THE ROLE OF INFORMATION TECHNOLOGY IN APPAREL INDUSTRY

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ABSTRACT

The textile and garment industry in India is one of the oldest manufacturing sectors in the country and is currently its largest. India occupies a unique place in the world market. India is the world’s second largest producer of textiles and garments after China. The textile and garment industry fulfills a pivotal role in the Indian economy. It accounts for 16% of the total Industrial production and major foreign exchange earner. It is the second largest employer with a total workforce of 35mn after agriculture. Textile Industry is providing one of the most basic needs of people and the holds importance; maintaining sustained growth for improving quality of life. It has a unique position as a self-reliant industry from the production of natural raw materials i.e. cotton, jute, silk and wool as well synthetic filament and spun yarn, to the delivery of finished products, with substantial value-addition at each stage of processing.

India has a substantial market share in textile and garments export and registered the magnificent growth in world market. The Americas EU, much of Asia and Middle East are India’s valuable clients.

KEY WORDS

Textile industry, Value-addition, Garment export, Sustainability, Productivity, Competitiveness, High Technology, Developing Synergies, Supply Chain Management, Leveraging, CAD (Computer Aided Design), Data Mining, Data Warehousing, Digital Fabric Painting, Sketch Pad Systems.
INTRODUCTION

The textile industry has also become a high technology industry. Nobody earlier can imagine that the industry would require top of the line technical skills and high technology. In the current scenario, textile industries need to adopt high technology to compete with the market in term of productivity and competitiveness. The Industry is required totally new skills for effectively and efficiently manages it.

Today, Information Technology (IT) plays a vital role in the field of garment industry. Any manufacturing unit employs four M’s i.e. Men, Material, Machine and Money. To find the organizational success, managers need to focus on synchronizing all these factors and developing synergies within and outside organization operations. The market competition has compelled to companies for taking support of IT to enhance its supply chain management and using it as a competitive edge. In short, many garment companies are leveraging the technological power to adding value to their business.

In the recent past, there has been intensive activity in terms of technological up gradation of entire value chain of the textile activity. A huge amount of investment has taken place in this industry for capacity expansion and modernization during the last one decade.

Objective of the study

The apparel industry is fast changing with starting the usage of internet becoming more use by the global market place and increased buyer awareness. Most of the companies adopted these opportunities and the competition is becoming more. Therefore every company is forced to provide better quality, and service to the buyer, for competing in the market.

- To find out the problems faced by the company due to Information Technology.
- To find out the benefits of uses of technology in manufacturing process.
- To find the IT tools for the company to support in whole process.

Relevance of IT in Garment Industry

The Indian garment industry is diverse and complex. It is endowed with strong multi-fibre raw material base, a vast pool of skilled workers, flexible production systems and vibrant garment market. The information technology can contribute to the development of advanced and efficient garment manufacturing and supply chain. The adaptation of information technology is a challenge for garment industry in developing countries to achieve competitiveness. Lack of information technology in developing country has given the competitive edge to the developed country.

Firm’s need for advanced technology adaptation may depend upon the environment or contextual conditions.
This study found that competitive pressure may have played a significant role in technology adoption. To gain competitive advantages, there is a constant need for the firms to observe advances in technology and adopt them (Premkumar et al., 1997).

In the current scenario, it is very difficult for any company to sustain in the business without help of IT and technology upgradation. It has proved as a competitive advantage for the development of any industry.

**Methodology**

The objective of the study to find out the uses of information technology in garment industry at different level to improve the efficiency on each and every level. The descriptive method of the research used for the study, portrays the utility of information technology to garment industry. Since descriptive research studies are connected with describing the characteristics of the particular individual or of a group.

The data has been collected from various Journals, Books and Websites.

**The role of Information technology at different level**

IT has increased the potential of the garment industry to face the growing competitive market. It is a strategy for the continuous improvement of all levels of management and managing a company using a concept of complete co-ordination of data recording equipment and automation associated with all elements of the manufacturing process through the use of a central linkage using some level of computer and IT to help the company operate in the most effective and efficient way.

There are some focal points where information technology can play vital role to enhance the competitiveness in garment industry. These are

**Computer Aided Designing**

CAD plays the vital role in both textile and garment. CAD is industry specific design system using computer as a tool. CAD is used to design anything from an aircraft to knitwear. Originally CAD was used in designing high precision machinery solely but now companies have integrated some form of CAD into their design and production process.

**Material Requirements Planning (MRP)**

It helps in managing manufacturing processes based on production planning and inventory control system. Proper implementation of MRP ensures availability of material for production and product for consumption at right time optimizes the level of inventory and helps in scheduling various activities. MRP system uses computer databases to store lead times and order quantity. MRP includes mainly three steps: First assessing the requirement of how many units of components is required to produce final product; here it applies logic to implement bill of material explosions. Second step includes deducting the stock in hand from gross to find out net requirement. Finally, scheduling manufacturing
activities such that finished goods are available when required, assuming the lead time.

Material Requirements planning system (MRPII)

It is a logical extension of MRP system which covers the entire manufacturing function. This typically includes machine loading, scheduling, feedback, and software extension programmers in addition to material requirement planning. It provides the mechanism to evaluate the feasibility of a production schedule under a given set constrains.

A textile company which has multipoint manufacturing and engaged in global business necessitates something more than MRP and MRP-II like Distribution Requirement Planning (DRP); it has ability to solve both backward directions throughout the supply chain. The Advance Planning and Scheduling system (APSS) includes both material focus of MRP and response scheduling power of MRP-II.

Coordination of logistics flows workflow coordination can include actives such as procurement, order execution, implementing changes, design optimization, and financial exchanges which results in cost and time efficiency. The results are cost-effective, speedy and reliable supply chain operations.

Data mining and data warehousing

Data mining is the process of analyzing data from different viewpoints and summarizing it into useful information that can be used as a basis of monitoring and control, enabling companies to focus on the most important aspects of their business. It allows users to analyze data from many different dimensions, categorize it, and summarize the relationships identified. In short, it is the process of finding correlations or relationship among dozens of fields in large relational databases. Data warehousing is the repository of data and can be defined as a process of centralized data management and retrieval. Centralization of data maximizes user access and analysis.

Digital Fabric Printing

The process involves use of computers in design, development and manipulation of motif. The motif can be resized, recoloured, rotated or multiplied depending on the designer’s goal.

From designer to manufacture the process is seamless. What is created on screen is directly downloaded on fabrics using a digital ink jet printer through computer. Its accuracy is so much that one may find difficult to locate the difference between the print and original.

Color matching

Hand help spectro-photometer reads a colored sample precisely, predicts formulation and can even direct a robotic color kitchen to weight out the required days and chemicals and mix them to prepare the dye bath or a print
past. Color matching computers can also communicate with your buyers about the color accuracy through internet. Most dyeing and printing machine also use IT to communicate with color matching system.

**Sketch Pad Systems**

These are graphic programmes that allow the designer to use pen on electronic pad 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 advantage of improvement and manipulation.

**Total Quality Management**

TQM means those management practices which focus on quality as the vehicle for achieving higher level of performance throughout the organization. Today, TQM has become extremely important as it affects the profit the company. The management of information is becoming important to the success and competitive position of textile. Quality of a product plays an important role in the management of an enterprise in order to satisfy consumer expectation and to ensure success and survival of a company in a free market economy. Today, quality encompasses every conceivable activity in an organization, with the customer at the centre of all thoughts, processes and decisions.

The use of Information Technology tools such as sensors, computers, network and data system makes the time consuming task of collection, storage and analysis task simpler and make efficient.

**Garment Making**

A 3-D body scanner enables touch less measurement of the customer. This digital measurement is converted into a 2-D pattern and transmitted electronically to a manufacturing site located elsewhere in the world.

**Embroidery Systems**

The designer used for embroidery can be incorporated on the fabric for making garment. For this special computerized embroidery machines are used. Designers can create their embroidery design or motifs straight on the computer and can work with scanned images of existing designs. This data is then fed into an embroidery machine with one or multiple heads for stitching.

**Texture Mapping: 3D Draping Software**

This technology allows visualization of fabric on the body. Texture mapping is a process by which fabric can be draped over a form in a realistic way. The pattern of the cloth is contoured to match the form underneath it. The designer starts with an image of a model wearing a garment. Each section of the garment is outlined from seam line to seam line. Then a swatch of new fabric created in textile design system is laid over the area and the computer automatically fills in the area with new color or pattern. The result is the
original silhouette worn by original model in a new fabric.

Problems faced by the garment industry

The Garment industry is in need of drastic reduction of the cost of production, capital investment, time complexity, manpower and to gain, withstand in the market even in the recession. The Garment industry must invest in technology and IT solution so that the entrepreneurs can face the competitive market in each and every stage of the industry. Nowadays, every industry has shown their growth tremendously and the software engineering also showed it growth and used in every field. Information technology is at the core of any company across any industry today, helping retailers, brands and manufacturers to ease their flow of operations and refine their functioning.

When we talk of the apparel & textile industry, the situation is no different. Garment software is being increasingly used to help producers for efficiency in the cost and time in their processes.

These are some listed problems faced by many garment units

- Lost track on the important stage during development of a collection and order confirmation.
- Spent excessive sampling resources on non order placing customer without supervision.
- Unsure the where about of an order during production follow up.
- Without automated alert on outstanding issue jeopardizing delivery.
- Running tight profit margin order without cost control.
- Serious inflation of raw materials without knowing beforehand.
- Without comparison of cost before purchasing.
- No inventory control cause duplicated purchases.
- No wastage control during & after production results in overstocks or short shipment.
- Delaying the revenue report results in cash flow problem.
- Delaying the gross profit report results money losing.
- No risk management system to prevent human error.
- Every merchandiser has a personal document format create misunderstanding.
- Without a centralized order information system which is time consuming to find details.
- A lot of overtime work hours on merchandiser due to inefficient manual operating procedures.
- Lost or difficult to find documents after merchandiser leave or quit.
- Difficult to locate and verify when various version of document exists.
- Loose of vital information on cost, quote, purchase, quality & lead time means losing profit & potentials.
- Nothing has done on quality audit hence cannot foresees quality problem before order placement.
- No knowledge or solid figures on deliveries and lead time capability of vendors.
Findings, Conclusion and Suggestions

Findings

The study helps to understand the various levels of functions in the process of manufacturing the final garment. A lot of problems faced by the company during the execution the order. Information technology is able to fill the gap which rises in the whole process. It is proved in this study that Indian garment firms need to upgrade their technology to compete in present global market. In accordance with the increased level of globalization, this area is also needs to further the knowledge on the global level. This study found that competitive pressure may have played a significant role in information technology adoption. It is important to gain competitive advantage for the firms to observe advances in technology and adopt them. This has created the unprecedented pressure on firms to perform better. Garment firms need to involve in-depth to understand the fashion trends, consumer demands and try to keep pace with the international fashion scenario.

Conclusion

The concept of information technology has been treated as innovation in business. There are so many benefits of IT implementation such as reduced labour cost, reduced production cost, reduced product development cost, reduced inventory, more efficient layout, better quality, less waste, improved productivity, shorter manufacturing lead time and quicker responses from the market shift. The study contributed in the development of advanced and efficient garment manufacturing and supply chain. This will help the garment firms to achieve competitiveness and having the opportunity to gain competitive edge.

The Indian garment industry is also trying to find the international standards by adopting the new and advance technology and making their position more strong in competitive market.

Suggestions

This study has realized the importance of information technology in the development of garment industry. These are the following suggestions for garment firms:

- The garment industry should understand the better usage of IT in the garment making process.
- The firms should focus to improve the efficiency and try to update their service for better handling the buyer.
- The forms should understand the time management for completing the order in time with good quality.
- The garment firm should be proactive enough to foresee the future trends of their business.
- The garment firms should consider the expenditure on information technology as a cost. It should be considered as an investment because it pays back in future.
- The garment manufacturing is labour intensive industry; firms should motivate and improve the
standard of labour. It will help to increase the productivity.

- The garment firms should implement the CRM tool to maintain the customer database and develop more trust with the loyal customer.
- The garment firms should develop their own brand name and imagine. It can improve the value and market share of the firm.

REFERENCE

Apparel Export Promotion Council


www.fibre2fashion.com

www.indiaexports.com