

Using Artificial Intelligence in E-Marketing Companies

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Abstract

Online commerce is one of the emerging and growing markets in the world, where the increasing number of users on the Internet exceeds the online purchasing experience, hence the role of artificial intelligence in improving the electronic shopping experience and increasing the sales of companies specialized in this field. Artificial intelligence tools can enhance the online shopping experience and improve sales, as big data, machine learning techniques, and data analysis are used to identify consumer behaviors, provide personalized recommendations to them, and determine which products they prefer. This paper deals with the impact of using artificial intelligence tools in increasing the sales of online commerce companies.

Keywords: E-commerce, E-Marketing, Recommender system, Revenue, Customer, Compan

1- Introduction

Artificial intelligence tools are among the most important tools companies use to improve their online shopping experience and increase their sales. Modern technologies such as data analysis are used to determine consumer behaviors and personal product recommendations to them, as marketing and sales have been greatly influenced by developments in information technology. Artificial intelligence technologies such as machine learning, neural networks, and AI bots can help improve user experience and increase the efficiency of core operations in e-commerce. Artificial intelligence can be used to analyze data, make forecasts and recommendations for customers, improve marketing operations, manage inventory, and improve the logistics and shipping system. For example, recommendation systems can be used on websites to improve the user's experience with these sites, as these systems know what the user or customer prefers in general or what he likes to watch in the case of movie sites (Netflix / YouTube) or online purchase sites (such as Alibaba and Amazon), as well as displaying ads that are appropriate for the user and according to his interests (for example, Facebook and YouTube).

2- Literature review

1. (Zhang et al., 2021a) A case study methodology was used to analyze technology usage and resource management in Alibaba's smart warehouses. An artificial intelligence system was used to guide the fulfillment of orders in warehouses, increasing the efficiency of warehousing and distribution operations and reducing human errors. The study concluded that the use of artificial intelligence in order fulfillment helps to increase the efficiency of managing resources, reduce costs, and improve customer experience in delivery and distribution operations.
2. (Cabrera-Sánchez et al., 2020) A case study was conducted in this regard, and data was collected by conducting a survey on hundreds of online buyers. The results showed that

the main factors affecting the use of electronic recommendation systems are: quality of information and content, trust, privacy, ease of use, social compatibility, and availability of results. This paper indicates that studying these factors will help companies to improve the use of electronic recommendation systems and achieve the desired benefits from them. The results also showed that customers use online recommendation systems when facing purchase decisions.

3. (Zhang et al., 2021b) discussed the role of artificial intelligence in improving the performance of recommendation systems, as it indicates the importance of great artificial intelligence in improving the customer experience in e-commerce, increasing sales and achieving revenue through these systems. The problems facing these systems in achieving the greatest benefit in e-commerce, such as the lack of availability Data on which intelligence applications are trained as well as the issue of user privacy.
4. (Jain et al., 2018) They used Movielens dataset to apply the hybrid system technique when building a website to develop a recommendation system. The Content-Based filtering (CBF) makes use of the genres connected with the movies whereas the CF uses the Pearson coefficient. According to (MSE) measurement, the experiment's outcome was 0.9.

3- Artificial intelligence applications used

3-1 Chatbots

Chatbots are a popular form of intelligent technology that has been widely adopted by companies in recent years. Chatbots use natural language processing to provide customers with quick, personalized responses to their inquiries. Chatbots have been found to reduce customer wait times and improve overall customer satisfaction

3-2 AI-powered recommendation engines

Another example of intelligent technology that has been found to increase customer happiness is recommendation engines or recommender system (RS) driven by AI. Machine

learning algorithms are used by recommendation engines to assess client data and offer tailored product or service suggestions. This may improve client loyalty and satisfaction. According to researchs, businesses utilizing recommendation engines saw revenues rise by 5–10% and customer satisfaction rise by 10%. (Reshak et al., 2020, Amatriain and Basilico, 2015). Netflix is another illustration of a production firm. Additionally, machine learning techniques are used to identify personalized recommendations for users and enhance the viewing experience when distributing entertainment content over the Internet, which has led to an increase in views (Reshak et al., 2023).

How do recommendation systems work?

As illustrated in Figure 1, there are three different categories of recommender system techniques: content-based filtering (CBF), collaborative filtering (CF), and hybrid filtering (AL-Bakri and Hashim, 2018, Isinkaye et al., 2015).

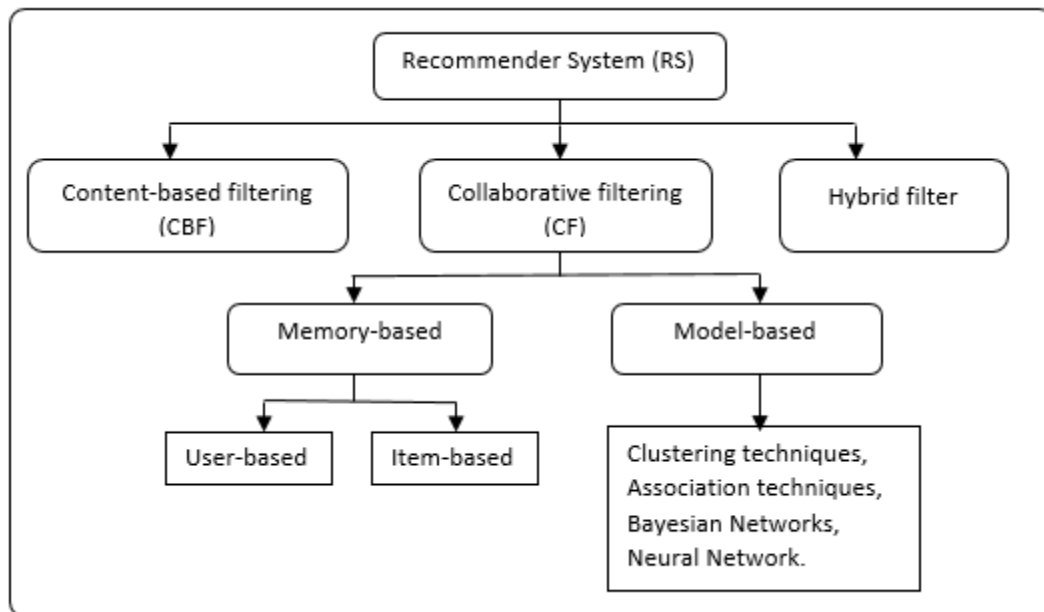


Figure 1: RS types (Isinkaye et al., 2015).

4- Recommendation system and Companies Sales

One of the top businesses in the field of electronic commerce and one of the pioneers of the recommendation system is Amazon.(Smith and Linden, 2017). Amazon heavily relies on suggestion algorithms, whether through its websites or even email, and its sales have climbed to 60% as a result. (Zhao et al., 2015), see figure (2 In order to improve its algorithm by 10% based on the recommendation system, Netflix, a corporation that specializes in streaming movies and television shows over the Internet, organized a competition with a \$1 million prize pool. The tournament started in 2006 and finished in 2009 with one of the participating teams taking home the cash prize .(Amatriain and Basilico, 2015, Bell et al., 2010), see figure (3) to show the company revenues. Additionally, YouTube uses recommendation systems to show users relevant views (Zhou et al., 2010). The well-known online retailer of electronic goods (Alibaba) makes use of its website's recommendation engines to make sure that the user is offered the appropriate product (Chen et al., 2019).

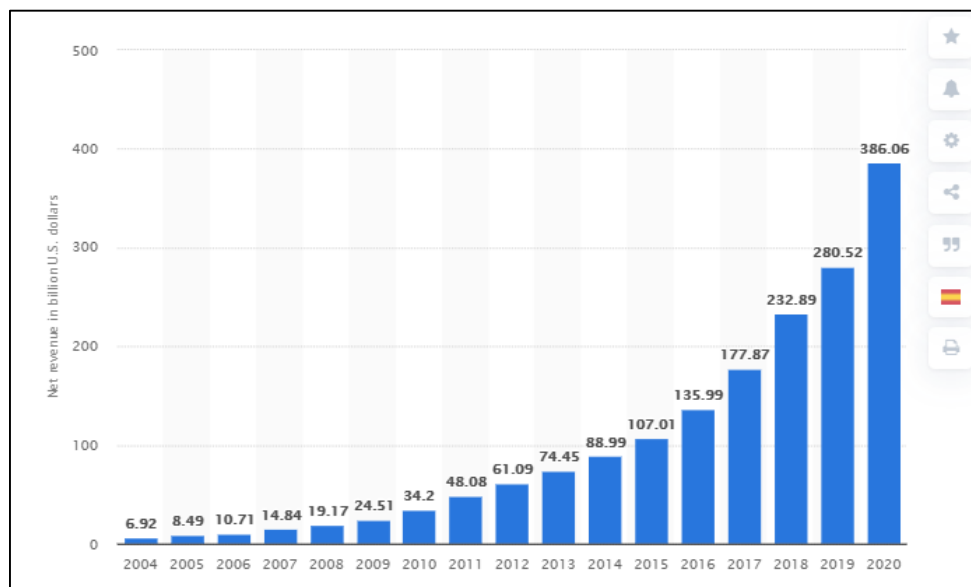


Figure 2: Amazon revenues 2004-2020 (<https://www.statista.com/>, 2022).

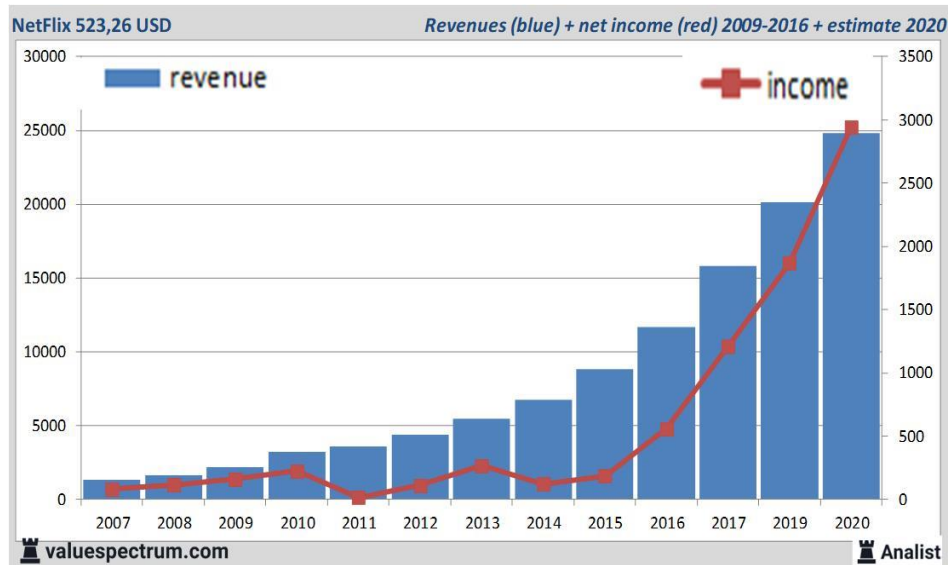


Figure 3: Netflix revenues 2007-2020 (<https://www.valuespectrum.com/>, 2020).

5- Conclusion and Future Work

strong product marketing leads to strong sales, and the recommendation system does this by employing sophisticated algorithms to evaluate user behavior and then targeting certain users with sales offers and promotional activities. By reviewing the research, we found that most websites or applications use artificial intelligence through recommendation systems or other tools. We also found that most, if not all, companies had increased marketing as a result of using these technologies. One such company is Amazon, which has seen a significant increase in sales of up to 60%. Another example is Netflix, which received a \$1 million award for developing its own recommendation system. As a future work, we proposed a detailed analytical study of Amazon, being one of the first companies to apply artificial intelligence in special marketing methods through its online stores.

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