

Ethical Challenges of Adopting AI and E-commerce in UAE

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Abstract

Artificial Intelligence (AI) in e-commerce is widespread, particularly in countries where social media is heavily used. The United Arab Emirates (UAE), being a developing country, is expected to adopt AI ethically, especially in the e-commerce industry. Despite the fact that e-commerce is rapidly growing globally, the UAE's use of e-commerce is still on the rise, with potential for further growth. This article aims to explore ethical factors related to advertisements that utilize user data by conducting a systematic review of available studies applied in the UAE and globally. A total of 57 relevant articles were retrieved, pertaining to the e-commerce and AI fields. Iteration was used to eliminate articles that were not relevant to the study, utilizing reverse and forward reverse checks to ensure the effectiveness of the studies. The paper also reviews the status of AI adoption in the UAE's e-commerce industry, and its application to the business landscape. This review exercise reveals that the UAE has adopted AI in e-commerce ethically over the past few years. However, the study also highlights complex challenges and factors that the UAE's e-commerce industry is facing, including the role of the Internet of Things (IoT), Big Data analytics, and ethical issues such as privacy concerns. The role of the government in the process is also noteworthy, as it can act as a game changer by responding to legislation and policy direction.

Keywords: AI, E-commerce, Ethical, Challenges, Adoption.

1 Introduction

In recent years, the UAE's online marketplace has seen a rise in the use of artificial intelligence (AI), providing consumers with a new and unique online purchasing experience, particularly during the COVID-19 pandemic, which intensified global online shopping and caused many industries to shift towards e-commerce [4]. Various internet-based platforms, such as marketing and social media, have been impacted by AI, leading to the rapid obsolescence of traditional

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marketing strategies [24]. However, research on e-commerce and AI in the UAE remains limited, with only a few studies conducted in this area [1] [4] [5] [13] [32] [35] [36] [42]. Nevertheless, these studies provide a basis for further exploration of AI and e-commerce. This study aims to investigate previous research in the fields of AI and e-commerce. As businesses, especially those in the retail sector, shift to online-based stores, they have embraced AI, and the international community has also shown support for the use of AI, particularly in digital marketing and social media. However, according to [30], issues related to big data analytics and the Internet of Things (IoT) are beginning to affect our daily lives, with browsing behavior and advertising popping up in a large number of internet-based applications, which can pose a threat to our privacy. Nevertheless, in today's commercial landscape, AI is increasingly becoming a driver of economic progress, with the positive effects of e-commerce changing traditional practices. As the global economy becomes increasingly competitive, organizations strive to enhance their dominance and profitability.

2 Problem statement

The e-commerce industry has encountered various challenges since the integration of artificial intelligence (AI), particularly regarding its ethical adoption and application, especially with regards to privacy concerns. The UAE has embraced AI technology in its business models to promote e-commerce and online purchasing of goods [12] [28] [30], but there are still gaps in understanding the phenomenon of AI in both global and UAE contexts, despite its widespread acceptance. To address this issue, a systematic literature review was conducted to analyze the state of AI adoption in the e-commerce and online shopping domains. Apart from ethical concerns, other difficulties in the e-commerce industry include internet fraud, privacy-related issues, and the lack of a cybercrime control system in the UAE and worldwide. To ensure ethical adoption of AI in e-commerce, measures need to be put in place to control privacy concerns, such as preventing data leakages.

3 Literature review

Based on reviewing the literature illustrated, it will categories based on gapping that investigated the literature, to adopt ethical AI and E-commerce in Global and UAE. Those gaps are based on the number of papers found with snowballing techniques, Inclusion, and exclusion criteria. As a field, there are gaps, especially in privacy concerns for AI and E-commerce, this study aims at ethical concerns.

3.1 Emergence of E-commerce

The electronic commerce industry, or e-commerce, has been in existence for several decades, and it refers to commercial transactions that can be conducted electronically over the Internet [2]. In the UAE, the e-commerce sector has experienced significant growth and is a substantial contributor to the country's gross domestic product (GDP) [12] [13] [36] [39]. The pandemic covid-19 has further accelerated the growth of e-commerce and helped firms adopt and develop new technologies [3] [17] [19] [21]. Through a systematic literature review, several factors that affect e-commerce have been identified, with four critical elements highlighted [47]. These elements include perceived usefulness, perceived risks, ease of use, and trustworthiness, all of which impact the acceptance and adoption of e-commerce [4]. Additionally, other factors such as political, social, economic, and technological issues also influence the development and growth of e-commerce.



3.2 Challenges of AI Adoption Globally

Additionally, there are several challenges in the adoption of AI in e-commerce, including the lack of skilled AI professionals, concerns about data privacy and security, and the complexity of AI technology itself [14] [20]. Addressing these challenges requires significant investment in research and development and the establishment of appropriate regulations and policies. Another challenge is the need for seamless integration of AI with existing e-commerce platforms, which can be costly and time-consuming [23]. Despite these challenges, the potential benefits of AI in e-commerce are substantial, including improved customer experience, increased efficiency, and greater profitability. Therefore, it is crucial to address these challenges and promote the adoption of AI in the e-commerce industry.

3.3 Emergence of Artificial Intelligence

AI is expected to have a significant impact on the economy and various industries, including e-commerce, due to its ability to automate tasks and enhance decision-making processes [4] [27]. However, this technology also raises concerns about the potential displacement of

jobs and the need for new skills and training to adapt to the changing job market [27]. In the context of e-commerce, AI has enabled the development of personalized shopping experiences, product recommendations, and efficient supply chain management [6]. It has also allowed for the automation of customer service and the detection of fraud and security risks [4]. As AI continues to advance and improve, it is likely to play an even more significant role in e-commerce and online shopping in the future. However, it is important to consider the potential ethical and social implications of AI adoption and usage, including issues of privacy, bias, and transparency [8].

3.4 Actors in adopting ethical e-commerce and AI

It is important to note that local actors play a critical role in the success of e-commerce, as they are the ones who implement and optimize the e-commerce platforms for the local market. These actors include retailers, logistics companies, payment service providers, and other related businesses [22]. A systematic review of the literature revealed that optimizing e-commerce for better traffic, prioritizing stock quality, creating loyalty and a strong reputation, ensuring privacy and security, and providing a user-friendly platform are key factors that drive successful e-commerce [26]. Additionally, platform expenses, hosting (online), and security or privacy capabilities are important drivers of success for local e-commerce [22]. Therefore, it is crucial for local actors to understand the unique characteristics of their market and tailor their e-commerce platforms accordingly in order to ensure success.

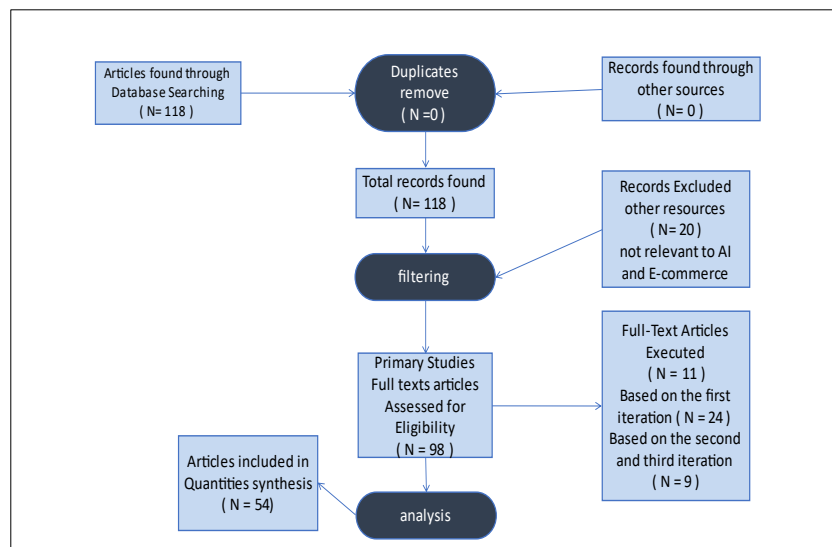
4 Methodology

It is important to use a systematic review approach when conducting research to ensure that the results are comprehensive, objective, and reliable. In this study, the authors utilized a systematic review approach to examine secondary data sources from 107 academic, peer-reviewed papers published in the fields of AI and e-commerce, as well as ethical principles described by [43] and cited by [4]. The authors used a process known as "snowballing" [44] to identify relevant papers since the database search method was not used due to its limitations and complications. The inclusion criteria (IC) used in the study ensured that only relevant papers were analyzed. After applying the inclusion criteria, a total of 54 publications were picked and analyzed based on their importance. This approach ensures that the study is conducted in a rigorous and organized manner, and that the results are valid and trustworthy.

Table 1 of Criteria

Inclusion Criteria Rules	
Rules and Condition Description	Inclusion Criteria
Papers only relevant to the AI and ethical uses field	IC1
Papers that are available on in Global and in UAE Google Scholar Scopus and IEEE with full text	IC2
Papers that are published in the English language only	IC3
Papers related to the e-commerce field.	IC4
Papers related at range [2017,2023]	IC5

4.1 First iteration (Initial search)

Figure 1

The process of identifying keywords and formulating the search phase is an essential step in conducting a systematic review. In this study, the keywords were used to search for relevant articles related to AI and e-commerce in the UAE. From the initial search results, the inclusion criteria were applied to filter out irrelevant articles and ensure the selected papers were of high quality and met the study's objectives. Finally, the selected papers were analyzed and grouped based on their importance, and the findings were presented in the study.

4.2 Iterations

Backward and forward snowballing are commonly used in systematic reviews as a method to identify additional relevant studies. Backward snowballing entails examining the reference lists of the studies included in the initial set to identify additional relevant studies. Forward snowballing involves searching for studies that have cited the studies in the initial set. This iterative process helps to identify

additional studies that may have been missed in the initial search and can be added to the final analysis [44].

5 Result

The selected papers were further reviewed, classified, and analyzed based on the methodology used and presented in iterations. Four papers ([5], [7], [36], and [41]) were grouped and presented as case study validations because they included AI and e-commerce model concept frameworks and applications. Twelve papers ([6], [13], [18], [20], [23], [24], [29], [38], [48], [49], [53], [55]) were classified as framework reviews, providing a systematic review of AI use in e-commerce. Fifteen studies were categorized as survey validations ([28], [12], [17], [19], [25], [30], [31], [32], [35], [39], [40], [42], [50], [51], and [52]), examining how AI affected e-commerce and online shopping activities. Eight publications ([3], [4], [9], [15], [16], [21], [26], and [57]) were categorized and given as survey proposals, presenting solutions related to the use of AI. Additionally, fifteen publications were classified as survey applications ([1], [10], [11], [14], [22], [27], [28], [33], [34], [36], [37], [45], [46], [54], and [56]). These papers were related to e-commerce and AI solutions and applications. Table 2 summarizes the results based on the investigation and snowballing results of the iterations completed, presenting the publications reviewed according to the approach used, rather than the type of study. The findings suggest that more studies need to be conducted to fill identified gaps. It is noteworthy that the first paragraph of a section or subsection is not indented.

6 Findings

The survey conducted in UAE revealed the presence of barriers to e-commerce adoption, which highlights the need for further research in areas such as privacy, ethics, and other pertinent subjects. Moreover, the global e-commerce space faces complex challenges, including the impact of IoT, big data analytics, ethical and privacy issues, and the role of governments in the regulatory and legal framework. The study found that customer satisfaction is a critical concern that affects the long-term financial and business viability of firms offering products and services online [4] [12] [25] [30] [46]. Despite the popularity of e-commerce, firms still struggle to gain customer loyalty. The study results fill research gaps and align with existing issues related to e-commerce and ethics, providing insights that can be useful for practitioners in the e-commerce and AI fields. The findings could help advance e-commerce in the UAE and worldwide, and to address the pressing need for reform, it is essential to develop, legislate, and implement regulations and policies to tackle cybercrime, ethical AI

challenges, fraudulent activities, and general sector regulation. The use of AI in e-commerce has been shown to stimulate growth and transform consumers' online purchasing behaviors [7] [16].

Table 2 of the categorization

Categorization of Papers		
Approach	Type of Study	Papers
Case Study	Validation	[5], [7], [36], [41]
Framework	Review	[6], [13], [18],[20],[23], [24],[29], [38], [48], [49], [53], [55]
Survey	Validation	[28], [12], [17], [19], [25], [30], [31], [32], [35], [39], [40], [42], [50], [51], [52]
Survey	Proposal	[3], [4], [9], [15], [16], [21], [26]
Survey	Application	[1], [10],[11],[14],[22], [27], [28],[33],[34],[36],[37], [45],[46], [54], [56]

7 Recommendation

The findings of this evaluation indicate that additional steps are still required to resolve the problems found. These are listed as follows:

- Cybercrime regulations and rules target e-commerce-related crimes such as fraud.
- Studies to address identified research gaps in the area of AI and e-commerce globally.
- Invest more in AI from companies that are using AI and e-commerce.
- Privacy concerns and ethical AI must both be reiterated.
- Customer privacy issues are at the center of attention. Need a central data approach for e-commerce.
- It is recommended to develop AI ethical uses and terms and conditions and to be controlled in the UAE.
- Enhance economic security by adopting digital economy and blockchain technologies in financial transactions and services.
- Ensure the data center's policies related to ethical concerns regarding how it is analyzed and used

8 Conclusion

AI is being widely used in the e-commerce markets of both the UAE and the world, and future efforts will focus on developing an ethical framework for AI and e-commerce. Such a framework is critical for addressing the risks and challenges facing the e-commerce sector. The UAE's Fourth Industrial Revolution Strategy is aimed at positioning the

country as a global hub for advanced technologies and increasing its contribution to the national economy through the use of innovative and future technologies. However, further research on AI and e-commerce in developing countries, such as the UAE, is necessary. A study has highlighted various AI-related concerns, including security breaches, data leakage, privacy threats, job displacement, and lack of regulatory frameworks and supplier knowledge, which must be addressed by companies specializing in AI solutions. The UAE, like other developing countries, has increasingly used AI in e-commerce, particularly among small businesses on social media platforms. Privacy concerns remain a significant issue, with advertisements for goods appearing after conversations with friends, and the announcement of Apple's move towards E-banking raises questions about the commercial use of bank information.

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