Artificial Intelligence – A Revolutionizing Factor in E-Commerce

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ABSTRACT

The future of industries is currently more dependent upon its presence on online platforms. This online presence not only visualizes, promotes, or advertises your brand but also helps in gaining huge customers. Also, customers are now gradually turning their interests towards online shopping which are easier, time-saving, and more personalized compared to the conventional practice of visiting physical stores. So one of the most popularizing and crucial tools used by e-commerce brands to attract people is through their artificial intelligence services. AI is constantly changing and updating the world of e-commerce in terms of its customer service and experience. Effective utilization of AI can aid in identifying concealed insights, trend forecasting, and beneficial financial decision making. AI has influenced the traditional way of replenishment and merchandising by simply using data analytics to indicate which product has to be replenished and which has to be discounted. According to a recent report of "Business Insider" predicts that about 85% of the customer services will be handled by AI-powered bots which can immediately respond to calls, chats, and emails with almost no human intervention. This paper encompasses the various AI tools empowered by the e-retail brands to attract their customers, the various ways by which AI influences both the retailer and the customer, and successful e-retail brands that employed AI for their advancement. In addition to this, the paper discusses how AI is going to dominate the e-commerce venture in the near future.

KEYWORDS: personalized, attract, customer experience, data analytics, E-retail brands, advancement.

I. INTRODUCTION

In recent years Artificial Intelligence (AI) has been receiving increased attention. Advancement, made possible via the online platform, has managed to bring AI pretty close to our daily life. Business sector investments in AI are growing rapidly [3]. This increased digitization has changed the shopping behavior of the people by gradually captivating them to the click & mortar stores from the conventional brick & mortar stores. People are now feeling more convenient to use these online platforms for their purchases as it provides a better-customized approach and the ease to purchase from home leading to genuinely no travel expenses. Currently, online stores are offering people with enhanced customer experience and put in lot of efforts to convert the store visitors into loyal customers and also to sustain their already earned customers. One of the major reasons for retailers to opt for online shops is the ability to

cover the huge global market [6]. Another reason is that there are no time constrictions in online stores like the conventional stores i.e. it can operate 24/7 leading to increased sales. Also being online made it possible for the retailers to sell their merchandise to any part of the world without additional expenses and this I turn assures their participation in the national supply chain. Also, several advancements are brought about by these E-retailers, to attract potential customers, which include virtual reality fittings, personal assistant, chatbots, automated customer services, etc [6]. The e-commerce businesses integrated with AI lead to an increased triumph not only in marketing standards of the brand but also helps in a better understanding of their customers by comprehending varied buying behavior using big data analytics, which in turn helps to create more personalized approach. So all these latest advancements rely mainly upon Artificial Intelligence [3]. AI is a technology that has the potential to create varied effects on how the user interacts with the digital platform and also in turn the user itself. Within a few years, the world will witness a major growth of AI in e-commerce which would be responsible for crucial business decisions, providing precautionary solution and meaningful business insights [6]. This paper enlists how AI plays an influential role in E-commerce, the various tools equipped by AI to enhance sales; famous brands with these AI powered strategies and the SWOT analysis of using AI.

II. MAJOR AI TOOLS EQUIPPED BY E-RETAILERS

CHATBOTS: These are some of the most common AI technology used by almost all e-commerce brands. These are one of the most cost-effective and efficient ways of customer service and are available 24/7 for immediate assistance [1]. Chatbots are programmed as if to respond to queries similar to a customer care employee. Though there are various other means to get solutions for problems such as calls. Contact forms and e-mails, these chatbots are believed to provide the fastest results for the visitors without much delay [14]. Most chatbots are pre-programmed with answers for certain queries and are also inbuilt with the ability to learn by experiencing new types of questions and their response to them, thus creating a more intelligent approach. Chatbots incorporated with Natural Language Processing (NLP) are capable of responding to voice-based

customer searches. Brands use chatbots to provide specific suggestions and assistance, and even to automate the purchasing process [3]. WhatsApp, Facebook Messenger, WeChat, and Slack are the most popular Chatbot platforms [14]. A latest Juniper Research analysis showed that chatbots will indeed "redefine" the customer service industry, and anticipated that by 2022 the innovation would save more than US$ 8 billion in operating costs. A further IBM study revealed that 65 percent of millennial consumers preferred to communicate with bots rather than interacting with actual human beings. It comes as no surprise that the bots have truly started arriving. Spotify, Sephora, Pizza hut, Whole Foods, and Lyft are some famous and successful brands utilizing chatbots in their customer service processes [14].

VOICE & VIRTUAL ASSISTANCE: Retailers are now using voice optimization services to reach their customers every day through AI home assistants such as Alexa, Google Home, and Apple Home Pod [5]. A recent report by Futuresource Consulting, a leading market research firm declared that about 35 percent of the e-commerce virtual assistance market share is occupied by Apple's Siri which is then followed by Microsoft's Cortana with 22 percent and google assistance with 9 percent and Amazon's Alexa with 4 percent respectively [5]. It provides users with real-time voice assistance thus improving the user experience which in turn makes it easy for users to interact with the service providers. These are integrated with NLP software which enables it to process the native languages of the customers to interpret and understand the customer messages. Artificial Intelligence can be used to create a virtual buying assistant that helps consumers decide which products or services to purchase or choose [18]. These personalized assistants are programmed to provide notification to the customers on price drop of the items that they have previously shown interest on and can also make purchases on behalf of the customers thus automating and making easier the purchasing processes, this, in turn, has resulted in considerable cost saving for the consumers [5]. According to Gartner, the world's leading research and advisory company, predict that 30 percent of all searches will be done using a device with no screen. According to Quora-creative statistics, by 2020, 50 per cent of all internet searches will be voice-based. Nuance, a speech recognition firm developed a new "voice – ordering" system which is similar to Siri that aids the Dominos' virtual

assistant 'the Dru Assist' in making orders more accurate and effective and thereby enhancing the customer experience [8].

CUSTOMER CENTRIC SEARCH: The e-commerce sector had already begun using artificial intelligence through the use of visual search engines [1]. Traditional search engines like Google and yahoo have been using algorithms that throw up a string of keywords which it feels that is closest to what the searcher is looking for. These approaches aren't suitable for searches made by customers who do not know the keyword or name of the thing which they are searching for. With AI, searches are made more intelligent by making it capable of not only making keyword searches but also image searches [1]. Visual search engines are AI driven systems that allows the user to find what they are looking for, by just in a click. Visual search recognizes images to identify color, size, proportions and silhouettes, including text to recognize brands and product names. This offers flexibility over keyword paired searches, in which outcomes appear depending on the ability of the finder to explain a product. Visual searches fulfill the web usability principle "Don't make me think". Visual image search can result in quicker and more accurate results. Just one thing customers have to do, click a photograph of what one prefers and toss that on the search bar. The search engine then looks for all the similar products for the user which subsequently improves the keyword search. AI powered searches such as visual search and image recognition offer users a very perceptual way to search deeper. According to Amir Konigsberg, the CEO of Twiggle says that consumers are more often giving up E-commerce sites as it shows the results of the products that are irrelevant. In order to overcome this, he introduced Twiggle, an AI-powered solution that uses state-of-the-art technologies in machine learning, natural language processing, and knowledge engineering technologies to narrow down, contextualize, and eventually enhance the online shoppers' search results and consequetly resulting in the happy shopping of the customers. Pinterest an image based social media app uses the visual search system for better customer experience.

PRODUCT RECOMMENDATIONS: Product recommendation engine helps out people to find the best of what they are actually looking for and these are generally brought to the customers

through e-mails, app notifications, display ads and messages [8]. These engines analyze the past experiences, activities, searches, preferences of color and brands and previous purchases of the customers on the site and recommend products respectively [3]. No matter what customers always leave certain signals and these signals are used by the engines to identify their tastes. For example Netflix recommends customers based on their previous preference of genres of series and films [16].

AUTOMATION: Automation is the one wherein machines are reinforced instead of labors. Almost all the processes in ecommerce sites are becoming more automated. The automation in ecommerce sites include automated inventory management, automated invoice, automated customer services using bots [13]. Utilization of automated e-commerce fulfillment tools saves a lot of money and time. These fulfillment tools are capable of sending tracking details, scan and print shipping labels and streamline the return details [7]. About 80% of Amazon warehouse operations are controlled by artificially intelligent robots which aid in easy transportation of goods from one place to another, checking stock units and are capable of detecting information of each product package which helps in achieving greater accuracy and increased efficiency of the sorting process [12].

MARKETING: Automated e-mails, notifications and display ads play prominent role e-commerce marketing. AI-enabled digital marketing sends marketing emails to recipients for product and services that are of one's interest [12]. As AI helps in better understanding of the consumer buying behavior patterns, varied personal marketing strategies are implemented like sending emails to re-engage churn customers and sending offers and coupons to active customers [13].

SALES FORECASTING & INVENTORY MANAGEMENT: By analyzing which product has got listed in large number of wish list we can understand the products demand and further by determining the sales of the product, we can analyze which stock is to be replenished. This is similar to the traditional brick & mortar stores where the products are categorized based on their shelf life, thus by replenishing only the stocks which are in greater demands and availing offers and sales for the non moving styles. The sales forecasting is done based on the varying trends in

previous years and projected or foreseen variations in product requirements and using this knowledge e-retailers can prevent additional stocking of unsold items, avoid storage costs and prevent spoilages. One of the biggest superpowers of e-commerce is the chance of knowing how much of a given product will be sold on an exact date. AI algorithms are capable of analyzing historical data, obtain trends from it, and allow you to make informed decisions to more effectively maintain inventories. Amazon has over 200,000 mobile robots that work within its network of warehouses. The whole robot army has helped Amazon fulfill their ever-increasing promises of speedy deliveries. It is made possible as AI driven robots are unlike humans working 24/7 on the stocks and make immediate shipment of ordered items.

ANALYZING BIG DATA ANALYTICS: In the e-commerce sector, an AI-based data analytics tool provides a variety of benefits such as business analytics, consumer data, and internet sales interpretation. Initially, Customer Relationship Management used to rely on people to collect huge amount of data in order serve for the future recommendation and services. But AI has made it possible to predict which customer is engaging in the buying process and how the company can better engage with them. AI systems could be used to evaluate vast amounts of data to recognize concealed insights that help businesses predict trends accurately, and decide things that benefit the business. Today, AI systems replace the conventional replenishment and merchandising methods slowly and gradually. Updated AI system helps companies interpret data as well as provide a causative link between unstructured and structured data, implying which products need to be manufactured, and show products that need to be marked down, too [7].

III. HOW AI PLAYS AN INFLUENTIAL ROLE IN E-COMMERCE?

The application of AI has a beneficial effect on both the consumer and retailer perspective. The following explains how AI has enhanced the consumer buying journey and also how the adoption of these technologies helps retailers to increase their sales.

CONSUMER PERSPECTIVE: According to customer experience the introduction of all these technology helps them to enrich their shopping experience. Customized AI driven notifications regarding sale, offer and price drop helps them to save their money and utilize all the opportunities to grab their desired product at the lowest price possible [2]. Also product recommendation option helps the customer to easily pair up their attire. Chatbot's immediate responses to the customer queries help them to get clarified within a short period of time. Advanced search systems such as visual search helps people to easily search and shop the products of which they were not even known before [6]. Product comparisons, demonstrations, reviews and feedbacks help consumers to better understand the product [2]. Also ease of shopping from home is one major benefit of e-commerce sites.

RETAILER PERSPECTIVE: The exploitation of AI in online sites helps the retailers to better understand their customers and thereby attracting them by showing and recommending what they love. This in turn increases their sales [3]. Also by knowing the product's presence in customer wish lists and bags, it is easy for them to easily forecast the demands of the product and plan their further stocks. By providing offers stock clearance are made easier. Retailers can now closely watch every move of the customers and can easily take them from the landing to the check out page [4]. Better AI tools can enhance the customer experience and consequently make them buy more often from you.

IV. SWOT ANALYSIS

SWOT stands for Strengths, Weaknesses, Opportunities, and Threats, and so a SWOT Analysis is a used for assessing these four aspects of your business. And so here the swot analysis of AI in e-commerce sites is included.

STREGTHS	WEAKNESS
• Providing customer centric search • More personalized customer experience • Optimized inventory control and sales process • Attracting and retaining potential customers.	• Lack of creativity and social intelligence • Decision making issues • High cost • Highly skilled labors required
OPPORTUNITIES	**THREATS**
• Implementation of new technologies • Sustainable in competitive market • AI and robotic innovations are highly in demand • Makes industries sustain, to suit to recent trends	• Unemployment • Security issues • E-commerce "return rate" as a risk for environment • Expiration of brick & mortar stores

Table 1: SWOT analysis of AI in E-commerce

V. CONCLUSION

Although AI are still a sensation in fashion retail, their growing acceptance and developing complexity will make them omnipresent in the future. The E-commerce sectors are turning extensively competitive due to their peer pressures. Letting the brands know the customer pain points and enhancing their services in the respective areas can lead to increased sales. Also not only e-commerce brands are benefitted by these AI strategies but also the brick & mortar stores with improved AI powered technological installations in their stores. Companies using AI extensively for a number of scenarios such as product assortment, fraud detection, predictive analytics, marketing optimization, etc. experienced the benefits of improved customer loyalty and satisfaction, while reducing forgery and ending up setting objectives that add to their bottom line. When AI is integrated with digital technologies like analytics, machine-learning, robotics and IOT it has the potential to drive transformation across the global supply chain of retailers. And the transition will materialize before one feels it will. Apart from all these advancements one of the major drawbacks is the end of traditional brick & mortar where people travel to shops, spend time and buy what they desire. One of the major reasons why people opt for online stores is the option to compare, read the reviews of the product. Nowadays people have more commonly started accepting the procedure of believing upon other's statements as people are more concerned about what others say rather than going to the store, checking the product quality by themselves. This shows that e-commerce has made people lazier. At the end there is a threat that we human society get detached from the real world and stay interconnected within the virtual world.

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