

ROLE OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN IMPROVING ONLINE SHOPPING EXPERIENCE- A REVIEW

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Abstract - Machine learning is the scientific study of algorithms and statistical models that are used by computers to perform a definite task without using explicit instructions and relying on patterns. It is seen as a division of Artificial Intelligence. E-Commerce is also known as electronic commerce or internet commerce which refers to buying and selling of goods using online and even transfer of money and data to execute it. Electronic commerce attracts technologies like mobile commerce, electronic fund transfer, Internet marketing, Online transaction processing and automated data collection systems. Consideration and application of concepts of Artificial Intelligence for sales forecasting to present superior services at affordable cost using chatbots, product marketing has lead to improvised customer satisfaction. With machine learning becoming more integrated in our daily hood, it promises to change things in E-Commerce even more in distinct future. This paper studies customer experience, search results, retargeting, how visual discovery has replaced keyword research, product recommendations and how customers are experiencing ease of access of products in the online scenario of commerce.

Keywords - Chatbots, E-Commerce, Machine learning, User experience.

I. INTRODUCTION

Artificial Intelligence is a stream where a computer acts like a human. These days' computers are getting smarter and companies throughout the world are finding ways on how they can efficiently enhance customer experience through online services. In current trends when it comes to satisfying customers the business is not fighting the conventional battle but either are choosing a more digitized way. These days business have introduced Artificial Intelligence in their customer service department to a greater extent and the number will increase even more in future due to the increase in quality of communications with the customers. Here, we highlight the smart usage of e-mail, intelligent chatbots, the increased productivity due to usage of chatbots in e-commerce.

Artificial Intelligence offers the retailers to personalize each introduction with their customers, which in turn provides them with better experience. Through this the customer's service issue is reduced to a greater number.

An alternative method for the usage of keyword matching which generates very high search ranking based on relevance for that particular customer is possible due to artificial intelligence. Artificial Intelligence also helps analyze customer data from various channels, their behavior and purchasing pattern which helps in predicting what the customer actually wants. The retailers are also benefited in recognizing frauds in a large amount and get notified if something is wrong. The customer segmentation plays a significant role in E-Commerce as it helps their companies to adopt different communication strategies for distinct customers. These days' banks have numerous customer touch points which capture millions of customer experience which in turn help them to navigate better. They have recently introduced virtual employees who perform the same task repeatedly in a more significant and efficient manner, when compared to human employees. The significant usage of Artificial Intelligence in sales forecast helps analyze huge volumes of user data on the basis of which it offers useful buying patterns. Handling marketing budgets properly often need a complete expertize this become a huge burden for small businesses as it costs more, luckily these issues are solved due to Artificial Intelligence solutions which are meant for marketing. The usage of digital marketing platforms also plays a major role in marketing solutions.

II. CURRENT SCENARIO

In olden days there was huge usage of traditional commerce rather than e-commerce. Traditional commerce is a process of exchanging goods in the form of money directly. Face to face interaction between the retailer and the buyer was seen to exchange goods and services. This method lost its popularity due to wide usage of e-commerce in the early 20th century which provided greater benefits in buying the goods and services easily.

E-Commerce is a way of exchanging the goods and services in the form of digital mode. The transactions are made online with the usage of credit or debit cards, net banking etc. where people avail discount offers also. E-Commerce is an online shopping market.

III. Milestones of E-Commerce:

The World Wide Web(WWW)

Before when web servers and web browsers where there e-commerce was not so popular. Later in the 1991 the NSF(National Science Federation) lifted up the usage of NET and this increased the growth of online shopping. In a few years millions of domains were registered and online business gained huge popularity. In 1995, Amazon was founded as the online bookstore, which was provided with online transaction.

Payment gateways

Payment processing became popular widely when PayPal and square brought new identity to the industry. This was indeed a very huge milestone for emerging E-commerce. Payment gateways connected the merchant's website to the bank to fill in the card details with the help of encrypted and assembled data. In 1998 it became global.

Online reviews

IN 1999 three 'review' websites emerged-RateItAll.com, Deja.com, Epinions.com. This was the first time where customers rated products online. Within 6 months more than million views had been written. Later this concept was directly implemented into majority of online stores for buyers review. This system gave benefits to both customers as well as retailers. This method took way ahead than the old "word of mouth" recommendations.

The popularity of smartphones

In 2007, Apple launched its iphone which allowed users to browse the internet and download, use apps from ios store. This allowed users to shop and started many of the mobile retail trends that are thriving today. This emerge of smartphones gave customers to stay connected anytime and anywhere with internet through their phone. This emerged as a great benefit for mobile commerce to gain a vast success in e-commerce industry

AR(Augmented Reality)

Augmented reality is the latest bless to the people. It allows wonders for retailers and customers at a most basic level also. This method generates computerized visuals on user's natural view of his surroundings. It has various applications in the field of military to medicine. From in-store AR instalments shows how a product will look when assembled which help shoppers see their products at home.

"E-commerce is moving forward as powerfully as the world's largest river, the Amazon; the river that more than 30 years ago turned into a bookstore, which turned into the world's largest marketplace, which turned into a city".

IV. Impact**Mobile commerce**

It is the area of buying and selling goods through wireless handheld devices such as smartphones and personal digital assistants(PDA's). This area is growing rapidly than e-commerce and by the end of 2018 it has gained around 70% of the total e-commerce traffic.

Artificial Intelligence

Until now artificial intelligence and machine learning have been used extensively by global companies due to their not so affordable price. But however by 2020 it is predicted that around 80% of customer services will be handled by AI.

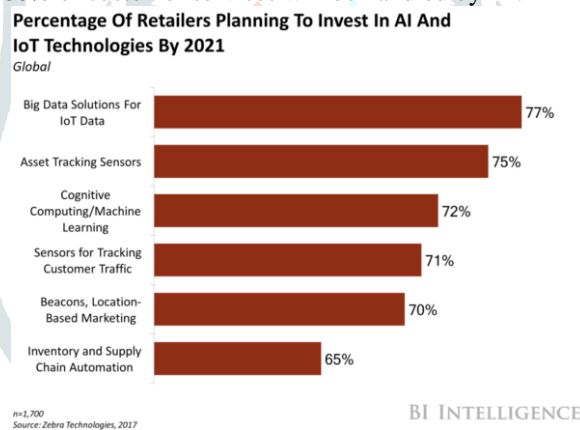


fig 1: percentage of retailers planning to invest in AI by 2021.

Augmented and virtual reality(AR/VR):

AR/VR technologies increase conversion rates and eliminate online shopping returns. These technologies are already being used by cosmetics, fashion and automobile companies and by the end of 2020 it is estimated that Augmented Reality will be generating \$120 billion in revenue.

Machine Learning and the Customer Experience

Machine learning allows ecommerce businesses to create a more personalized customer experience. Today, customers prefer to communicate with their favorite brands in a personal way, and also have come to expect personalization in shopping experience. Through machine learning, retailers can reduce customer services issues even at the ground level.

Machine Learning and Search Results

Improving search results offers huge payoffs for sellers. Machine learning can improve ecommerce search results every time a customer shops, taking into account of their purchase history. Instead of using methods like keyword matching, machine learning can generate a search ranking based on relevant words of that particular user.

Artificial Intelligence and Retargeting

Omni-channel is the new form for retail, where people can expect artificial intelligence to use not only customers' digital data, but also analyze their in-store behavior. This helps marketers prioritize their valuable users.

Artificial Intelligence and Product Recommendations

Machine learning can be used to recommend ecommerce products according to different ways in shopping, which will help increase the conversion rates. By going through the customer data from different ways, the algorithm can identify behavior and purchasing manners which can be used to predict what the customers really want.

Machine Learning Can Eliminate Fraud

The more data, the easier it is to find irregularities. Therefore, people can use machine learning to identify variations in data to learn what is 'normal' and what is not and get notified when something is wrong. The most common application for this would be fraud detection. Retailers are often faced with customers who buy large amounts using stolen cards or retract their payments after the items have already been delivered.

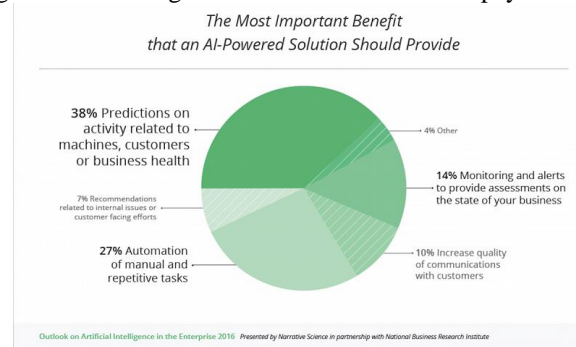


fig 2: prediction of future with the usage of artificial intelligence in customer experience

V. INTELLIGENT CHATBOOTS

Artificial Intelligence, with the help of a Chabot, has improved customer experience in an effective way. The below are a few prominent ways in which customers have been served better through Chabot:

Personalization

Personalization is what the customer wants whenever they visit a website or online store. In olden days, human customer representatives were trying their best to ensure that the customer is satisfied, but it was difficult. With the help of AI, companies are able to create a more personalized experience for their customers.

Fix problems before they occur

Chabot can resolve problems for customers before they realize they even arise. Bots are designed to stay one step ahead and to proactively create a flawless experience for the users.

Streamline the sales path

Whenever customers are ready to make a purchase, it's important to make the buying process fun and beneficial. Live chat representatives can sometimes complicate things, but a Chabot designed with improved AI can streamline the entire process, and improve customer experience.

From health to insurance to fashion, smart Chabot provide great customer support. And in most cases, they have proved to be better than human representatives. Therefore it makes them more intelligent and knowledgeable than human customer service representatives.

VI. WAY FORWARD

Personalization is nothing new for e-commerce. With the ever-increasing advances in artificial intelligence and machine learning technologies, new deep levels of personalization have started to penetrate the fast-growing e-commerce world. Artificial Intelligence based personalization for e-commerce takes the multi-channel approach. New Artificial Intelligence engines, such as Boom train, sit on top of the multiple customer touch points to help the business analyze how customers are interacting online. Whether it is a mobile application, the website, or an email campaign, the AI engine is continuously monitoring all devices and channels to create a universal customer view. This unified customer view enables e-commerce retailers to deliver a seamless customer experience across all platforms.

As the most relevant example, Amazon's home assistant, Alexa is perfectly suited in providing the modern shopping experience for consumers. Long gone are the days when one has to rush to the local store because of 'out of milk'. One can simply ask Alexa to order you some for the morning. Under the hood, the innovative Alexa will use Amazon and place an order on the user's behalf, ready for delivery the next morning. A fascinating feature is that Alexa simply needs to verify the user's voice pattern to process the order.

Large banks have huge customer touchpoints which capture millions of interactions each day making customer experience a great field to them to navigate. Nordea is a Stockholm based bank which has looked way into the customer journey to find good points by using AI for a maximum impact. Sephora is a beauty brand which uses Chabot and also uses its visual artist product through this the visitors can try cosmetic products such as lipstick, eye shadows to match their skin tone. Using the AI tool it can also identify the facial feature and apply the product to the customer face through app. This indeed is a great contribution of AI using augmented reality and virtual reality.

VII. CONCLUSION

Artificial intelligence has affected every aspect of the business especially in the area of customer service in online shopping. If the company needs to stay ahead of the competition, it must begin now to develop plans on how it can leverage AI to significantly improve its own customer service operation.

The challenge lies in determining how to develop the right processes and expertise for collecting data and building AI algorithms and models to reap the benefits. This is where a sophisticated AI-enabled customer journey analytics platform can help deliver high-impact customer experiences rapidly and effectively. As one can see, there are a lot of exciting opportunities for machine learning in e-commerce. Many of these are either already in use or will be soon, so we can expect machine learning and Artificial Intelligence to become an increasingly important part of effective online retail.

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