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Artificial intelligence as a strategic tool for developing E-marketing

الذكاء الاصطناعي كأداة استراتيجية لتطوير التسويق الإلكتروني

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Abstract

Artificial intelligence (AI) has become a key component of online marketing and improving the financial performance of global companies. AI relies on data analysis and machine learning to make intelligent decisions and improve the performance of marketing campaigns, helping companies accurately target customers and deliver more effective personalized experiences. However, the adoption of AI faces challenges related to data privacy, decision-making bias, and poor transparency. Companies such as Amazon, Netflix, Alibaba, and Shein are leading examples of using AI technologies to generate significant revenue. These companies have leveraged AI capabilities to enhance customer experiences, optimize supply chains, and personalize content. This research paper reviews AI technologies and their impact on e-commerce companies by mentioning previous studies and some of these applications.

Keywords: Artificial intelligence, Recommendation system, E-commerce, E-Marketing, Chatbot.

المستخلص

أصبح الذكاء الاصطناعي (AI) مكونًا أساسيًا في التسويق الإلكتروني وتحسين الأداء المالي للشركات العالمية. يعتمد الذكاء الاصطناعي على تحليل البيانات والتعلّم الآلي لاتخاذ قرارات ذكية وتحسين أداء الحملات التسويقية، مما يساعد الشركات على استهداف العملاء بدقة وتقديم تجارب مخصصة أكثر فعالية. ومع ذلك، تواجه عملية تبني الذكاء الاصطناعي تحديات تتعلق بخصوصية البيانات، وانحياز اتخاذ القرار، وقلة الشفافية. تُعد شركات مثل أمازون، نتفليكس، علي بابا، وشي إن أمثلة رائدة على استخدام تقنيات الذكاء الاصطناعي لتحقيق إيرادات كبيرة. وقد استغلت هذه الشركات قدرات الذكاء الاصطناعي لتعزيز تجربة العملاء، وتحسين سلاسل التوريد، وتخصيص المحتوى. تستعرض هذه الورقة البحثية تقنيات الذكاء الاصطناعي وتأثيرها على شركات التجارة الإلكترونية من خلال ذكر الدراسات السابقة وبعض تطبيقاتها.

الكلمات المفتاحية: الذكاء الاصطناعي، نظام التوصية، التجارة الإلكترونية، التسويق الإلكتروني، الدردشة الآلية (Chatbot).

1- Introduction

Artificial Intelligence (AI) has emerged as the key force of disruption in the digital era with far-reaching implications for a range of industries, especially the financial service industry. AI can analyze large data sets quickly and accurately, improving the quality of financial analysis and forecasting, according to studies. Also automates repetitive processes like data entry, invoice validation, and reporting, reducing time and effort. AI also has applications in financial forecasting and predictive analysis, where it can use machine learning techniques to forecast future financial trends, lending itself to decisions made on the basis of data. Moreover, one of the core functions of AI is increasing risk management; it can analyze all of the company's data, search for patterns in it, and prevent risks before it actually happens. [1-3] [4]. Artificial intelligence is more than an application of algorithms and predictive models. This Generation makes a decision and redefined the process. Due to the impact of artificial intelligence on financial and personal planning, machine learning algorithms help expedite and accurate data analysis by granting additional insights which can be utilized to refine approaches, Logistics in determining probabilities and controlling risks. [4, 5]. However, along with the benefits of using artificial intelligence. Its presence raises many challenges, problems and risks associated with it. These include the ethical implications of automated decision-making, as well as data security. The complexity of externalities is an integral part of this discussion. For this reason, it is increasingly important to conduct comprehensive and systematic research, not just literature reviews that address the implications of artificial intelligence for financial management. They should also identify a vital area of interest that is related and growing. This research is becoming increasingly important in understanding and synthesizing the structures of artificial intelligence and the potential it can offer in shaping the future of management and the marketplace.

2- Literature review

1. [6] aims to improve forecasting accuracy by integrating Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) systems and leveraging artificial intelligence (AI) technologies. The study relies on developing an integrated model that combines data from ERP and CRM systems, enabling a deeper analysis of patterns, customer behaviour, and market trends. The research explores how AI, such as machine learning and neural networks, can improve sales forecasting accuracy compared to traditional methods. It also discusses the challenges facing the integration process between different systems and ways to address them, as well as the benefits organizations can achieve by improving planning and decision-making processes. The results indicate that integrating sales data from ERP and CRM using AI leads to a significant increase in forecasting accuracy, helping companies improve inventory management, increase revenue.
2. [7] This study is about the growing influence of artificial intelligence (AI) on marketing strategies and the performance of enterprises. It shows how AI technologies, including machine learning, big data analytics, and natural language processing (NLP) It is used to analyze consumer behavior, personalize, and optimize marketing campaigns. It focuses on using artificial intelligence to improve user targeting using smart recommendations, automating the marketing process, and engaging with users through virtual assistants (chatbots). The content also outlines some limitations of AI in the field of marketing, including related risks to privacy, implementation costs, and integration efforts with existing systems. The analysis provides evidence that to use AI in their marketing efforts

is useful and plays an important role in improving efficiency, conversion rates, and customer loyalty, which gives companies a strong competitive advantage in digital markets.

3. [8] analyzed the role of artificial intelligence in the e-commerce sector. One key result of the study is enhancing personalization, where artificial intelligence allows businesses to tailor offers and recommendations to their users according to what they find out from them. Furthermore, operational efficiency has improved in areas such as chatbots and product recommendation algorithms, leading to more efficiency and reduced operating costs. The main firms examined are Amazon and Alibaba, and these companies effectively leverage AI
4. [9] Research on the future role of AI in marketing is ongoing, and this article reviews the existing scientific literature, along with its implications for marketing strategy. Indeed, the study found that AI technologies—such as machine learning, natural language processing, and big data analytics—improve user targeting, tailor offers, and improve the user experience. Also covers the recent developments in the usage of AI in marketing like marketing automation, building recommendation systems, smart customer engagement using chatbots, and virtual assistants. It also acknowledges challenges like privacy, data bias, and technology overreliance and outlines a research agenda covering critical aspects of using AI in future marketing applications. The results show that AI is transforming marketing practices, thus leading to tremendous opportunities for organizations to improve their operational efficiency. The study also emphasizes the need for more studies to understand how AI will impact marketing strategy and consumer behaviour in the long term.
5. [10] The purpose of this study is to identify how AI may be shaping consumer decision-making and product demand on e-commerce sites. The study serves to exemplify how AI technologies (including machine learning, big data, and natural language processing) facilitate the marketing process and promote products based on consumer preferences and behaviors. The study specifically centers on smart, data-driven recommendation systems that utilize consumer-generated data to propose products to customers that fit with their interests, sometimes leading to increased order completion and repeat purchases. The study also examines chatbots and smart assistants' impact on improving the online shopping experience through instantaneous interaction with customers, willingness to serve them with more individualized response/customization, and increasing the level of technology consumers rely on in e-commerce. The study also addresses some of the challenges of AI technology in online shopping, including privacy, bias in machine recommendations, and consumers' increasingly higher level of reliance on smart technology. Overall, it identifies how e-commerce companies can leverage AI technology to enrich experiences in e-commerce, improve user experience, increase consumer loyalty to the overall buying experience along with specific product purchases, and improve efficiency in marketing and sales.
6. [11] 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.
7. (16) In her study "The Role of Entrepreneurial Marketing in Enhancing Customer Satisfaction through Marketing Capabilities" published in the Journal of University of

Kerbala, investigated the mediating role of marketing capabilities in the relationship between entrepreneurial marketing and customer satisfaction. Based on a descriptive–analytical approach and a survey of 50 administrative leaders in four private universities, the study revealed that entrepreneurial marketing has an indirect effect on customer satisfaction through marketing capabilities, with universities showing good levels of entrepreneurial practices such as innovation, opportunity exploitation, and customer orientation. Moreover, marketing capabilities, particularly product development, pricing, and marketing communication, were found to play a critical role in improving customer satisfaction. The study concluded that building strong marketing capabilities is essential for sustaining competitiveness, which is highly relevant to the present research on Artificial Intelligence as a Strategic Tool in Developing E-marketing, as AI can be considered an advanced form of marketing capability that enables deeper consumer analysis, predictive insights, personalized communication, and ultimately greater customer satisfaction.

8. (17) Researchers examined "The Impact of Artificial Intelligence in Enhancing E-Marketing Strategies." The study explored how AI-based tools can improve marketing performance through predictive analytics, customer behavior modeling, personalization, and automated decision-making processes. Findings revealed that artificial intelligence plays a strategic role in strengthening e-marketing efficiency, increasing customer engagement, and supporting sustainable competitive advantage. This research is directly relevant to the current study entitled "Artificial Intelligence as a Strategic Tool in Developing E-marketing", as it confirms that AI represents a transformative capability that enables organizations to optimize digital marketing strategies, personalize customer interactions, and achieve higher levels of satisfaction and loyalty.
9. (18) In a research paper entitled *"Digital Transformation and Its Role in Enhancing Business Competitiveness"*, published in an academic journal, the authors explored how adopting digital transformation strategies can improve organizational competitiveness. The study emphasized that integrating modern technologies, fostering innovation, and relying on data-driven decision-making are essential in achieving sustainable growth and market advantage. Results indicated that organizations that successfully implement digital transformation are better positioned to respond to customer needs, enhance operational efficiency, and strengthen their market presence. This study is directly relevant to the current research on *"Artificial Intelligence as a Strategic Tool in Developing E-marketing"*, as digital transformation serves as a foundation for AI integration in marketing practices. Artificial intelligence, as a critical enabler of digital transformation, can enhance e-marketing strategies by providing predictive insights, enabling personalized interactions, and supporting organizations in building long-term competitiveness in the digital marketplace.

3- Artificial intelligence

Artificial intelligence (AI) consists of two components that comprise the term: Artificial, which is something that human beings have made, and intelligence, which means the ability of intelligence to think and be smart enough to retain and analyze a piece of information, sense, detect, and learn from experience, analyze a problem, and offer a suitable solution. [12]. AI is a variety of intelligent human behaviors, such as: perception, memory, emotion, judgment, reasoning, proof, recognition, understanding, communication, visualization, thought, learning, forgetting, creation, etc., which can be achieved artificially by a machine, system, or network [13].

4- Artificial Intelligence and E-marketing

Artificial intelligence (AI) is one of the most important developments in technology that has transformed many areas such as digital marketing. AI is based on data analysis and machine learning to make smart decisions and optimize the performance of marketing campaigns so that businesses can properly target customers and create more personalized experiences. [1, 2]. Digital marketing, on the other hand, is the use of the internet and digital platforms to reach target audiences and promote products and services. With the integration of AI into this field, marketing strategies can be optimized by analyzing consumer behavior, providing personalized recommendations, and automating tasks such as instant responses via smart chat. This integration of AI and digital marketing enables businesses to improve the efficiency of their campaigns and increase conversion rates, making marketing smarter and more effective than ever [14, 15]. Many people nowadays rely on e-commerce. When we say e-commerce, we mean "e-marketing." Most, if not all, individuals have practiced online marketing, and this has become very widespread following the COVID-19 pandemic [16]. There are many advantages to e-commerce and the use of artificial intelligence in these sites, including reducing costs, maximizing profits, and increasing the number of orders by analyzing user behavior and improving products by providing the required information in a short time.

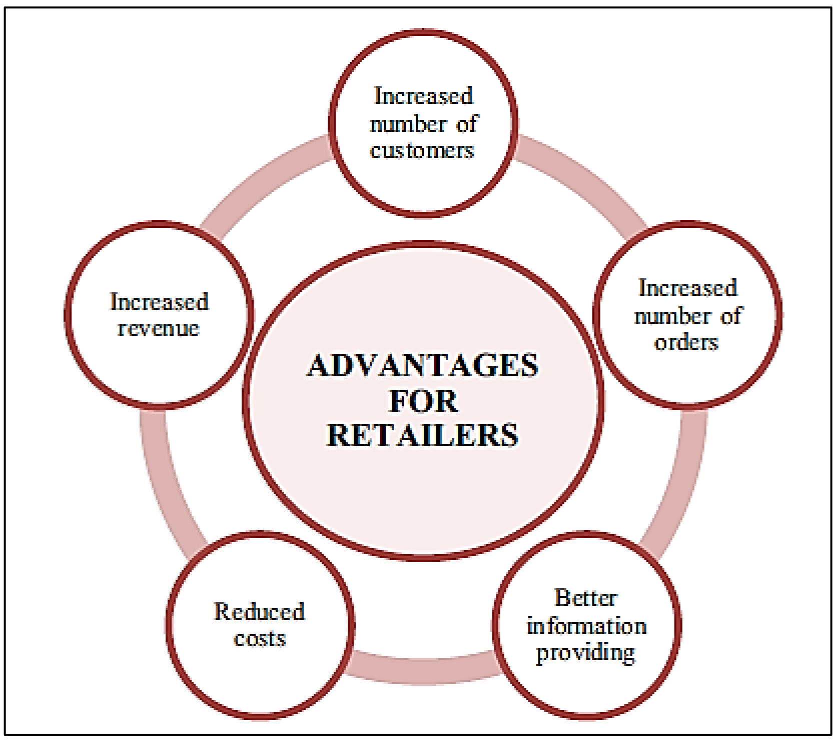

Figure (1): Advantages of e-seller [16]

5- Artificial Intelligence Applications in E-marketing

5.1 Data Analysis

Data analysis is one of the major applications of artificial intelligence that is applied in e-marketing. Most companies have a large user database distributed across their websites, in addition to almost full data on those users. Artificial intelligence can analyze this data and use it as an advertising and marketing sublayer for marketing their products to those users, as well as future shopping problems and challenges of the marketing process, in addition to identifying potential errors [12].

5.2 Chatbots and Virtual Assistants

Chatbots play an effective role in automated conversational programs and also improve the online shopping experience, influencing users' opinions about their purchasing decisions. See [17], where the study included a sample of 60 users who had previously interacted with chatbots on the websites of Jordanian telecommunications companies [18].

6- Conclusion

Artificial intelligence (AI) has become a critical factor in generating revenue and boosting economic growth. Most companies rely on data analytics, demand forecasting, personalized customer experiences, and automated operational processes to gain a competitive advantage in global markets. Statistics and reports indicate that adopting AI has a direct impact on increasing productivity, improving business efficiency, and reducing operating costs. This highlights the importance of integrating AI technologies into all sectors, from e-commerce to entertainment and financial services. It can be argued that AI is not just a futuristic technology; it is a vital tool that is transforming the way businesses operate and contributing to reshaping the global economy in a smarter and more innovative way.

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