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The Impact of Artificial Intelligence on E-Commerce

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Abstract :

Globalization and technology are among the most important factors driving changes in various fields, whether economic, legal, social, or commercial. This has led to the transition from classical, traditional commerce to e-commerce. Recently, another influential factor has emerged in e-commerce: Artificial Intelligence.

Keywords:E-Commerce; Artificial Intelligence.

Introduction:

With the rapid development of technology worldwide, artificial intelligence has become one of the main drivers of numerous economic transformations. One of the most prominent of these transformations is its impact on e-commerce. In Algeria, as in many other countries, the use of artificial intelligence in e-commerce is still in its early stages, but it is witnessing rapid growth. This gives rise to new legal challenges that require an urgent response from the Algerian legislator. What are the positive and negative impacts of artificial intelligence on e-commerce?

To answer this central question, we relied on the descriptive and analytical methods. This was done by addressing the conceptual framework of both e-commerce and artificial intelligence, and then attempting to demonstrate the impact of the latter on e-commerce from both the supplier's and the consumer's perspectives through two main sections:

- The Nature of Artificial Intelligence and E-Commerce.
- The Impact of Artificial Intelligence on E-Commerce.

THE FIRST TOPIC: THE NATURE OF ARTIFICIAL INTELLIGENCE AND E-COMMERCE:

With the emergence of e-commerce, new and innovative methods, previously unknown, have been used for concluding contracts. Among the most important of these methods is contracting via electronic contracts⁽¹⁾, utilizing artificial intelligence techniques in the process.

First requirement: Definition of Artificial Intelligence and Its Types

The world today is witnessing a rapidly accelerating digital revolution led by artificial intelligence technologies. This technology has become the focal point of a radical transformation in various fields, foremost among them being e-commerce.

Consequently, the emergence of artificial intelligence has had a significant impact on the development of various aspects of life⁽²⁾. This has led researchers to define the conceptual framework of artificial intelligence.

First section: Definition of Artificial Intelligence

Definitions of artificial intelligence are numerous and can be summarized as follows:

-Linguistically: It is a term composed of two words: intelligence and artificial.

-Intelligence: Means the ability to understand new developments, circumstances, and changing situations.

-Artificial: Related to the verb "to make" or "to fabricate". This term is applied to things that arise because of activity or action through which things are formed, as distinct from things that exist naturally, without human intervention. Therefore, artificial intelligence is intelligence created by humans in a machine or computer⁽³⁾.

Technically: It is an informational system possessing intellectual capabilities similar to those found in humans, or it is a computer or mechanical application or program that performs operations carried out by human intelligence⁽⁴⁾.

Jurisprudentially: There is no comprehensive, exclusive definition of artificial intelligence, but it can be said that it is a science through which a computer or machine is developed so that it acquires the ability to perform all that characterizes the human mind, such as thinking, learning, analysis, and more. Furthermore, it is utilized in many fields due to its possession of intelligence akin to that of humans. All these capabilities are acquired from data and algorithms⁽⁵⁾.

Second section: Types of Artificial Intelligence

Artificial intelligence has many characteristics, the most important of which are:

- Artificial intelligence is characterized by the machine's simulation of human intelligence and skills.
- The preparation of programs and devices.
- Artificial intelligence is considered a branch of computer science.

Therefore, the goal of artificial intelligence is to simulate human intelligence using advanced software to solve non-routine problems or to train on solving them.

Consequently, artificial intelligence can be classified into three types:

1- Weak Artificial Intelligence

This is the simplest type of artificial intelligence, programmed to perform a specific task or a specific set of tasks in a particular environment. Weak AI systems have limited intelligence that simulates intelligent behaviour in a limited domain⁽⁶⁾.

2- Strong Artificial Intelligence

Also called limited memory AI, it is characterized by the ability to think, learn, and solve problems in a manner similar to human problem-solving. This is done by storing information, data, or previous predictions and using them to forecast a better future.

3- Super Artificial Intelligence

These are models that have not yet been realized; they remain merely projects under experimentation. These models are divided into two types: The first type is called Self-Aware AI, which attempts to understand human thoughts and emotions that influence human behaviour and conduct. The second type is called Theory of Mind AI, which represents the next stage for AI systems that scientists are working to innovate and develop. Through this type, AI would be able to predict the feelings and attitudes of others and interact with them⁽⁷⁾.

Second requirement: The Concept of E-Commerce

The electronic contract holds significant importance in dealings between individuals. These electronic contracts have seen widespread adoption, especially in the field of trading goods and funds through what is known as e-commerce⁽⁸⁾.

We will attempt to understand what is meant by e-commerce (Sub-Part One) and then address its most important conditions or regulations (Sub-Part Two).

First section: Definition of E-Commerce

E-commerce is considered a type of trade and encompasses all transactions conducted via the Internet, even if they do not possess a commercial nature⁽⁹⁾.

Therefore, e-commerce means "the execution of some or all commercial transactions, whether for goods or services, which take place between one business and another or between a business and a consumer, using information and communication technology."

Regarding the Algerian legislator, e-commerce was defined in Law 05-18 concerning e-commerce⁽¹⁰⁾ under Article 1/06 as "the activity whereby an electronic supplier proposes or guarantees the remote provision of goods or services to an electronic consumer, through electronic communications."

Thus, it differs from traditional commerce as it is conducted via an electronic environment using modern means of communication, primarily the Internet. This type of commerce has gained great popularity because it is characterized by speed, profit generation, and effort reduction⁽¹¹⁾, whether the contracts are domestic or international.

Among the features or characteristics of e-commerce are:

-E-commerce is conducted through contracts concluded remotely⁽¹²⁾. The fundamental characteristic of electronic contracting is that it takes place between contracting parties not gathered in a real contractual meeting, as contracting is done remotely via various technological means. The exchange of consent therein is electronic, over the Internet⁽¹³⁾.

-E-commerce contracts do not differ from traditional contracts in terms of subject matter and parties but are distinguished from them by the method of their conclusion due to the use of electronic media. However, this electronic contract must include the following information:

Detailed specifications of goods or services, delivery terms and conditions, conditions for terminating the electronic contract, payment methods, product return procedures, and complaint handling methods... as stipulated in Article 13 of Law 05-18.

-E-commerce is characterized by an international dimension, as it often transcends geographical borders, making it part of international trade.

-Speed and ease of access: E-commerce enables its practitioners to conduct transactions quickly and access markets and consumers worldwide with ease.

Second section: Conditions for E-Commerce

As a general principle, a person has complete freedom to market, offer, or provide the goods or services they desire through electronic media. This is because the fields of e-commerce are numerous and diverse, including retail trade, specialized services, and international trade.

As an exception, the Algerian legislator prohibited certain transactions, and this was done by way of exhaustive listing, not by way of example, in Article 03 of Law 05-18, due to these transactions being illegal or non-commercial. They are represented as follows:

- Prohibition of betting, lotteries, and gambling.
- Prohibition of dealing in alcoholic beverages and tobacco.
- Prohibition of dealing in pharmaceutical products.
- Prohibition of dealing in products that infringe upon intellectual, industrial, or commercial property rights.
- Prohibition of dealing in any goods or services prohibited by the applicable law, such as the prohibition of promoting drugs.

-The impermissibility of dealing electronically with any goods or services that require a formal contract.

-The Algerian legislator also prohibited dealing electronically with sensitive products, as well as products that would harm the interests of national defense, public order, and public security (Article 05 of Law 05-18).

In addition to the substantive conditions mentioned above, the formal conditions for the validity of electronic commercial dealings must be met. These were stipulated in Articles 8 and 9 of Law 05-18 and are as follows:

-The electronic supplier conducting electronic commercial activity must register in the commercial register or the register of traditional industries, as the case may be, and must publish this on a website or an Internet page. This supplier must also deposit their name and domain of activity with the services of the National Center for the Commercial Register.

-Once the supplier complies with all the aforementioned obligations, the National Center for the Commercial Register must enter this supplier into a national directory specifically for electronic suppliers registered in either the commercial register or the register of traditional industries and crafts⁽¹⁴⁾.

THE SECOND TOPIC: THE IMPACTS OF ARTIFICIAL INTELLIGENCE ON E-COMMERCE

Artificial intelligence technology is considered one of the most important advanced technologies that can be employed to develop and improve the performance of e-commerce operations, thereby enhancing the user experience and fulfilling their desires.

First requirement: Applications of Artificial Intelligence in E-Commerce

Recently, a type of integration and mutual influence has emerged between e-commerce and artificial intelligence. The latter works to increase and develop the effectiveness of e-commerce by providing advanced data analysis tools and programs, and developing marketing methods.

First section: Virtual Assistants and Predictive Analytics

1- Virtual Assistants

Chatbots are among the most used technologies in e-commerce. These bots are among the latest computer programs developed and refined to facilitate interaction with customers by providing and offering them the goods and services they need.

This technology uses natural language processing to understand what the user wants, provide assistance, answer their questions, fulfill their requests, respond to their inquiries, and present offers on products that suit their needs just like a human, even surpassing the latter's speed. Chatbots provide customer service around the clock. The presence of these instant responses at any time, in addition to the quality of the services provided, leads to consumers becoming loyal to a particular company due to the marketing services it offers⁽¹⁵⁾.

2- Predictive Analytics

Predictive analytics has become a vital tool for improving the performance of online stores and increasing sales. By using data and advanced analytics, suppliers or store owners can predict customer behaviour and identify factors or patterns that influence purchasing processes⁽¹⁶⁾. Through predictive analytics, information about the customer can be gathered, which provides companies with insights into the inclinations and choices of their current and future customers.

Predictive analytics is the process of using historical data and statistical models to predict future trends and customer behaviour. This technique relies on analysing vast amounts of data to extract certain patterns that can be used to guide strategic decisions. This enables meeting customer needs.

Furthermore, predictive analytics in the field of artificial intelligence can rely on large language model technology, which is a subset of machine training known as deep learning. These use algorithms trained on large datasets to recognize complex patterns. Large language models learn by being trained on vast amounts of text, enabling them to learn how to respond to user requests and provide content relevant to what is written in human language or the words used dur

Data is collected from numerous sources such as: social media, email campaigns, and sales lists. These and other sources help the producer or supplier whether an individual or an institution to form a clear vision of customer behaviour, requirements, and needs. Moreover, this technique enables the analysis of market conditions and competitors' prices by studying shopping situations and predicting all information that assists the institution in improving its service quality, managing its inventory, and also allows it to change prices dynamically⁽¹⁷⁾.

Second section: Visual Search, Virtual Reality, and Augmented Reality

We will present, through this sub-part, the most important artificial intelligence techniques in the field of e-commerce, as follows:

1- Visual Search

One of the drawbacks of online shopping and the most annoying matters is the consumer's inability to find the product they wish to acquire, especially since a written description may often not lead to satisfactory results. However, artificial intelligence has eliminated this problem through visual search, which allows the buyer to search for their product using only an image via image recognition programs. The product is reached easily without effort or boredom. Customers can take a picture of the product and start the visual search process, automatically arriving at the products closest to theirs and making their selection. They can also acquire the product through voice search, choosing what they desire with the help of voice assistant robots⁽¹⁸⁾.

2- Virtual Reality and Augmented Reality

Virtual Reality (VR) and Augmented Reality (AR) technologies are revolutionizing e-commerce. AR allows customers to examine and preview products in their real environment, while VR creates virtual stores that simulate actual shopping, bridging the gap between traditional and electronic shopping. Virtual Reality is an immersive world generated by computer devices, with which the user interacts in real time.

Interaction can vary from merely looking around and seeing what surrounds the user, to interacting by modifying this computer-generated world.

Virtual Reality can encompass all five senses, provided there is complete isolation from the surrounding real environment. Currently, isolated rooms exist to achieve this purpose. However, with technological development, there could be electronic neural cells that enable humans to experience virtual reality without needing to confine themselves within the closed rooms required for current virtual reality⁽¹⁹⁾.

Second requirement: Benefits and Harms of Artificial Intelligence on E-Commerce

Artificial intelligence has provided significant services to many fields, and e-commerce is one of them. At the same time, its use has resulted in a set of negative aspects.

First section: Benefits Offered by Artificial Intelligence to E-Commerce

Thanks to the modern technologies upon which artificial intelligence relies, it has become possible to monitor and measure every detail of customer interaction, in addition to analysing their behaviour accurately. This facilitates personalizing the experience and marketing tools for each individual customer

more effectively. Likewise, suppliers can tailor their strategies to align with customer interests and preferences⁽²⁰⁾.

Therefore, the benefits of artificial intelligence on e-commerce can be summarized as follows:

-Improving the Presentation Experience and Marketing Quality: AI data can be used to provide shoppers with what they need. There are now bots that respond to customers instantly and provide satisfactory, personalized answers thanks to available customer data.

-Better Understanding of Customers: AI can improve customer trust in a brand by learning more about the customer, through machine learning where customer data is aggregated to predict purchasing behaviours and decisions of targeted customers.

Efficiency of Operational Processes, through:

-Inventory Management: Predicting demand accurately to optimize inventory levels and reduce waste or excess.

-Logistics: Improving supply chains and ensuring on-time delivery, which enhances customer satisfaction and trust.

-Facilitating and Making Search Processes Smarter: Often, a shopper fails to find what they are looking for in an online store. However, with the presence of AI and machine learning, search processes within the online store can be enhanced so that they can understand long search phrases and the customer's intent. Furthermore, machine learning can accurately predict what the customer wants, and then the suggestions and offers presented to them are aligned to suit their needs.

-Enhanced Shopping Enjoyment through Hyper-Personalization Thanks to Product Recommendations: AI can influence customer behaviour by using algorithms to make accurate predictions about products that will gain satisfaction and acceptance, thus presenting suggestions to the shopper who is likely to be pleased or act upon them⁽²¹⁾.

Second section: Harms of Artificial Intelligence on E-Commerce

Despite the benefits that AI systems offer to e-commerce, their use is not without risks that may affect both the individual and society alike.

1- Algorithmic Bias

Among the rights violated by technology, and specifically artificial intelligence, is the right to equality that humanity has sought to establish in our material world. This is due to biased AI algorithms that may exhibit biases based on the information collected, whether provided by the customer or obtained through prediction. They yield unfair and discriminatory results for a particular group of people, whether due to their race, religion, or even their names. E-commerce is not free from these algorithmic biases. This bias may appear in multiple forms, including those related to product suggestions. Violations may also appear, especially when selling a product at a price higher than the original price⁽²²⁾.

2- The Issue of Privacy Breach

The right to privacy refers to private life. However, this concept has changed to include the right to control various data pertaining to the individual, respecting private life that is, all rights related to the legal personality of a human being. Some have classified this right by mentioning three basic components related to the spatial aspect of this right (home or workplace), another related to the person themselves (private life, honor, and freedom of movement), and another component related to protecting a person's information and its confidentiality⁽²³⁾.

The Algerian legislator intervened to protect the personal data of natural persons through Law No. 18-07 dated June 10, 2018, concerning the protection of natural persons in the processing of personal data. Its Article 2 stipulates that the processing of personal data, regardless of its source, must be carried out within a framework of respect for human dignity, privacy, public freedoms, and without prejudice to individuals' rights and honor. The legislator also issued Law No. 25-11 dated July 24, 2025, amending and supplementing Law No. 18-07, specifying through Articles 41 bis and 41 bis 1 the key tasks of the authority responsible for protecting personal data.

Therefore, every person has a private space that should not be searched or have its facts investigated. However, with artificial intelligence, this right has been violated and its sanctity breached. This breach has even extended to sensitive information. Many have warned of such violations, and many have expressed concern regarding this matter, especially in the field of e-commerce.

Conclusion:

At the end of this study, we conclude that artificial intelligence has led to significant transformations in various fields, with a specific mention of the field of e-commerce, as it has led to the improvement of marketing processes, enhancement of the customer experience, increased efficiency of commercial

operations, and customer satisfaction. However, at the same time, it has had a negative impact, particularly concerning the breach of customer privacy and algorithmic bias.

1- Findings of the Study:

-AI technologies have a positive impact on e-commerce operations, whether in terms of improving marketing processes, enhancing the customer experience, or focusing on a specific category of customers, leading to the effectiveness of advertising campaigns, time savings, and cost reduction.

-Applications of AI in e-commerce have a negative impact on another front, represented by accessing customer privacy and algorithmic bias, which may affect the principle of equality.

2- Key Recommendations:

Based on what has been presented, we offer the following recommendations:

-Commercial companies should adopt AI applications to keep pace with the developments in this field. However, at the same time, they must work to protect their customers by enhancing trust, security, and transparency.

-Companies should conduct seminars and training courses to educate their employees about the principles and techniques of artificial intelligence.

-The necessity of legislative intervention to establish legal texts regulating electronic commercial dealings via artificial intelligence. This serves to protect those who engage in it, especially the consumer as the weaker party.

Bibliography:

1- Books:

Khaled Sabri Al-Janabi, Mutual Consent in E-Commerce Contracts, First Edition, Qandil Publishing and Distribution House, Amman, 2013.

2- Articles:

-Boubekha Souad, "Artificial Intelligence - Applications and Repercussions", Journal of Money and Business Economics, Vol. 06, No. 04, 2022.

-Rachida Hashimi, Abdelwahab Meliani, "The Conceptual Framework of Artificial Intelligence", Al-Turath Journal, Vol. 14, No. 02, June 2024.

-El-Zahra Jaghrif, Wassila Charebette, "Civil Protection of the Electronic Consumer under Algerian Law 05-18 Concerning E-Commerce", The Academic Journal for Legal Research, Vol. 11, No. 03, 2002.

-ZinebDiefallah, Ibrahim Ben Daoud, "Artificial Intelligence and Law", Journal of Law and Environmental Sciences, Vol. 02, No. 03, 2023.

-SaifEddineRahali, "Conditions for Practicing E-Commerce in Light of Law No. 05/18", Journal of the Circle of Legal and Political Research and Studies, No. 8, January 2020.

-ChetouhAnfalHibat Allah, Ben Daoud Ibrahim, "Artificial Intelligence and Its Repercussions on the World of E-Commerce", Journal of Rights and Humanities, Vol. 18, No. 01, 2025.

-FatihaKandouz, "Legal Aspects of Using Artificial Intelligence", Algerian Journal of Law and Political Science, Vol. 09, No. 01, 2024.

-MaryemLahcene, NawalDharifi, "Artificial Intelligence Techniques as a Mechanism to Enhance Customer Experience: A Case Study of Amazon", Afak Journal of Management and Economic Sciences, Vol. 09, No. 02, 2025.

-MazouzaDalila, Ouali Nadia, "Risks of Artificial Intelligence on Digital Privacy and Protection Mechanisms", Journal of Legal and Social Sciences, Vol. 09, No. 03, September 2024.

-NajibKamil, "The Future of Digital Marketing from the Virtual World to Augmented Reality", Al-Muqaddima Journal for Humanities and Social Studies, Vol. 09, No. 1, 2024.

-TebaniAsaeed, "Regulations for Practicing E-Commerce According to Law 05-18", Al-Sada Journal for Legal and Political Studies, No. 04, 2020.

3- Websites:

Using Predictive Analytics in E-Commerce via the following website:
sahl.store/ar/blogs/289/

⁽¹⁾- Al-Zahra Jaqrif, WasilaShreibat, Civil Protection of the Electronic Consumer under Algerian Law No. 05-18 on Electronic Commerce, Academic Journal of Legal Research, Vol. 11, No. 03, 2002, p. 188.

⁽²⁾ - FatihaKandouz, Legal Aspects of the Use of Artificial Intelligence, Algerian Journal of Rights and Political Sciences, Vol. 09, No. 01, 2024, p. 1182.

⁽³⁾ - ZinebDhaifallah, Ibrahim Ben Dawoud, Artificial Intelligence and Law, Journal of Law and Environmental Sciences, Vol. 02, No. 03, 2023, p. 372.

⁽⁴⁾ - FatihaKandouz, previous reference, p. 1182.

⁽⁵⁾ - ZinebDhaifallah, previous reference, p. 373.

⁽⁶⁾ - BoubekhaSouad, Artificial Intelligence – Applications and Implications, Journal of Finance, Economics and Business, Vol. 06, No. 04, 2022, pp. 94–95.

⁽⁷⁾ - RachidaHashemi, AbdelwahabMiliani, The Conceptual Framework of Artificial Intelligence, Journal of Heritage, Vol. 14, No. 02, June 2024, pp. 51–52.

⁽⁸⁾ - Khaled Sabri Al-Janabi, Consent in Electronic Commerce Contracts, 1st Edition, Dar Qandeel for Publishing and Distribution, Amman, 2013, p. 22.

- ⁽⁹⁾ - Law No. 18-05 dated May 10, 2018, concerning e-commerce, published in the Official Gazette No. 28 on May 16, 2018.
- ⁽¹⁰⁾ - Khaled Sabri Al-Janabi, previous reference, p. 20.
- ⁽¹¹⁾ - SaifEddineRahhali, Conditions for Practicing Electronic Commerce in Light of Law No. 05/18, Journal of the Circle of Legal and Political Research and Studies, Issue 8, January 2020, p. 70.
- ⁽¹²⁾ - Khaled Sabri Al-Janabi, previous reference, p. 25.
- ⁽¹³⁾ - TabaniEssaïd, Regulations Governing the Practice of Electronic Commerce According to Law 05-18, Echo Journal of Legal and Political Studies, Issue 04, 2020, p. 96.
- ⁽¹⁴⁾ - Saif Eddine Rahhali, previous reference, pp. 73, 78, 84.
- ⁽¹⁵⁾ - ChetouhAnfalHebatallah, Ben Dawoud Ibrahim, Artificial Intelligence and Its Impacts on the World of Electronic Commerce, Journal of Rights and Human Sciences, Vol. 18, No. 01, 2025, p. 224.
- ⁽¹⁶⁾ - Sahl Store, Using Predictive Analytics in E-Commerce, sahl.store/ar/blogs/289/using-predictive-analytics-in-e-commerce
- ⁽¹⁷⁾ - ChetouhAnfalHebatallah, Ben Dawoud Ibrahim, previous reference, p. 225.
- ⁽¹⁸⁾ - ChetouhAnfalHebatallah, Ben Dawoud Ibrahim, previous reference, p. 225.
- ⁽¹⁹⁾ - NajibKamel, The Future of Digital Marketing from the Virtual World to Augmented Reality, Al-Muqaddimah Journal for Human and Social Studies, Vol. 09, No. 01, 2024, p. 549.
- ⁽²⁰⁾ - Mariam Lahcen, NawalDhrifii, Artificial Intelligence Techniques as a Mechanism to Enhance Customer Experience: A Case Study of Amazon, Journal of Management and Economics Horizons, Vol. 09, No. 02, 2025, p. 145.
- ⁽²¹⁾ - QahairiyaSaifEddine, previous reference, p. 371.
- ⁽²²⁾ - ChetouhAnfalHebatallah, Ben Dawoud Ibrahim, previous reference, p. 228.
- ⁽²³⁾ - MaazouzaDalila, Wali Nadia, Risks of Artificial Intelligence to Digital Privacy and Protection Mechanisms, Journal of Legal and Social Sciences, Vol. 09, No. 03, September 2024, p. 817.