

## **SUSTAINABLE DEVELOPMENT OF TEXTILE INDUSTRY THROUGH INNOVATIVE TECHNOLOGY AND OPERATIONAL MANAGEMENT SKILLS: INDIAN SCENARIO**

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### **ABSTRACT**

Fashion has dovetailed the diverse upcoming technologies overtime augmenting the growth of textile industry in combination with efficient management proficiency. E-commerce acts as a sturdy catalyst for economic development making possible maximum inculcation of creativity. Customer, today's pivot of the ship has given open challenge to many through its customized demand. The integration of information and communications technology (ICT) in business has heavily improved inter and intra organizational relationships. Specifically, the participation of customers for enabling mass customization as well as cost effectiveness through the above techniques aids in improving productivity. Internal management processes of recruitment, training, internal information-sharing, video-conferencing and employee services are enhanced through electronic application of ICT conjugating apposite flow of data sharing between production and sales force. Still, there are lots of promises in store yet to be catered in this growing and opportune industry in a culturally diverse country like India. Risk of channel conflict between existing and new profile customers, computer illiteracy in rural areas, capital budgeting decisions for redesign, restructuring involving commitment of huge funds with scarce resources are few limitations to count for. However, the thought process of "Think globally and act locally" shall counter the above.

**Keywords:** E-commerce, Fashion, ICT, Internal Management processes.

### **SUSTAINABLE DEVELOPMENT OF TEXTILE INDUSTRY THROUGH INNOVATIVE TECHNOLOGY AND OPERATIONAL MANAGEMENT SKILLS: INDIAN SCENARIO**

Unity without uniformity and diversity without fragmentation applies to a culturally diverse country like India. India has many states, languages, religions, yet it has peculiar clothing that change with states and cities. Indian clothing will keep us spellbound with its alluring contrast and striking features that beholds its captivating beauty that lies in its 'unity in diversity'.

Fashion in India is as diverse as it can get. Rural areas and urban cities dressing style vary a lot. This is because of the cosmopolitan nature of the crowd, foreign influences and the liberal socio-economic pace. Metro fashions in India for men and women bear the distinct imprint of the western world. Men and women are seen wearing the latest western wear like trousers, shirts and skirts. A blend of western and ethnic wear usually dominates formal occasions in the big cities.

India is no longer the place to source exotic textile and embroidery only. Indian designers are now going global. Indian clothing like the saris and the salwar kameez are receiving global attention and more and more people are being fascinated with the same thereby increasing posing greater challenges for textile industry.

The Indian textile industry is one of the oldest and largest sectors in the country and listed among the most important in economy in terms of output, investment and employment. The sector employs nearly 35 million people.

### Major Challenges in Textile Industry

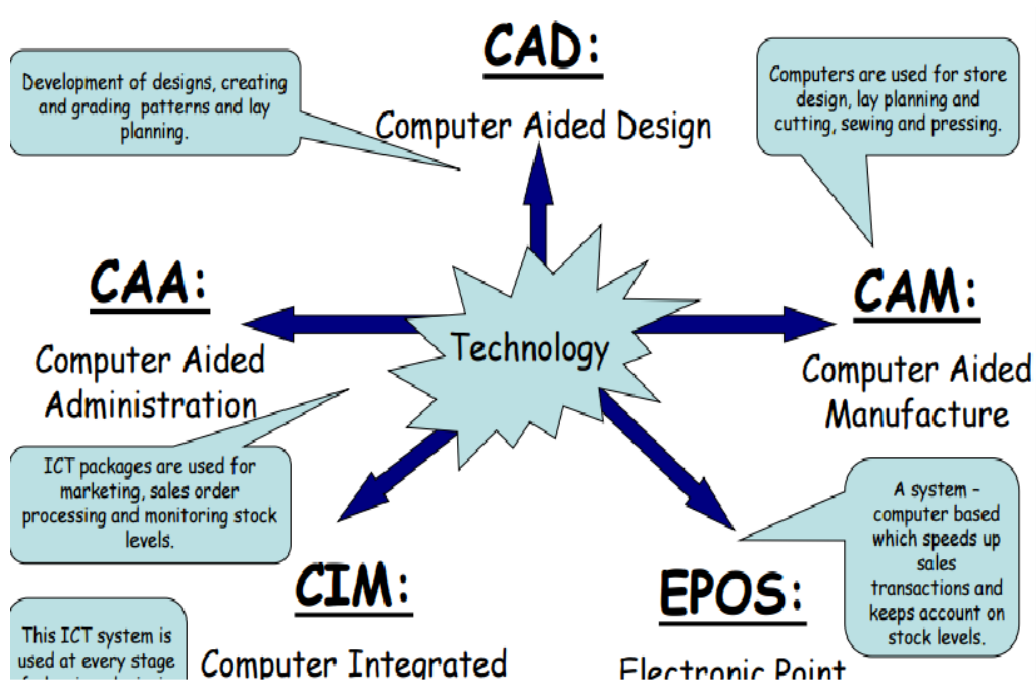
Major trade fairs are showing an increasing number and variety of smart textile and wearable intelligence prototypes for all kinds of applications that will eventually alter our lives.

- ✓ Knowledge on smart textiles and wearable intelligence
- ✓ industrial processing and communication possibilities
- ✓ distribution channels
- ✓ maintenance etc are some of these issues.

By stimulating the collaboration across the ICT, electronic and textile sectors and confection companies by means of Ecommerce, we aim at supporting companies in application-specific product development and production.

### Smart Textiles and Wearable Textiles

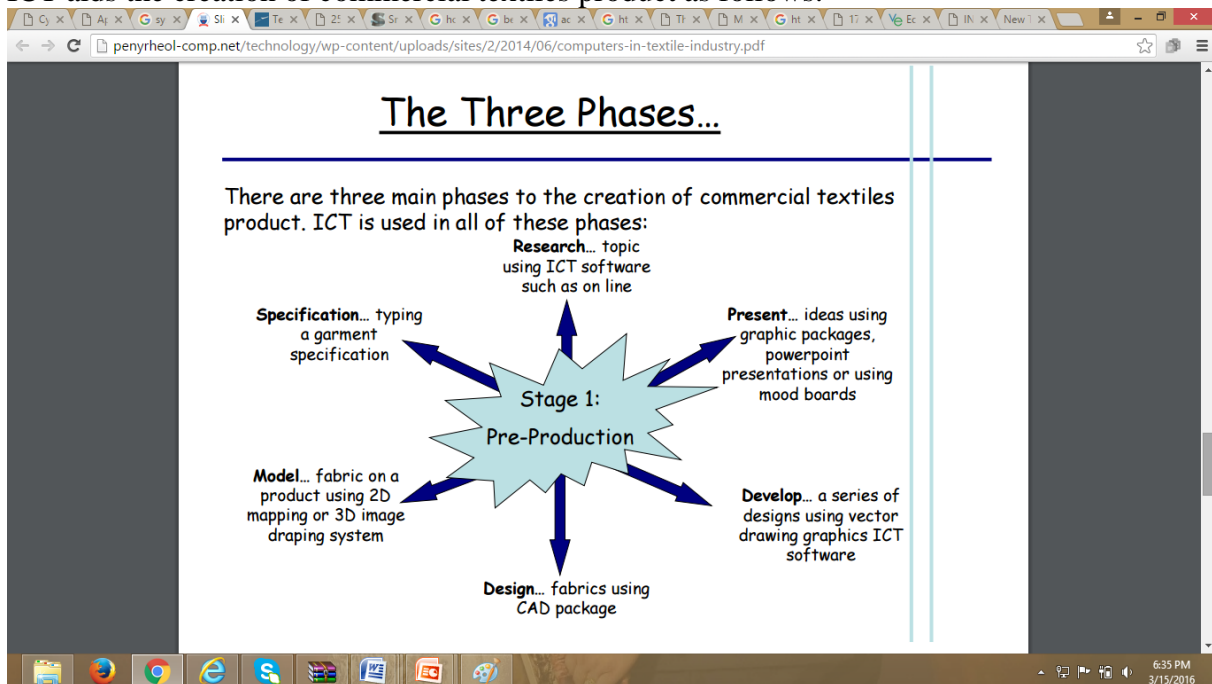
Smart textiles and Wearable Textiles may be defined as the collection of textile materials and textile-based products incorporating one or more electronic components and/or communication capabilities. Usability of computers in textile industry can be seen from the figure below:



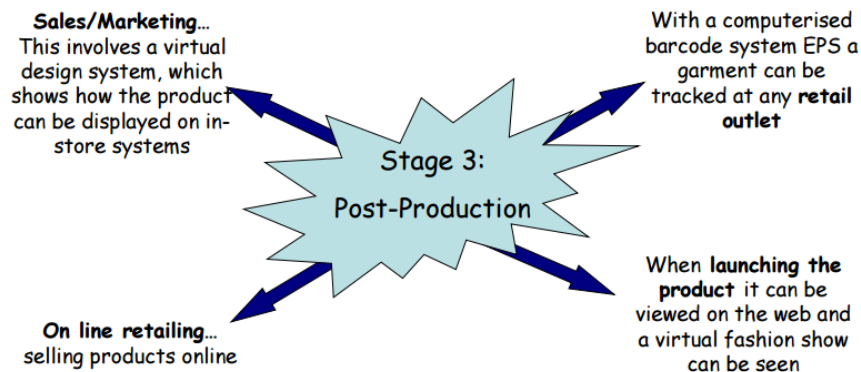
Diverse Uses of ICT can be shown as below:

Stage	Purpose	Examples
Research and Development	<ul style="list-style-type: none"> <li>Collecting and receiving relevant facts</li> <li>Using Digital imagery</li> </ul>	<ul style="list-style-type: none"> <li>Internet/Email</li> <li>Graphics software</li> <li>Digital camera</li> <li>Video conferencing</li> </ul>
Design	<ul style="list-style-type: none"> <li>Creating visual designs</li> <li>Developing a specification</li> <li>Creating a prototype</li> </ul>	<ul style="list-style-type: none"> <li>Graphics software</li> <li>Digital camera</li> <li>Digital printer</li> <li>CAD systems</li> </ul>
Manufacturing	<ul style="list-style-type: none"> <li>Producing patterns</li> <li>Producing end garments</li> <li>Controlling machinery</li> <li>Costing</li> </ul>	<ul style="list-style-type: none"> <li>3D body scanning equipment</li> <li>EDI</li> <li>Computerised knitting, sewing and weaving machines</li> </ul>
Distribution	<ul style="list-style-type: none"> <li>Stock control</li> <li>Order processing</li> </ul>	<ul style="list-style-type: none"> <li>Asset tracking software</li> <li>Spreadsheets</li> </ul>
Sales	<ul style="list-style-type: none"> <li>Advertising</li> <li>E-tailing</li> <li>E-commerce</li> </ul>	<ul style="list-style-type: none"> <li>Digital camera</li> <li>Digital printer</li> <li>PDM software</li> </ul>

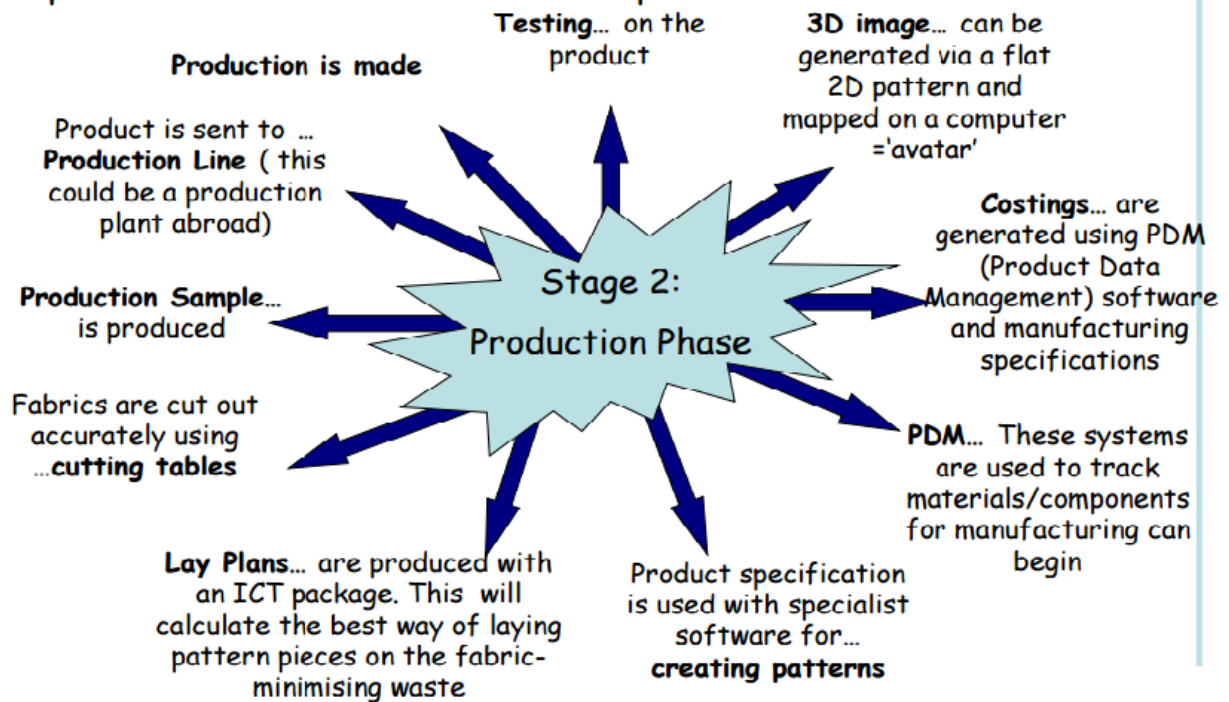
ICT aids the creation of commercial textiles product as follows:



There are three main phases to the creation of commercial textiles product. ICT is used in all of these phases:



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**ELECTRONIC COMMERCE** (electronic commerce or EC) is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the Internet. It is any form of transaction or exchange of information for commercial purposes in which the parts interact using information technology and communication rather than doing it by direct physical contact or Exchange.

These business transactions occur business-to-business, business-to-consumer, consumer-to-consumer or consumer-to-business. The terms e-commerce and e-business are often used interchangeably. The term e-tail is also sometimes used in reference to transactional processes around online retail. E-commerce also acts as a strong catalyst for economic development. E-

commerce is an improved version of the existing traditional business without the involvement of human beings but only uses the electronic media.

**B2B e-commerce** is the process of deploying information and communication technologies to support the entire value chain from suppliers through the firms to customers. B2B e-commerce more traditionally e-commerce has involved the use of electronic data interchange (EDI) in which suppliers and customers computer are able to send formatted message electronically. EDI has been the basis for supply chain management (SCM). SCM and CRM technologies are built on foundation of mutual interdependence in the buyer-seller relationships, benefitting in the following ways:

- ❖ Internet has opened new set of applications, moving beyond the simple web ordering system, customer relations management system allows suppliers to facilitate co-operation and collaboration with their system.
- ❖ Globalization in new era changes business environment in various dimensions. Organisational integration factor, business strategy and innovation in technology have become major strategic issues having significant impact on organizations.
- ❖ Identification of triggers driving sustainable development and a holistic firm performance with in the textile industry.
- ❖ TFP (Total factor productivity) and Technical efficiency:-ICT helps in improving these.
- ❖ The result indicates the organizational, industrial, governmental and cultural factors do indeed influence B2B e-commerce adoption decisions.
- ❖ Size of organization has also been identified as a predictor of IT and other systems.

### **Business To Consumer (B2C)**

Business to consumer (B to C) is business or transactions conducted directly between a company and consumers who are the end-users of its products or services. Such a formula is usually matched by electronic sale. While most companies that sell directly to consumers can be referred to as B2C companies, the term became immensely popular during the dotcom boom of the late 1990s. B2C leaders such as Amazon.com and Priceline.com went on to rank among the most successful companies in the world with this concept. It has expanded since the arrival of the World Wide Web. At present, there are already many types of shopping centres offering all kind of consumer goods through the Internet,

The integration of information and communications technology (ICT) in business has heavily improved inter organisation relationships and intra organisational relationships. Computer and information technology (ICT) is a lifeless thing to make alive the working process. Decision making becomes easier and the efficiency of human beings leap up several times either in personal, organizational and national life.

Both B2B and B2C have been benefitted manifold with the use of ICT-

- ❖ In productivity, encouraged greater customer participation, and enabled mass customization and has also reduced costs.
- ❖ Combination of data and information
- ❖ Knowledge and material of arts and craft
- ❖ Entertainment and the way of communication.

Any organization can use these things to motivate working process, generate decision making and observe their efficiency so that the objective is much ethical than anything else to establish ICT in any organization.

### **Operational Management Skills**

**Meaning: Operational management** is an area of management concerned with designing, and controlling the process of production and redesigning business operations in the

production of goods or services. It involves the responsibility of ensuring that business operations are efficient in terms of using as few resources as needed and effective in terms of meeting customer requirements. It is concerned with managing the process that converts inputs into outputs.

It is the field concerned with managing and directing the physical and/or technical functions of a firm or organization, particularly those relating to development, production, and manufacturing. Operations management programs typically include instruction in principles of general management, manufacturing and production systems, factory management, equipment maintenance management, production control, industrial labor relations and skilled trades supervision, strategic manufacturing policy, systems analysis, productivity analysis and cost control, and materials planning.

*Management, including operations management, is like engineering in that it blends art with applied science. People skills, creativity, rational analysis, and knowledge of technology are all required for success.*

Right from 1883 when Frederick Winslow Taylor introduced the stopwatch method for accurately measuring the time to perform each single task of a complicated job, operational management is part and parcel of every function starting from planning till control. Just-in-time technique of operational management has aided many functions thereby eliminating many non-value added activities. Below is the important but not exhaustive list of the same:

- ✓ Make it right the first time – elimination of defects.
- ✓ Setup reduction – flexible changeover approaches
- ✓ Balanced flow – organizing flow scheduling throughput.
- ✓ Skill diversification – multi-functional workers.
- ✓ Control by visibility – communication media for activity.
- ✓ Preventive maintenance – flawless running, no defects.
- ✓ Fitness for use – producibility, design for process.
- ✓ Compact plant layout – product-oriented design.
- ✓ Streamlining movements – smoothing materials handling.
- ✓ Supplier networks – extensions of the factory.
- ✓ Worker involvement – small group improvement activities.

### **ICT and operations management combined**

The usefulness of ICT combined with operations management has driven the market to produce specific apparels according to taste and fashion considering different aspects of textile and apparel manufacturing.

At various stages of fashion design, this duo has come to play a pivotal role. Starting from the initial design and prototyping stages, where the firm narrows in to a retailable and feasible design, the array of choices displayed visually facilitate the job significantly.

Advantages are as follows:

- ✓ Proceeding to the manufacturing stage, mass production that has always posed a challenge to industries has been simplified to a considerable extent by the automation provided by ICT. Perfect fabrication to measurements is a natural outcome.
- ✓ Even retailing via advertising to prospective clients has become a lot easier.
- ✓ Viewing 3-D images is always a handy tool for customers and manufacturers.
- ✓ Most packages are ready-to-use, and no special technical training is essential. This enables people on the shop floor to adapt to automated packages such as these.



- ✓ Designing can be done from anywhere as the customers are able to control the process from remote locations as well.
- ✓ The data can be easily stored, transmitted, and transported through computer files.
- ✓ The designs can be easily customized and personalized as corrections and editing can be done at any time without significant delays or cost increases.
- ✓ The designers don't need to produce swatches all the time as they can now see how a particular fabric or garment looks in different colors and shapes on computer screen itself.

With careful selection and trained professionals, the textile industry can enjoy the benefits of the IT revolution right at their door. It is quite beyond any doubt that in times to come, several other path-breaking modifications like better target matching and reduced timeframes would be achieved by computerized packages. Sustainable development of textile industry with the above inculcations will no longer be a far flung dream. However, just as both sides of the coin, there are few considerations that need to be paid heed for prolonged sustenance.

### **Limitations**

Innovation and adoption research has been used to theoretically explain the relationship between Organizational factors and IT adoption. The support of top management is crucial success factor in IT adoption because top management support and management generally requires personal and managerial knowledge of e-commerce potential.

Another critical factor is that B2B e-commerce consistent with company's business strategy. The strongest driver of e-commerce is thought to be business strategy of protecting and extending existing markets reaching new market or gaining advantage over competitors. Internal factors effecting the successful adoption of e-commerce include consistency between B2B e-commerce and business strategies reducing operating expenses, increasing transactions or developing new markets.

### **REFERENCES**

- Kipkoech, B. S. (2016). EFFECT OF ORGANIZATIONAL FACTORS ON ADOPTION OF. *International Journal of Economics, Commerce and Management* .
- Sherry M.B.Thatcher, W. F. (2005). B2B e-commerce adoption decisions in Taiwan: The interaction. *Electronic Commerce Research and Applications* 5 (2006) 92–104 .
- www.investopedia.com