
Importance of IT in Textile Industry for Effective Decision Making

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ABSTRACT

The growth and use of IT assets within most organizations has become an increasingly common and prominent ideal over the past decade. In the context of Information Technology application like EDP, MIS, ERP, CAD, Data warehousing and Data Mining techniques are getting popularity in certain areas of textile industry. The textile industries have changed tremendously in the last few years with the help of IT applications to deliver high quality products at a nominal cost. Textile industry has managed to ensure the speed and quality while responding to changing customer requirement. This paper deals with the usage of Information Technology in textile industry for strategic decision making. It has been well understood by scientists and technocrats, that the outcomes of IT Applications are far better than manual handling as observed mostly in developed countries. The applications of IT in industries have provided a better quality, improved productivity with lower cost, lesser time and in terms of handling, solving many day today industrial problems like manpower control, absenteeism, quality control, consumer feedback, production planning and energy conservation.

KEYWORDS: *Information Technology, Management Information System, Marketing Information System, E-commerce, Enterprise Resource Planning, CAD/CAM and Textile Industry.*

INTRODUCTION

The man has progressed by leaps and bounds in every walk of life and of course has got almost everything whatever he had intended. The major inventions has occurred in last two centuries and the world has become a tiny state of cities in which one can transcend the boundaries within few hours and exchange views or access information within few seconds.

In the present era, Information Technology has become potential tool in satisfying, each person's desires or necessities of any type either of business or science, history or economy, environment or technology etc. It is proved to be revolution for developed countries and providing great assistance to developing countries to become developed. It has come up with easy and fool proof solutions of questions or intricate situations that arises in fulfilling the basic needs of human i.e. food, home and textiles. The present decade of the millennium is of globalization of markets and economy and consequently has brought the new challenges especially to the manufactures, traders together with consumers in terms of resources, optimization, data, warehouse, mass customization, trade methodologies, communications, infrastructures etc. It is a proven fact that the applications of information technology in industries have provided a better quality, improved productivity with lower cost, lesser time and in terms of handling, solving many day today industrial problems like manpower control, absenteeism, quality control, consumer feedback etc. It is fine to depict that in some advanced units production, use and disposal has become almost one man show. Today, in globalize economy IT has made companies imperative to achieve the goals of high quality, more productivity and also made them enough competitive.

It is assessed as an indispensable tool in collection of data in textile industry such as quality control, production, sales and marketing, HRD, payroll, purchases etc., which were previously collected manually that takes a lot of time with high costs and high possibilities of inaccuracies. Information Technology has made the working process easy and comfortable. To serve the needs of different organizational levels, there are five major types of information systems: transaction processing, office automation, management information, decision support and executive support. The general department wise data flow in textile industry as shown in Fig. 1.

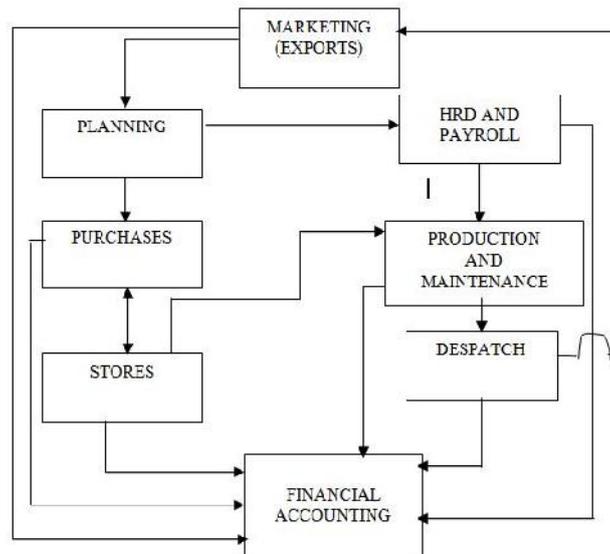


Fig. 1: General Department-wise Data Flow in Textile Industry

MANAGEMENT INFORMATION SYSTEM (MIS)

Management Information System is the backbone of any Industry. By implementing MIS, the top, middle and sometime supervisory level management can quickly take up the right decisions at right time on any problem faced in the different departments of a unit. MIS provides a quick scan, an accurate and a time bound results, which highly assists the management in decision-making. MIS can generate the data, documents, and reports in required formats and in a friction of time. It can combine the whole unit in a chain where the in charge of the unit can observe, suggest and can take the possible remedial actions in a little time or it is right to say with zero duration of time. The interaction among different management levels is given in Fig.2.

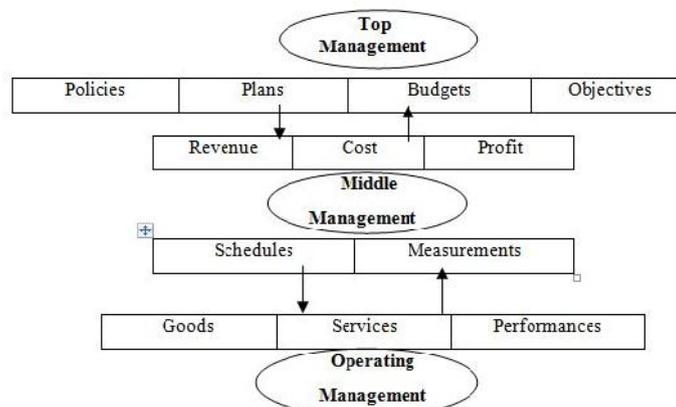


Fig.2: Interactions among different management levels

Most of the textile industries have many segments or divisions like Administration, Advertising, Accounts, Storage & Purchase, EDP, Production, Maintenance, Quality Control, Sales and Marketing etc. Apart from these, there are many other jobs the management has to do like controlling the manpower, absenteeism, interactions with consumers, traders, retailer and suppliers etc. A probable chart of management information system has been given in Fig.3.

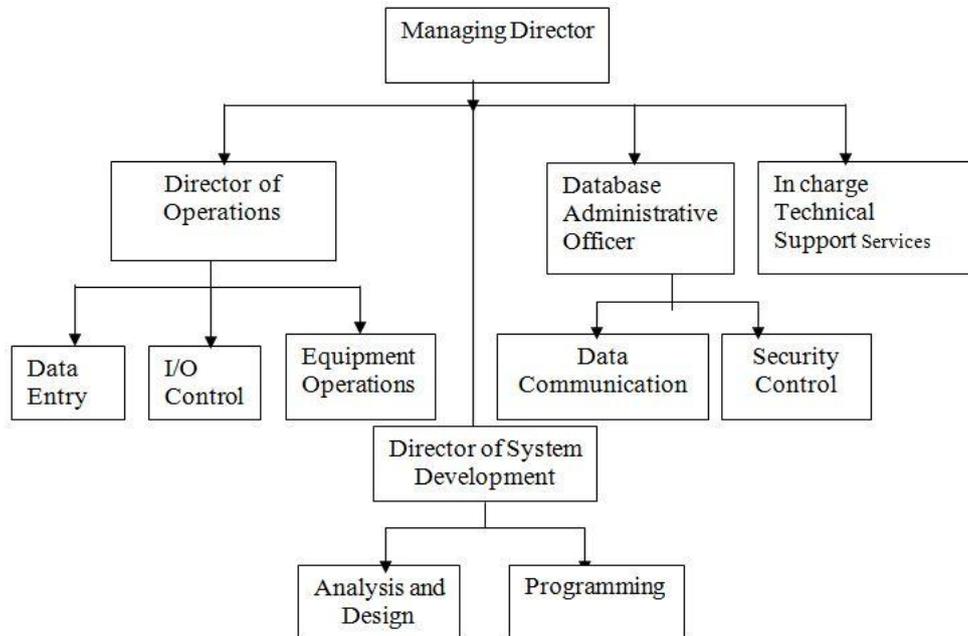


Fig.3 : The Hierarchy of MIS in Textile Industry

Most of the textile industries are maintaining the computerization records and formats for data analysis and decision making. Computerized MIS reports and formats at different levels of management are shown in Table -1.

Table -1: Computerized Reports/Formats at Different Levels of Management

| Top Management (Chairman/President/MD) | Functional Management (Vice President / General Manager) | Operational Management (Head of Department/ Manager) |
|---|---|---|
|) Daily Production Report) Daily Profit-Loss Report) Item wise Purchase Plan) Supplier Performance Report) Stock Report) Stock Valuation Report) Production Program Report) Daily Dispatch Report) Dead Inventory Report) Customer Complaint Report |) Daily Production Report) Daily Profit-Loss Report) Daily Down Time Report) Daily Waste Generation Report) Lot wise Raw Material Report) Item wise Purchase Plan Report) Supplier Performance Report) Stock Report) Quality Control Test Report) Stock Valuation Report) Production Program Report) Daily Packing Report) Daily Dispatch Advice) Daily Dispatch Report) Dead Inventory Report) Customer Complaint Report) Employees wise Training Report) Staff Performance Report) Employee Leave Status Report |) Department wise and each report should be checked by HOD/Manager Level. |

MARKETING INFORMATION SYSTEM (MAIS)

The Marketing Information System (MAIS) is the heart of any organization. It is not only an important factor of production, but it also happens to be regarded as an important tool for success in all the functions in industry. The development of Marketing Information System is therefore a substantial component of the concept which we term as “Integrated Product and Market Management System” for the industry.

In industry, the Marketing Information System (MAIS) is amongst the least developed information systems. The reason is that the improved information system for marketing often does not receive priority by the marketing people. However, the benefits of these improved systems may be very real and may include better information for marketing decisions, which is likely to lead to higher profitability and customer satisfaction for the companies. The major information flow within the Marketing Information System is shown in Fig.4.

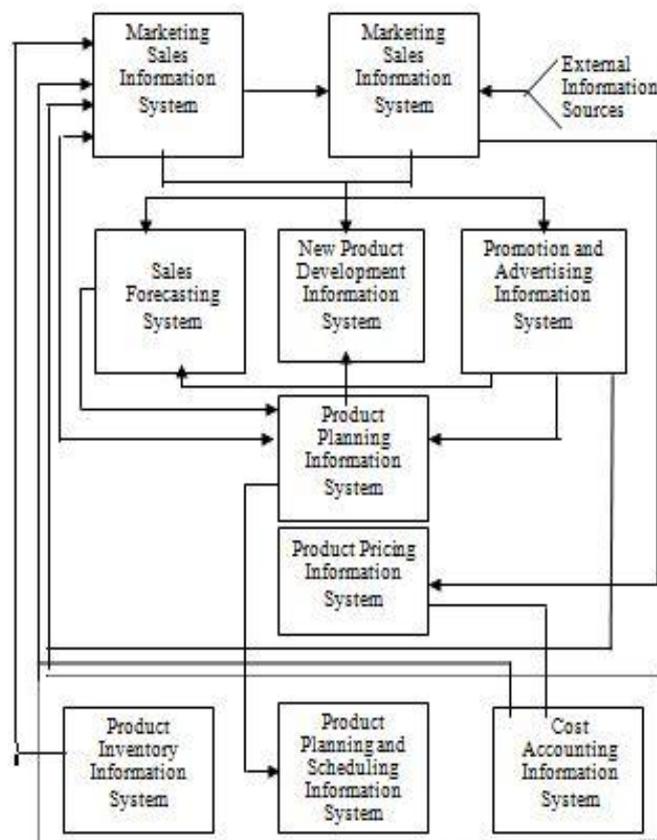


Fig.4 : Major Information Flow within the Marketing Information System

ENTERPRISE RESOURCE PLANNING (ERP)

Accurate planning and scheduling of orders, better data predictions, quick response to queries and online detailed information of orders is must for doing business. As a result in the past few years many industries have invested in integrated systems, along with powerful hardware. The change from customized modular software to ERP is the current trend in companies. Many industries are now going for ERP/MRP (Material Resource Planning) and also web-based software are available to enable them to remain competitive in high technology and competition driven market. Effective application of IT in corporate houses has now become an integral part of their operations and a dire necessity for facing global challenges. The two type of ERP software available for the industry are open-source software (Compiere, ERPNext, ERP5, Quali, Postbooks etc.) and proprietary software (IBM Maximo, Oracle Fusion, Netsuit, SAP, Microsoft Dynamics &NAV etc.)

In textile industry, general process-wise Data Communications in a textile Industry are shown in Fig. 5. The circles represent the core operations i.e. production, sales and marketing, Inventory and logistics and finance. Generally the enterprise has a local system catering to the requirement of the relevant process e.g. CRM for the Sales and Marketing Department. ERP broadly covers the following areas in textile industry:

) **Sales and Distribution** - Takes care of order entry and delivery scheduling, checks on product availability to ensure timely delivery, and checks the customer's credit line.

) **Business & Production Planning** - Consists of demand forecasting, planning of product production and capacity, and the detailed routing information that describes where (in which work cells) and in what sequence the product is actually made. Once the Master Production Schedule is complete, that data is fed into the MRP (Materials Requirements Planning) module.

) **Shop floor control** - This naturally leads to Shop Floor Control. The planned orders from the MRP are converted to production orders. This leads to production scheduling, dispatching, and job costing.

) **Logistics** - Finally, the Logistics system takes care of the rest, assuring timely delivery to the customer. Logistics in this case consists of inventory and warehouse management, and delivery. The purchasing function is also usually grouped under logistics.

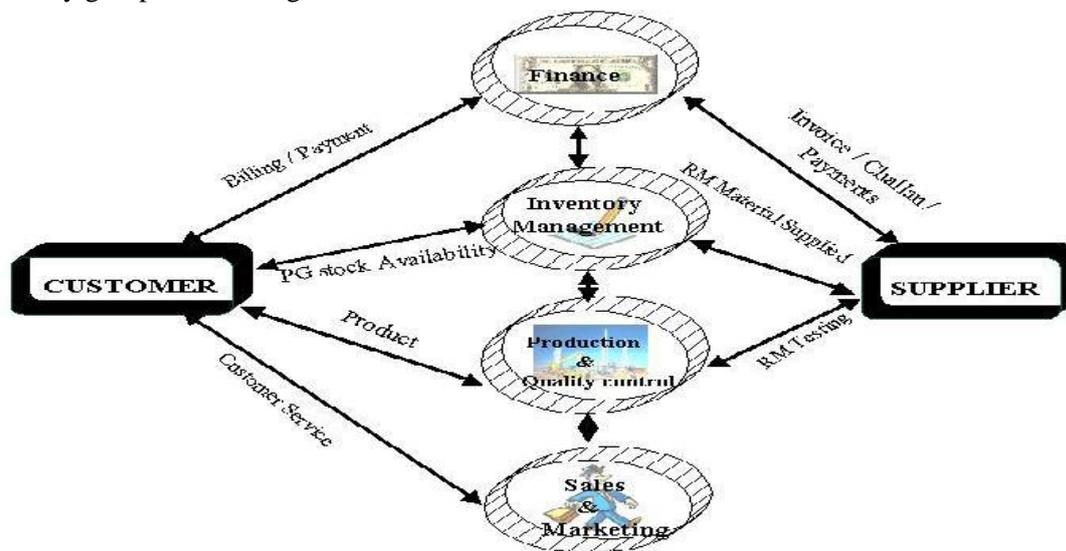


Fig.5: Process Wise Data Communications in Textile Industry

E-COMMERCE

E-Commerce is nothing but electronics commerce. E-Com is the hot area today, and the fact is that, it's changing the way business is conducted. E-business is no longer just a new way to do business, but in today's Internet-driven environment, it has become the only way for companies to compete. Enterprises are utilizing e-business solutions to increase productivity, efficiency and sales. At the same time, the speed and security of the Internet affords them with enormous savings in business-related costs such as materials, warehousing, administration and services. Without Internet-based procurement and fulfillment technologies, companies face the inevitable future of being driven out of the market.

Until recently, the benefits of automation were made available almost exclusively to Fortune companies. Many e-business solutions require immense corporate investment. Additionally, substantial resources in time and personnel must be allotted to integrate the technology into a company's established work methods and introduce a new way of doing business. The pricing barrier of proprietary technologies, stringent data communication standards and closed trading communities has prevented small and medium-sized companies

from implementing e-business strategies. E-Commerce delivers affordable entry into the electronic economy without costly software applications or participatory restrictions.

As an intermediary service, E-Commerce marketplaces deliver end-to-end business procurement and fulfillment tools over the Internet to connect buyers with suppliers and service providers, in the textile and apparel industries. The system thus, should be multi-industry/multi-organizational.

In light of the expense and difficulty traditionally involved with implementing e-business technologies, E-Commerce driven market places are committed to the mission of providing small and medium-sized companies with the same cutting-edge technology that empowers high profile companies, *through an easy-to-use system and at an affordable price.*

Today the most common E-Commerce site are Amazon, Myntra, Flipkart, Ebay, Jabong, Voonik etc. The various categories of E-Commerce are shown in Fig.6.

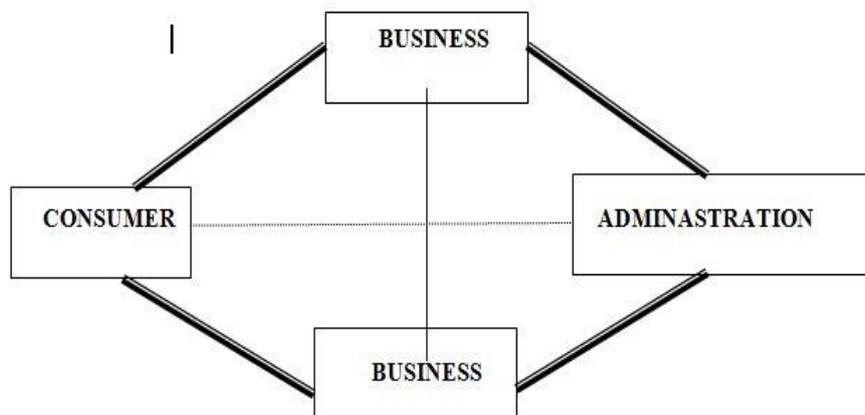


Fig. 6 : Categories of E-Commerce

COMPUTER AIDED DESIGNING/MACHINE (CAD/CAM)

Now the CAD/CAM has become the part and parcel of any automated and semi automated unit. CAD & CAM are deeply related to each other. Automation can not only be utilized for substituting the labour, it can also be implemented for making better quality and producing quantity in lesser time. CAD system is only as good as the designer working on it. Computer only speeds up the process of motif manipulation, repeat making, color changing etc. And it is actually the CAM aspect of CAD/CAM that helps decrease lead-time. With the growing convergence of technologies, CAD/CAM will maintain to develop into an integrated environment that derives the whole trade. No longer serving just design or production functions within the industry, CAD/CAM will become an essential part of the industry. Its application like designing and automation has changed the functional scenario of the companies because of the aesthetic developments, which were previously in the imaginations of the human mind. If we take the case of apparel industries, there it had played a pivotal role in designing and production of apparels and provided a new dimensions to the textile sector. As we aware that the clothing function has changed greatly from its original purposes such as resisting cold, protecting the body and so on. In modern times, people pay more attention in showing their individuality and sensibility when they choose clothes. The apparel industry is turning from mass production to small serial and versatile production, so the waste of resources and time in the traditional trial production becomes a big problem. Some popular CAD/CAM software used in textile and apparel industry are Design Dobby, 2D&3D CAD, Abobe Illustrator, Corel Draw, Fashion CAD, Lectra, ZIP, Opti Tex, Tuka Tech, Garber etc. In textile industry the CAD system used in the following areas:

Woven Textiles: - Woven textile is used by designers and merchandisers for fabrics for home furnishing and to men-woven-children wear. In woven most fabrics' methods whether yarn dyed, plain weaves, jacquards or dobbies can be designed.

Knitted fabrics: - in knitted fabrics it is used to make the knitted fabric designs. For viewing knitted designs on the screen with indication of all stitch formation.

Printed fabrics: - the process use of CAD to design development and manipulation of motif. The motif can then is resized, recolor, rotated or multiplied depending on the designer's goal. It is also used to matching textures, weave structures, colour to screen colour to print colour.

Sketch pad systems: -these are graphic programmes that allow the designer to use pen or stylus on electronic pad or tablet thereby creating freehand images which are then stored in the computer. The end product is no different from those sketches made on paper with pencil. They have additional advantages of improvement and manipulation.

Texture mapping: -CAD helps here to allow visualization of the fabric on the human body. Here this process can drape fabric over a forming a realistic way. Here each section is outlined from seam line to seam line.

Embroidery systems: - Designers can create their embroidery design or motif straight on the computer or can work with scanned images of exiting designs.

Apparel industry: - digitizers put original patterns into the computer for use and storage. In this basic patterns can be manipulated with the help of a computer, for example in case of trousers, darts can be moved, pleats can be created or flair can be introduced. This way new design can be created on screen from pre-existing patterns.

CONCLUSION

IT has changed the people's way of thinking, working and learning. It exists at every nook and corner of the society. It has really metamorphosed into world's latest global market representing an open market without having geographical or tariff barriers to reach to the customers all over the world. Today application of IT like Management Information System, Marketing Information System, CAD, CAM, E-commerce, and ERP are extensively used in Textile Industry. IT application provides an opportunity for a corporation to operate as an agile entity to improve production, operation, and customer service and customer satisfaction. In the liberalized economy textile industry may not be in a position to compete globally unless they equip well with IT application. These cost effective IT solutions may play wonder in enhancing overall performance of the textile industry.

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