



An impact of Artificial Intelligence in Fabric and Apparel Industry

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Abstract

This is an era of new technologies such as biotechnology, nanotechnology, artificial intelligence etc. All these technologies have revolutionised the industry 4.0 by all it means. The Artificial Intelligence (AI) is revolutionizing the fashion industry in ways that no one would've imagined. In this rapid change retailers, manufacturers, designers, and managers are connecting and learning the fundamental power of Artificial Intelligence (AI). An emerging impression of Artificial Intelligence reproduces human intelligence in machine learning. In fabric and apparel industry data analytics can be valuable in empowering the creative process if the business side invites the creative side to participate. The future of fashion will be shaped in large part by advancements in Artificial Intelligence and machine learning technology. Retailers will likely continue to pull artificial intelligence to increase efficiency, cost reduction, and, ultimately, create an unsurpassed shopping experience for customers. In this research study an attempt is to find out the impact of artificial intelligence technology on fabric and apparel industry.

Key words: Artificial Intelligence, Fabric and Apparel Industry, Fashion.

Introduction:

Clothing is one of the basic necessities of human civilization along with food, water and shelter. It reflects people's lifestyles and shows their social and economic status. At present, apparel is amongst the fastest growing industry segment. One of the most interesting features of this industry is that, it migrates from high cost nations to the low-cost nations. The growth of the domestic demand for clothing is linked with the success of the retailing sector. This is primarily due to the rise in the standard of living caused by the rise in the middle-income groups.



In our present economic world of demand and supply, price and quality are the key factors, which determine the success of any business. The primary function of clothing is to improve



the comfort of the wearer. Clothing performs a range of social and cultural functions, such as individual, occupational and gender differentiation, and social status.

In many societies, norms about apparel reflect standards of modesty, religion, gender, and social status. It may also function as a form of beautification and an expression of personal taste or style. Humans have shown extreme creativity in devising apparel solutions to environmental hazards. In most cultures, gender differentiation of apparels is considered appropriate for men and women. The differences are in styles, colours and fabrics.

The dynamics of the fabric and clothing industry are changing dramatically. To succeed among the shifting tides, companies need to build up self-competence. Few industries require companies to stay on their toes as the global clothing business. At a baseline level, there is the fast-moving nature of fashion, which requires companies to jump on trends right away, never taking the fast follower approach. That alone gives the fabric and clothing business a unique set of challenges. Today, consumers not only want to see a level of freshness in their products, but also in the entire shopping experience. As is the case across many industries, shoppers increasingly want varieties to speak to them with the same level of relevance, whether they are on an internet or browsing in a store.

The fabric and clothing business also host some of the world's most rapidly growing companies. A number of smaller entrants, both online and offline, are growing at the speed of light, quickly bringing their banner to global scale. For established players, this can feel like looking in the rear-view mirror. All of the challenges before this industry become with great opportunities. The size of the global fabric and clothing business is growing and is expected to generate double digit growth between now and 2020. Much of this growth is coming from developing markets, notably from the exploding buying power among Asian consumers, who are migrating into the middle class and starting to view clothes as an extension and expression of their new lifestyle.

Fashion always keeps moving. It continuously pushes up the fabric and apparel industry. The fashion in this industry is just as much about creating demand and brand awareness as it is about the manufacturing of fashion products. Clothing and apparel brands are constantly looking for new ways to get their trendy and fashionable products in front of buyers and



create awareness and demand in the market. Gradually, fashion brands are using Artificial Intelligence and machine learning to maximize users' shopping experience, improve the



efficiency of sales systems through intelligent automation, and enhance the sales processes using projecting analytics and guided sales processes.

Initially, Artificial Intelligence aims to replicate human intelligence in machines. It is the use of computers for reasoning, recognising patterns, learning or understanding certain behaviours from experience, acquiring and retaining knowledge, and developing various forms of inference to solve problems in decision making situations where optimal or exact solutions are either too expensive or difficult to produce (Nilsson, 1980; Russell and Norvig, 1995; Luger 2002). Artificial Intelligence is growing every day at an incredible rate and it has been really improving with its applications in all sectors be it manufacturing or the service organisations in both the private and the public sector.

The impact of emerging technology of Artificial Intelligence in the area of Fashion, Textiles and Design is explored progressively. This has introduced the world an entirely new canvas of application and immensely contributed in various fields such as clothing and textiles with highly stretchy, unique surface structure, self-cleansing fabrics, dye ability, flame retardant fabrics, Ultra Violet protection, summer cool, anti-static, anti-bacterial, soil resistance, wrinkle resistance, anti-stain, anti-fire, water proof, fashions with 3-D technology and bulletproof fabrics, etc. All these technologies which are basic components of fashion and design in apparel industry. In present times, this industry is going to be transforming a sustainable progress and development.

Objectives:

1. To study the application of artificial intelligence in fabric and apparel industry.
2. To analyse the consequence of AI on apparel industry.
3. To find out its impact and transformation on fabric and apparel industry.

Statement of Problem:

At looking forward with the future trends in apparel industry it is predicted that by 2022 annual expenditure in Artificial Intelligence is predicted to grow to 7.3 billion dollars. As machine learning in retail is on the rise, Artificial Intelligence is becoming an integral part of technology in



the apparel industry. The trends and changing attitudes in fashion will likely to be affected. Retailers and manufacturers are more particular about these changing leanings in technology.



Research Methodology:

This research paper mostly depends on secondary data collected from various newspapers, journals, research articles, magazines and internet sites, Maharashtra Government textile policy 2016 survey reports available on web portals etc. According to the need of subject, researchers used observation method and took opinions on fashion of some retailers.

Findings and observation:

It is rightly said that as long as humans have started to wear clothes, we'd have the craving to express our own individuality and attire. We express ourselves by the way of fashion. According to the survey, the apparel industry is one of the biggest in the world, projected approximately 3 trillion dollars as of 2018, representing 2% of global GDP. Major retailers such as Walmart, Amazon and others have entered into the fashion apparels with their own brands and brand partnership. Artificial Intelligence technologies are transforming the fashion and apparel industry in every element of its value chain such as designing, manufacturing, logistics, marketing and sales.

There are following foremost ways that artificial intelligence is transforming the future of fashion and apparel industry.

1. Manage inventory

Accurate inventory management is a huge ache point in apparel industry. Retailers need to keep enough stock to keep business moving. It may adversely affect on cash reserves of unsold products. AI machine learning tools use historical data to make predicts and choices. These tools of algorithms used for demand forecasting which will help retailers to reduce forecasting errors upto 50%

2. Directly connect with customers

Many fashion retailers use AI chatbots to connect with customers and provide product recommendations. This method of customer service can help retailers to save money and to build-up customer loyalty. The Virtual Stylist helps retailers in customise shopping. Customers can browse the brand's latest collections.

3. Tailor recommendations



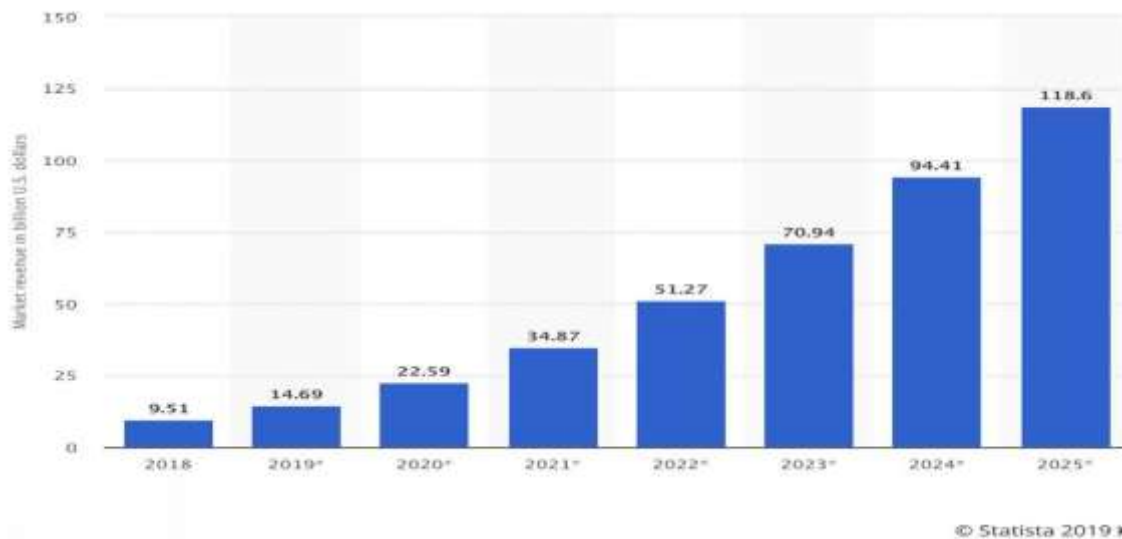
In order to keep reasonable costs with customer preferences AI data helps retailers by gathering and analysing purchase data of customer. AI tools analyse a customer profile and provide them suggestions according to customer's taste and budget.



4. Improve in product discovery

Now a trend in retail apparel industry is depend upon visual search which makes it easier to discover and purchase the products they want. Retailers simply upload a photo of the product they want, then AI identifies the pictured product (or similar ones) across multiple sites and retailers. E.g. google lens, flipkart, myntra etc.

According to some experts in fashion and apparel industry, human creativity algorithmic. The rest is illogical and abstract. The AI is used now a days to overcome the limitations of our mind.



From the above diagram it has been clearly observed that the global AI market is expected to grow massively in next few years. A report published by Tractica, revenues will be increasing from around 9.5 billion to 118.6 billion USD by 2025. Also, according to a study by Juniper Research, global retail spending on AI will grow to 7.3 billion dollar per year by 2022. This is up by 5 billion, from an estimated \$2 billion in 2018. Moreover, recent research has found that in the next five years, retailers will also be heavily investing in other related AI technologies.

There is no doubt that artificial intelligence has been dramatically shifting the form of business. It is shifting form predictive analytics to computer vision. As e-commerce becoming a central mode of shopping, there is more data about the consumer being tracked than ever before. Many successful fashion websites are able to keep a log of the browsing patterns of their customers, and in turn suggest similar items based on colour, style, and



design. AI will be helpful to retailers in business planning, strategy and execution. However, with the help of AI, retailers can help customers to make more informed purchase decisions.



Conclusion:

The world of fashion and apparel industry is continuously changing. It is fast-moving industry to catch the latest changing trends. The way we find and buy items has lifted dramatically. In the last few years, retail business in fabric and apparels has outstandingly hit. AI has been at the forefront of this industry. In this rapid change a field of opportunity for growth in profit and sustainability in reducing inventory waste is rightly available to retailers, manufacturers, designers, and managers.

Using conversational interfaces, fashion brands can gather data by asking customers questions, understanding customer desires and trends, diving deeper into their purchase patterns, and suggesting related and add-on items. For example, when a customer needs new dress, through back and forth dialog, the customer can find the optimal fashion product or accessory item. This interaction provides greater satisfaction for the customer and much more valuable information for the fashion brand.

In addition to conversational systems, AI is making its way into ecommerce and mobile apps. Customers are now able to take pictures of clothing they like or styles they want to imitate. Additionally, AI-enabled shopping apps allow customers to take screenshots of clothes they see online, identify shoppable apparels and accessories in that photo, and then find the same outfit and shop for similar styles.

This changing attitude and strategy are now become more popular on customers and retailers' point of view. This new technology is apparently used by most of retailers. This study is limited with only the use and benefits of AI technology in fashion and apparel industry on retailers' point of view.

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