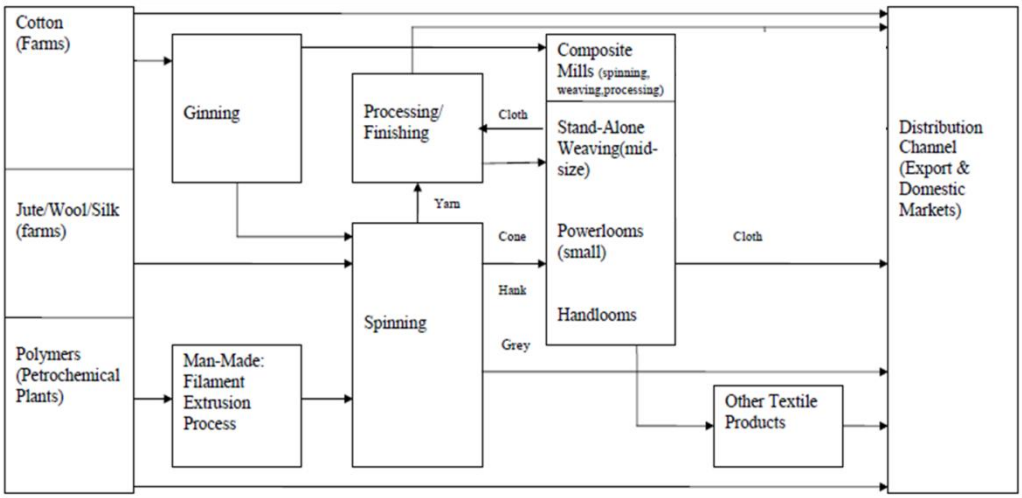
The supply chain of a typical textile industry consists of:

- Raw materials
- Ginning facilities
- Spinning and extrusion processes
- Processing sector
- Weaving and knitting factories
- Garment manufacturing

View of an apparel supply chain:



UPSTREAM: THE TEXTILE AND APPAREL SUPPLY CHAIN

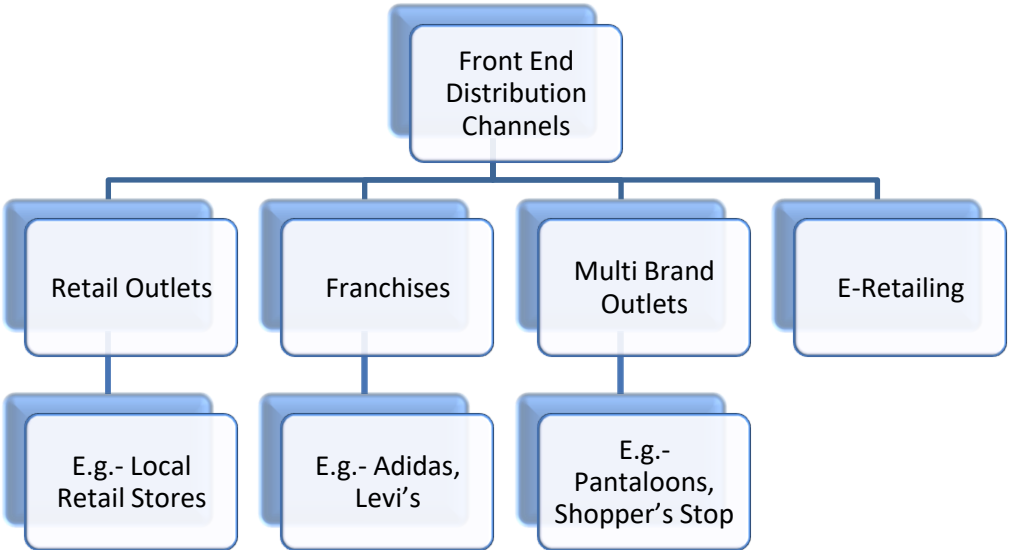


UPSTREAM: AN OVERVIEW

Upstream activities are those activities that are confined to the supplier side in the supply chain management. Upstream activities in textile industry involve raw material sourcing, raw material extraction and processed material delivery to the production plant.

- It is estimated that there exist **65,000 garment units** in the organized sector, of which about 88 per cent are for woven cloth while the remaining are for knits.
- However, only 30–40 units are large in size While these firms are spread all over the country, there are clusters emerging in the National Capital Region (NCR), Mumbai, Bangalore, Tirupur/Coimbatore, and Ludhiana.
- **Cotton** remains the **most significant raw material** for the Indian textile industry.
- Cotton grows mostly in western and central India, silk in southern India, jute in eastern and wool in northern India. Significant qualities of cotton, silk and wool fibers are also imported by the spinning and knitting sectors.
- **The spinning sector** is perhaps most competitive globally in terms of variety, unit prices and production quantity. Though cotton is the fiber of preference, man-made fiber (polyester fiber) also produced by about hundred large and medium size producers.
- Spinning is done by 1566 mills and 1170 Small and Medium Enterprises (SME). Spinning sector is technology intensive and productivity is affected by the quality of cotton and the cleaning process used during ginning
- **Theprocessing sector**, i.e., dyeing, finishing and printing is mostly small in scale.

FRONT END DISTRIBUTION CHANNELS



I. RETAIL OUTLETS DISTRIBUTION CHANNEL

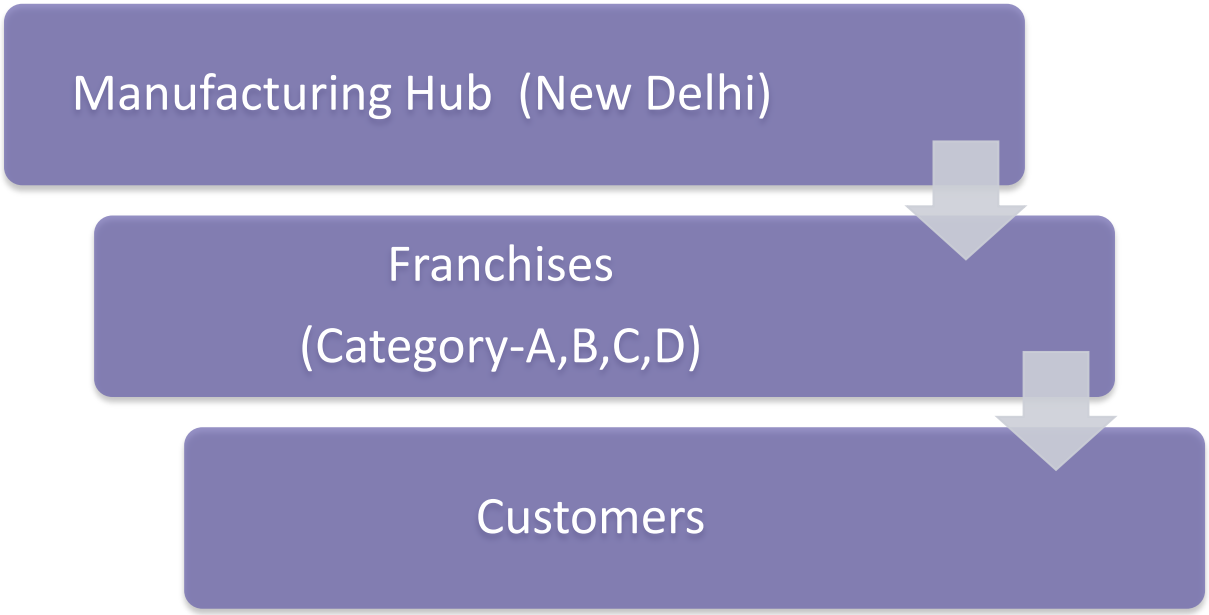
1. Branded Clothing

- Share Given at Each Stage
  - Distributors:
    - 10 – 13 % : If the costs for distribution are borne by the distributor
    - 2 – 3%: If the costs for distribution are borne by the Company
  - Retailers: 20 – 40% (Depending on the Brand and its promotions and advertising)

2. Local Garment Manufacturer

- Share Given at Each Stage
  - Retailers Margin: 50 – 60%

II. FRANCHISE MODEL DISTRIBUTION CHANNEL



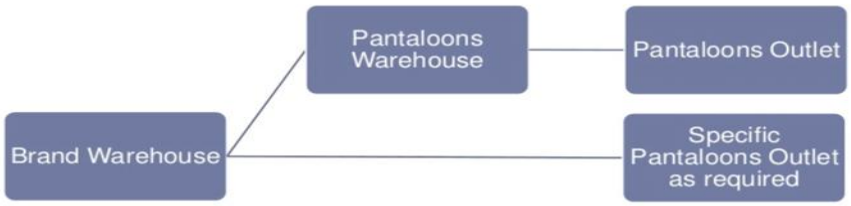
- Franchise Outlet Studied-Adidas, Pal Heights, Bhubaneswar
  - Franchise Categories are based on Sales and Store Areas

- Unsold Goods are taken back by the Manufacturers
- Margin of Outlets- 15-20%

III. Multi Brand Retail Distribution

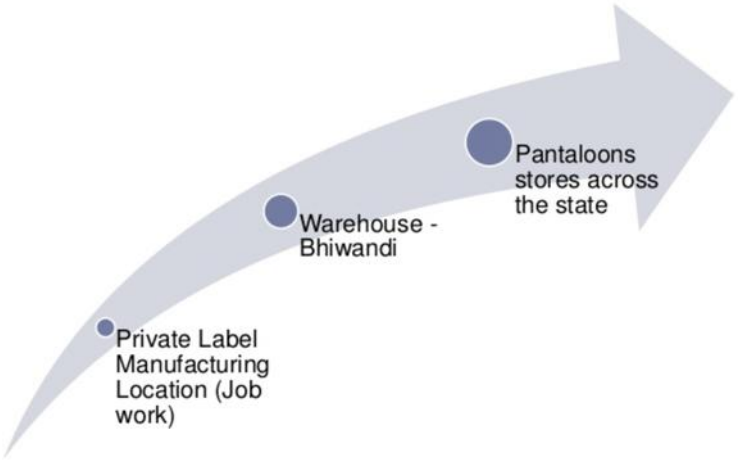
- Pantaloons, Bhubaneswar was studied.

1. Branded



- Brand Margins: 20 – 25% (Varies based on Logistics selected)

2. Private Label Margins



- Private Label Margins: 40 – 55%

INVENTORY MANAGEMENT: AN OVERVIEW

Inventory management in textile industry is highly dependent on the type of activity, i.e. upstream activity or downstream activity.

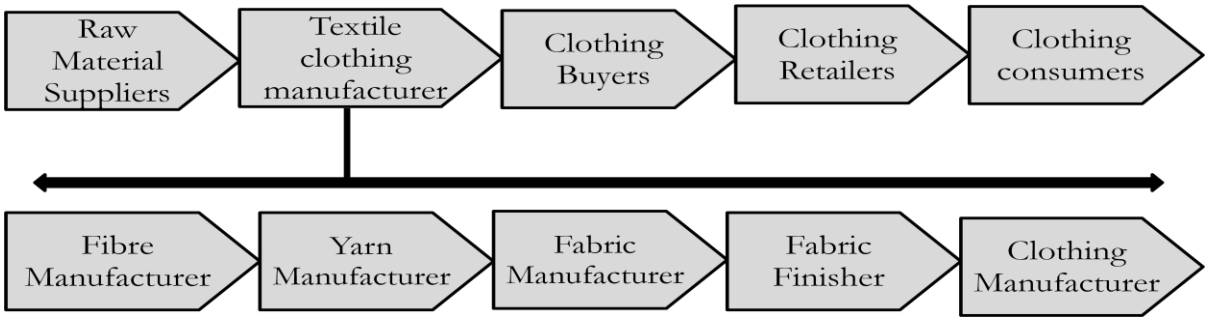
Framework for inventory model:

Framework for inventory management depends on the following factors:

- **Demand** – Inventory Decisions should be taken with reference to future demand.
- **Order Quantity** – To establish an economic order quantity.
- **Lead time** – Large lead time causes high inventory, fluctuating lead times can be substantially high.
- **Safety Stock** – Variations in lead time requires safety stock to be maintained for continuous production and sales.
- **Order of Possession:** possession of inventory leads to the following cost:
  - Insurance cost
  - Property cost
  - Storage cost
  - Obsolescence
  - Acquisition cost
  - Purchase cost
  - Ordering cost

Objectives for inventory management:

- **Upstream** – To maintain a large size inventories of raw materials and WIP for efficient and smooth production of finished goods
- **Downstream** – To maintain a minimum investment in inventories to maximize profitability



Unique Inventory Challenges in Textile industry

- Fluctuating customer preferences
- Unrealistic shipping and return policies
- Lack of digitization
- Wide variety of products

INVENTORY MANAGEMENT

Inventory management helps in keeping inventory cost at the lowest possible level, improves supply side dynamics and helps in following factors:

- Improve Planning
- Avoid Problems with Suppliers
- Streamline Purchasing and accounting
- Avoid Excessive costs overstocked inventory
- Avoid Missed sales due to depleted stock
- Identify inventory issues well before time
- Improve sales and distribution
- Enhance Business Intelligence
- Increase supply chain and fulfillment accuracy
- Personalized customer service

SUPPLY CHAIN COLLABORATION IN APPAREL INDUSTRY

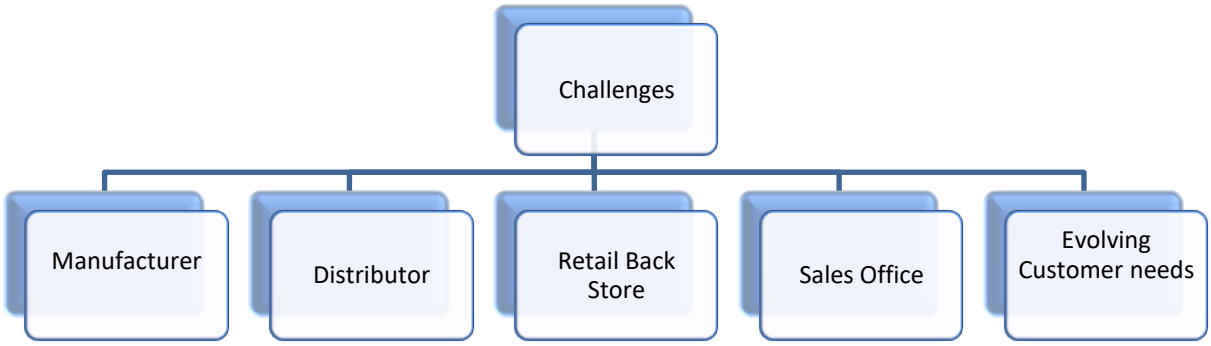
- Supply chain collaboration is viewed as working together as a team where supply chain members are able to share information, make joint decisions, and share benefits.
- The need of today is close coordination with suppliers and customers, as customer demand requires faster, timely and accurate deliveries.
- A single organization often may not be able to respond quickly to changing market requirements. Temporary alliances or partnerships with trading partners help to improve the flexibility and responsiveness of organizations.
- Supply chain collaboration in the textile supply chain is that between suppliers and buyers (supply chain partners) existing in the chain. The supply chain partners are cotton producers, ginners, yarn suppliers, manufacturers, wholesalers and retailers. Collaboration among them can bring benefits to all the partners.
- Increasing competition in the textile market makes supply chain collaboration (SCM) a viable initiative that enhances sustainable competitive advantage.
- All that Jazz is a multi-brand organized retailer we visited. When asked about SCM collaboration, they also were in favor of it and agreed that it helped reduced the cost and save time due to better communication.

SUPPLY CHAIN VISIBILITY

- Supply chain visibility (SCV) is defined as the ability of parts, components or products in transit to be tracked from the manufacturer to their final destination.
- The goal of SCV is to improve and strengthen the supply chain by making data readily available to all stakeholders, including the customer.

- According to industry statistics, consumers buy significantly more clothes now than they did in the 1950's, the 1980's, and even ten years ago.
- Enabling end-to-end supply chain visibility can provide the missing perspective needed to achieve true agility and a competitive advantage in today's fast-paced, global retail arena.
- Visibility is no longer just about tracking and tracing shipments. The emerging definition of visibility includes insight into raw material origins, the status of products, orders and shipments, and streamlined access to information about product flow, delays, documents, inventory and costs.
- This information now feeds into decision making to help mitigate the impacts of demand spikes, supply disruptions and volatility associated with supply chains increasingly under stress from a number of factors, including the need to increase speed to market.
- Today, best-in-class companies are beginning to leverage visibility to achieve clarity further back in the supply chain. They are creating the ability to make decisions further upstream to best satisfy changes in global customer demand.

LOGISTICAL CHALLENGES IN TEXTILE SUPPLY CHAIN



Logistics is the key challenge in the supply chain. The above figure shows the key areas where the challenges will occur. Each stage requires value addition. The key issue is the information asymmetry and unstructured processes. In our report we have highlighted below the major weak points at each stage in the supply chain

- **Weak Points at Manufacturer:**
- Information Asymmetry leads to poor forecast accuracy
- Picking up processes huge effort required.

- **Weak Points at Distributor**
- Manual verification of orders takes time
- Reconditioning process takes time
- Cross docking is very labor intensive

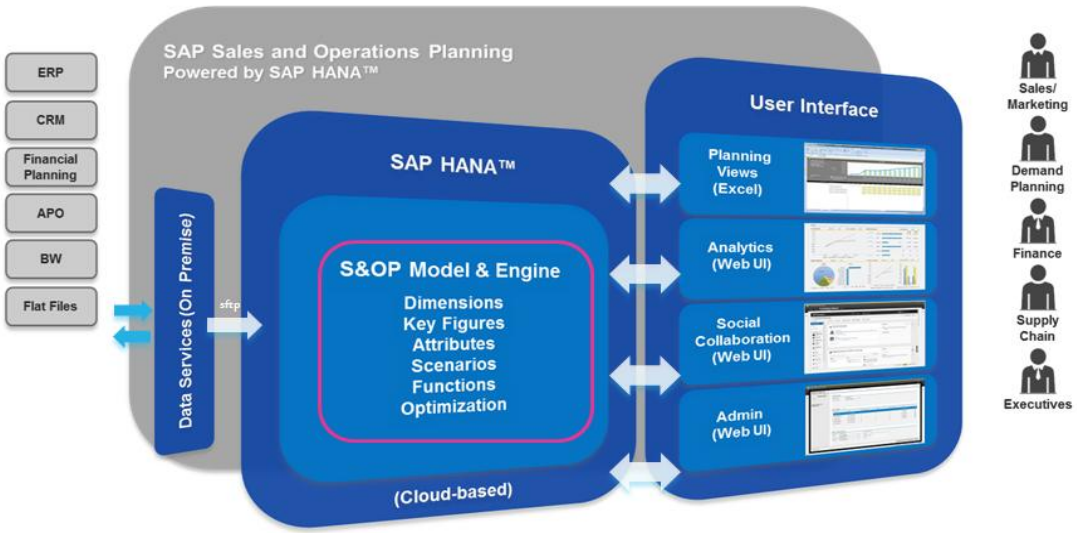
- **Weak Points at Retail Store Back Store**
- Verification of incoming materials with purchase orders.
- Management of Out of Stock situations due to poor inventory management

- **Weak Points at Sales Office**
- Searching and replenishment of goods binds customer service staff
- Retailer does not track movement of goods within store.
- Ineffective store to store transfers of goods

Evolving Customer needs

- Less patience
- Huge demand for reverse logistics

SOFTWARES AND SYSTEMS USED



A key approach is used by companies who develop a Sales and Operations planning strategy. This is an overall strategy at the company level which starts with aggregate demand planning and involves stakeholders from various departments: finance, marketing, supply chain.

SAP Hanna is a software solution which integrates all stakeholders together. Lack of communication is a key problem in Supply Chain. This solution integrates the supply chain planning with various functional departments.

This software solution is the best solution available today for Sales and Operations planning. However, this is a very sophisticated and expensive solutions and is used only by large organizations.

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