A Study into the Use of Artificial Intelligence in E-Commerce Stock Management and Product Suggestion Generation for End Users

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Abstract— **Electronic commerce (E-commerce) has revolutionized the way people shop and interact with online customer service. Despite the fact that organizations are working to improve their customer service performance, traditional customer service issues such as limited availability, inefficiency, and cost continue to exist. Artificial intelligence, or AI, as these letters are known, is now found everywhere, including in e-commerce. Artificial intelligence (AI) is increasingly being used in service today to act as a human assistant to overcome the limitations of traditional customer service. AI and service providers can collaborate to provide perfect customer service while also increasing productivity. Choosing the right product will assist the user in getting what they want. This increases the user's satisfaction with the website.**

To achieve a pleasant outcome, a website such as building a personal computer needs to add to the website. Suggestions for high-quality products for your computer aid in the optimization of the computer's speed and performance. At the same time, technological advancements have given rise to a variety of platforms that can be used to keep up with trends and meet market demands. As a result, the focus of this research is on the applications of artificial intelligence in the e-commerce industry. The AI assists the user in getting what they want and keeping up with the latest trends.

Keywords— Artificial intelligence, E-commerce, Products

I. INTRODUCTION

Consumer behaviour, industry growth, and interactions between firms and customers are all influenced by technological advancements and continuous digitalization. Customers want to buy in the virtual marketplace, so e-commerce has expanded considerably[1] .E-commerce is a valuable forum for advertisement and selling goods around the globe. Customers can learn about new products by visiting popular websites. Websites allow companies to connect with their customers through the binternet. The consumer electronics industry is one of the most dynamic and creative in the world. Major electronics companies are constantly designing the next best electronic object, making their items more user-friendly, advanced, and developing new ways to assist or entertain their customers.

Artificial intelligence is changing the online retail industry by anticipating shopping habits based on the items that customers purchase and when they buy them.

AI's Effect on Ecommerce

- Digital assistants, such as chatbots, are becoming more common.

- Product Recommendations

- Personalization

- Inventory Management

Personalized product recommendations for online shoppers are one of the most common uses of artificial intelligence in ecommerce, increasing conversion rates by 915 % and average order values by 3%. AI in Ecommerce is influencing customer choices thanks to its knowledge of previous purchases, searched products, and online browsing habits, thanks to the use of big data. AI and machine learning in Ecommerce are deriving important user insights from the generated customer data based on specific data gathered from each online user.

Brands can use AI to scan petabytes of data more intelligently and efficiently to predict customer behaviour and provide relevant and helpful recommendations to individual customers.

II. LITERATURE REVIEW

This section starts with a description of what customer service in E-commerce is for the purposes of understanding the application of artificial intelligence in E-commerce customer service. The future of customer service platforms as well as artificial intelligence in E-commerce customer service will be discussed after that.

A. *Customer Service in E-commerce*

Customer care refers to the method of offering and supplying a service or good in accordance with a customer's needs. It may be assistance with an issue, guidance on a specific need or desire, or just offering empathy in the

occasional situations where an adequate remedy is not readily accessible. In short, a company should focus on customer experience in order to succeed. In a nutshell, a company should focus on customer experience in order to satisfy customer needs and produce customer loyalty.

B.   Customer Satisfaction

According to Demirci & Kara (2014) [2], customer satisfaction is a desirable outcome of service experiences that requires a determination of whether the service met the customers' desires and aspirations. Customer loyalty is a hot subject in the world of E-commerce, with experts debating it regularly. Since businesses rely on their clients, customer loyalty is critical in the E-commerce system. As a result, consumer engagement and servicing are inevitable because the customer is the business's source of benefit [3]. Customer satisfaction is the product of comparing preferences and actual service efficiency. In other words, customer loyalty is attained when a product or service meets the needs of consumers. If ecommerce continues to expand, the online service ecosystem has become increasingly critical in ensuring customer loyalty.

C.   Customer Loyalty

The general definition of loyalty is a commitment or fidelity to buy a favourite good or service repeatedly in order to increase or accelerate the incentive to purchase the chosen goods again [4]. A customer is considered faithful to a company if they buy from them on a regular basis and are not influenced by marketing tactics such as rival applications or situational factors. Customer satisfaction can be considered one of a company's most valuable intangible properties.

D.   Limitation of traditional customer service

Traditional customer support is difficult to provide 24 hours a day, seven days a week, particularly for most non-global companies.Customer service representatives are often required to multitask and provide relaxation, rendering 24-hour customer service difficult. [4] Customers want customer service to be available at all times that they need it, but e-commerce businesses risk losing customers. Customers also have to wait a long time online for a response from support personnel, which is inefficient and difficult to scale up.

III.   PROBLEMS DEFINITION

A.   Keeping your customers happy

Even if you have the best-designed website in the world, your business will suffer without client trust and loyalty. However, attracting and keeping consumers takes a significant amount of effort. One of the reasons e-commerce enterprises struggle to gain customer trust and loyalty is because the supplier and buyer are frequently strangers.

This can only be remedied with time and effort. Eventually, the organization will be able to create this trust and loyalty via many purchases.

B.   Personalization

Personalization is undeniably the most important component in ensuring a positive client experience. Retailers are focused with offering a tailored experience for their consumers, which may often become over-personalized without their realizing it. Customers are also irritated by the overwhelming number of targeted web advertisements. Retailers miss out on creating a one-to-one relationship with their consumers in this frenzy, and it becomes a huge difficulty for them. Being regarded as a person rather than a number is important to 84 percent of clients when it comes to obtaining their business.

C.   Inventory Management

Manual inventory tracking techniques spanning many applications and spreadsheets are inefficient, redundant, and prone to mistakes. A unified inventory management system with accounting functions may assist even small enterprises. Receiving and put away, selecting, packaging, and shipping are only a few of the procedures involved in inventory management procedures at the warehouse. The objective at hand is to do all of these duties in the most efficient manner feasible. Specialized care and storage plans are required for perishable and delicate material. High-value inventory, on the other hand, need special loss-prevention techniques and inventory management.

D.   Automation

The future of all businesses, including the retail industry, is automation or machine-enabled process improvements. The days of requiring human interaction to deliver items will soon be over, replaced by drones that are meant to reduce and enhance average delivery time. Areas that are boring and time-consuming, such as warehouse management with boring operations such as item ordering, are examples. Robots are used to automate areas that are laborious and time-consuming, such as warehouse management and monotonous duties like item selecting and selection.

IV.   THE IMPORTANCE OF AI IN IMPROVING AND PROMOTING THE ECOMMERCE INDUSTRY

A.   CRM- Customer Relationship Management

If you still believe that the human resource department's sole responsibility is to oversee and manage Customer Relationship Management, you are living in a world that has

long passed you by. With the aid of Artificial Intelligence, one may acquire a wide range of data, evaluate it, and ensure that the best-in-class services are provided to potential clients in today's world. It is only with the aid of AI that large amounts of data can be readily transferred, utilised, and shared for studying consumer buying trends, choices, variables that influence their purchase decision, and so on, in order to ensure proper and secure interaction. [5]

B. AI helps in automation

From transportation and utilities to military and facility management, automation may be found in practically every industry. Manufacturing, on the other hand, is unquestionably the most prevalent sector. Most people believe that when we mention "automation," we mean that robots will take over all of the tasks that humans currently undertake. However, the true meaning of automation is that it aids businesses in understanding what their consumers want regardless of time constraints. Sales personnel from all over the world may use Artificial Intelligence to connect effortlessly, collaborate, and engage with clients as much as possible to provide the greatest customer experience and high sales. [5]

C. Recommendations for customers

Customers can identify things they wish to buy fast and effortlessly using AI-driven product suggestions. They also help companies to promote the goods that other customers enjoy the most, allowing them to reach out to new customers. It even allows for cross-selling and upselling. Customers can identify things they wish to buy fast and effortlessly using AI-driven product suggestions. They also help companies to promote the goods that other customers enjoy the most, allowing them to reach out to new customers. It even allows for cross-selling and upselling.

Another wonderful example of a company using AI-based suggestions is Netflix, a streaming service. One of the key reasons why firms should offer AI-based product suggestions is to help customers discover new products.

D. AI helps in Inventory Management

Artificial intelligence (AI) machines are made to learn, plan, and solve problems. AI can assist organizations estimate customer demand, handle supplier backorders, and optimize inventory stock levels by using approaches like time series prediction and reinforcement learning. For those organizations that have previously combined AI with inventory control, it has resulted in considerable benefits. Businesses may construct smart data-driven production and distribution centres using AI, machine learning technologies, or more complicated artificial intelligence systems.

AI differs from previous technologies in its ability to comprehend a variety of real-time inventory control dynamics that impact inventory stock levels. AI can anticipate situations, make recommendations, and even take action – either independently or with human consent.

V. CONCLUSION

Artificial intelligence (AI) is a key driver of creative technologies and user interactions in ecommerce. Personalized shopping, product reviews, and inventory management are three of the most popular applications of artificial intelligence in ecommerce. People are becoming more interested in Artificial Intelligence as they see how it can help them succeed in their ecommerce business's high profits and customer relationships.

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