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Emerging Technologies and Their Role in Activating E-commerce: Insights from the Algerian Market

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Abstract:

This study aimed to investigate the role of emerging technologies in enhancing e-commerce efficiency in Algeria by examining their potential benefits, opportunities, and associated challenges. Specifically, the research explored how these technologies could streamline operations, reduce costs, and improve customer experiences while addressing cultural, infrastructural, and regulatory barriers to adoption in the Algerian market.

The study highlights that emerging technologies like AI, big data, and e-payment systems enhance e-commerce efficiency and customer satisfaction. However, limited adoption of tools such as AR and blockchain, alongside infrastructural and consumer cash preferences, restricts potential growth. It recommends focusing on AI-driven personalization, mobile app advancements, and regulatory reforms to boost Algeria's e-commerce sector.

Key Words : *e-commerce, Emerging Technologies, Artificial Intelligence, e-payment, Algeria.*

JEL Classification: *L81, O33, M31, Q55*

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1. Introduction

The advancement in technologies impacted the e-commerce industry drastically; it has transformed the way consumers connect with brands. Now the customers feel more empowered as they can buy anything just with a click of a mouse, can shop more cost-effectively, track orders, find the best deal by comparing different portals and get the convenience of getting products delivered to their doorstep.

All this is possible because of the emergence of new technologies, as a result now e-commerce companies are getting nearly global adoption because customers can buy products from anywhere and at any time as per their ease.

The use of e-commerce technologies helps to increase sales performance in the virtual store, through automation, streamlining and optimization of processes, customization, among other things.

Increasingly advanced, technologies for e-commerce have resources capable of streamlining processes, personalizing the shopping experience, improve customer service and, in this way, increase the sales.

Therefore, knowing the latest trends and investing in tools that make use of artificial intelligence and other state-of-the-art technologies is a basic premise for the virtual store not to lose market share and stand out in the future (Rodrigo, 2022).

In Algeria, the e-commerce landscape is undergoing a gradual yet promising evolution. However, the adoption of emerging technologies remains a challenge, constrained by infrastructural, cultural, and regulatory barriers.

This paper seeks to explore the role of these technologies in activating e-commerce and improving its efficiency within the Algerian market. Specifically, it aims to address the following question:

How do emerging technologies contribute to activating e-commerce and enhancing its efficiency in Algeria, and what are the opportunities and challenges associated with adopting these technologies in the Algerian market?

From this question, the following sub-questions may arise:

- ◊ **What are the key emerging technologies used to activate e-commerce globally?**
- ◊ **How do modern technologies impact operational efficiency and cost reduction in e-commerce?**
- ◊ **What is the current state of adopting emerging technologies in Algeria's e-commerce sector?**
- ◊ **How can emerging technologies improve the Algerian consumer's experience and build trust in e-commerce?**

Hypotheses:

Therefore, the following hypothesis can be proposed:

The adoption of emerging technologies in Algeria will significantly contribute to activating e-commerce by improving operational efficiency, reducing costs, and enhancing the user experience. However, this requires overcoming challenges related to infrastructure, consumer culture, and local regulations.

Study Objective:

The study aims to investigate the role of emerging technologies in enhancing the efficiency of

e-commerce in Algeria. It seeks to identify the potential benefits, opportunities, and challenges these technologies present, focusing on their impact on streamlining operations, reducing costs, and improving customer experiences. Additionally, the research explores how cultural, infrastructural, and regulatory barriers influence the adoption of technologies like AI, big data, and e-payment systems, providing insights into activating e-commerce in the Algerian market and recommending strategies for leveraging these technologies effectively.

Literature Review:

- **Paul George OPRESCU (2019)** Study entitled "Influence of New Technologies in E-Commerce": This paper issue provides new insights into the applications of emerging technologies in e-commerce operations and supply chain management, including the value of blockchain technology adoption on supply chains, the impacts of augmented reality advertising on retailing operations, the effects of using advanced information system to improve business performance, and the use of artificial intelligence (AI) for e-commerce sales and marketing.
  The study concluded that the emerging technologies all shed new light on e-commerce operations and digitalized supply chain management, and they will help companies reach new heights in terms of online trading and understanding customer needs. (OPRESCU, 2019).
- **Nadjat Wassila Belghanami (2022)** Study entitled "The role of E-marketing and social media in the efficiency of E- commerce- Analytical study: case of Algeria and Egypt": The study tried to identify first the study terms for electronic commerce and electronic marketing and their most important drivers, then it brought an analytical reading of the contribution of digital transformation to the efficiency of digital marketing and e-commerce of Algeria and Egypt.
  The study concluded that the non-using of Augmented Reality and 3D Modeling is One of the biggest obstacles facing e-commerce, that means is that customers cannot see products directly, and 2D images and product descriptions alone may not be enough to convince the customer to buy the product (Belghanami, 2022).
- **Shahid Yusuf (2021)** ERF Working Paper entitled " Digital Technology and Inequality: The Impact on Arab Countries " : The focus of this paper is on whether and how digital technologies could lead to a change in inequality over the course of the next decade. The paper examines the spread of digital technology and the impact of digitalization in Arab countries. As there is considerable heterogeneity among Arab countries according to their capacity for absorbing digital technology with suggestions on how Arab countries could maximize the gains from the new technology and cushion the effect on jobs and inequality.
  The study concluded that digital technologies have diffused into every corner of the economy. The automation of production processes, proliferation of web based services, and increasing use of AI/machine learning enabled by Big Data, the Cloud, and superfast computers are ushering in an era is that the digital GPT will generate the productivity and growth acceleration by reducing the cost of creating, distributing, and promoting new high-value products (Shahid, 2021).
- **Rob Kim Marjerison & others (2022)** study entitled "AI in E-Commerce: Application of the Use and Gratification Model to The Acceptance of Chatbots" : This study aims to explore consumer acceptance of applied artificial intelligence (AI) in the form of Chatbots in online shopping. The results of the data analysis provide empirical evidence indicating that utilitarian factors such as the “authenticity of conversation and “convenience”, as well as hedonic factors

such as “perceived enjoyment”, result in users having a positive attitude towards Chatbots. However, privacy issues and the immaturity of technology have had a negative impact on acceptance. (Rob, Youran, & Hanyi, 2022).

- **Boukrouh Bahia (2022)** study entitled " E-payment adoption in the era of digital transformation: the case of Algerian banking system" : This study has sought to provide a general overview of the adoption of e-payment, highlighting the main efforts made in modernizing banking and payment infrastructure as a response to requirements of digital transformation.

  The finding of this research offers some insight into the digital payment situation in Algeria and its growth rate.

  The study finding shows that the Even though Algeria has made a progress in investing in information and communications technology and in boosting and developing financial services, where several favorable circumstances already exist. (Boukrouh, 2022).

❖ **Our study** significantly contributes to the existing literature by providing a localized analysis of how emerging technologies can enhance e-commerce efficiency within the Algerian market. Unlike previous research with a broader regional or global scope, it identifies Algeria-specific challenges, such as low digital payment adoption, cultural preferences for cash, and insufficient technological infrastructure. The study highlights gaps, including the underutilization of advanced tools like augmented reality, blockchain, and AI, which limit the sector's potential. It also contextualizes Algeria's progress amidst socio-economic shifts, such as interoperability agreements and pandemic-driven digital adoption. By proposing targeted solutions, including AI-driven personalization and regulatory reforms, the research offers a tailored roadmap to overcome these barriers and activate e-commerce in Algeria.

Methodology

This study uses the method of systematic literature review, which presents a conceptual study of new technologies in the E-commerce Sector, With reference to Algeria's situation in this field. "It also delves deeply into research articles, drawing information from various scientific journals, literature, books, and expert opinions on case studies conducted on modern emerging technologies that various e-commerce institutions aim to adopt and implement in the future."

In addition, an analytical descriptive approach was adopted, this is because we wish to make a methodical, factual, and correct account of the investigated facts by describing the topic of discussion from objects, situations, systems of thought, or current events.

This approach has a methodological objective such as the verification of our hypothesis, so that we can answer our questions and provide elements of solutions that will lead to recommendations.

2. Conceptual Framework

2.1. Meaning of E-commerce:

Study of (Fedorko, KráIˇ, & Baˇcík, 2021, p. 678) defines Electronic commerce, or e-commerce, as: “commerce that takes place in the online environment of the Internet, with the Internet being considered as a single platform that connects the seller and the buyer, where E-commerce includes all commercial transactions carried out online, This category includes any Web site displayed on computers, tablets, as well as mobile phones, which is intended to generate revenue”.

E-commerce includes the use of the Internet, Web portals, mobile applications, and browsers to make a purchase. These are therefore digitally enabled business transactions between sellers and customers. Almost all Internet users are currently online shoppers.

2.2. New technologies:

The study of (Arumugam, Radhakrishnan, Hui, & Supriya, 2022, p. 14) points out that New technologies are emerging technologies and science-based innovations and which will substantially alter the business and social environment. such as Internet of Things (IoT), Artificial Intelligence (AI), Robotics, Big Data and Big Data Analytics, Cloud/ Edge/ Fog computing, and convergence of these technologies as Industrial Revolution 4.0, on the realm of e-commerce.

The accelerating pace of adoption of Emerging technologies in e-commerce is going to be impressive, because of dramatic reductions in operating costs, easier access to the consumer as well as because of innovations possible in the design and delivery of products and services due to these newer forms of digital technologies.

Emerging technologies are also often referred to as 'Disruptive' – the one that displaces an established technology and shakes up the industry and could be termed as a ground-breaking product capable of creating a completely new industry.

3. The new Technologies that every e-commerce site needs:

According to (Stephanie, 2022), Many online stores already have integrated e-commerce software, but to stay in the competition, any e-commerce business must give serious thought into the following technologies to stay prosperous and maintain customer satisfaction.

There is an immense variety of technologies available for e-commerce, and new solutions are constantly emerging in this sector. Below, we highlight the most significant ones—17 of the key technological innovations shaping e-commerce:

3.1. ERP (Enterprise Resource Planning) for e-commerce:

E-Commerce and ERP integrations enables items, inventory, orders, customers and other pertinent sales data to pass between independent systems to communicate with each other.

Integrations allow necessary data to be automatically exchanged in both directions. For example, an order created in the online store is immediately pushed to the system used to fulfill the order. Not only does this save time but eliminates human error and gets product, inventory, item billing and sales information into a shared information system.

E-commerce ERP adoption helps organizations automate most of their routine supply chain management tasks, resulting in significant productivity increases (Kosal, 2022).

3.2. Omnichannel platform:

Multichannel retail refers to the adoption of various online and offline sales channels, to offer customers an improved shopping experience, with omnichannel retail referring to a complete integration of sales channels and a seamless shopping experience.

A multichannel retail strategy helps retailers expand the reach of the product and satisfy new and evolving customer needs and preferences. With the widespread use of digital technologies, especially mobile devices, multichannel retail has become essential to achieve business success (Santiago & Emiliano, 2023).

3.3. Chatbots:

According to (Rob, Youran, & Hanyi, 2022, p. 3), Chatbots are intelligent computer programs that simulate humans via conversation or text. Chatbot features a simple text interface that allows users to access information or provide entertainment via an online messaging platform. During interactions with Chatbots, conversation messages can be sent through a variety of media, including voice commands, text chat, graphical interfaces, or graphical widgets. Conversational interfaces include language processing, intelligent conversation, and human–computer interaction, allowing actual humans to feel, at least temporarily, that they are engaged with another human and to approximate the experience of talking to another human.

Chatbot technology has been around since the 1960s and has been used for user interface development in games since the 1980s. Gaming software was the first mainstream type of application that used Chatbot user interfaces. More recently, due to the continuous development of smartphones, game software has also improved and is driving increased awareness and exposure to Chatbots.

3.4. Recommendation systems:

The cultural product recommendation system plays a vital role in promoting the products to help customers determine attractive products. The recommendation system helps customers to find products that suit their needs. In other words, the recommendation system helps to reduce the existing option in choosing a variety of products.

The suitability of the recommended product with the interests of each customer is an essential point in implementing a product recommendation system in E-Commerce. This point is troublesome for E-Commerce to implement a product recommendation system according to the interests of each buyer because a lot of information is processed when filtering data in the recommendation process, especially for E-Commerce which sells cultural products. The uniqueness of cultural products affects how buyers value and decide to buy the products (I Wayan Rizky Wijaya, 2022, pp. 727-728).

3.5. Smart Search:

A search engine is a software system that is designed to carry out web searches (Internet searches), which means to search the World Wide Web in a systematic way for particular information specified in a textual web search query.

News websites' search function usually gives the latest, the most authoritative, and the highest heat search results. However, these results may not be what users need. The websites, which provide advanced search functions, solve the polysemy problem by allowing users to input additional information to narrow the search scope

In general, there are two solutions to this problem from two directions. The first one is to provide more search information such as adding one more keyword. The second one is to classify the news into topics (Chaoyang & Ke, 2021, p. 4).

3.6. Retention pop-ups:

Pop-ups are windows that are placed on e-Commerce site for the purpose of online advertising. Effective pop-up is the way to present different offers to target a group of customers and encourage them through the website to take some action. Some of these actions can be (Fayq, 2021, pp. 348-355):

- Take a discount or coupon for a purchase
- Subscribe to newsletter

- Download e-book or online course
- Book place on an online webinar

To target the 47% of visitors who aren't ready to buy properly, e-commerce seller should use popups.

Creating and displaying pop-ups that don't deliver any kind of useful information or value to visitors is extremely risky (Jaylene, Joyce, Kelvin, Wen, & Elfi, 2023, pp. 3-4).

sign up to the list.

But, that's not all we need, the images and adding videos to the popups can increase conversions, and make the visitors' willingness to avail of the offer. Especially if coupled with a strong headline.

According to (Mage-Cloud, 2021) research, popups with images (3.80 %) convert better than popups without (2.07 %).

3.7. Pricing Tools:

One of the most widely used modern types of pricing in e-commerce is personalized or customized pricing meaning dynamic price adjustment for consumers depending on the value that these customers attribute to the commodities. Personalized pricing is a technology-based pricing system in which different prices are set for the same goods for different consumers. The development of Big Data technologies has contributed to the spread of personalized pricing strategy, as it provided companies with the opportunity to analyze in real-time many factors on the Internet environment, such as customer loyalty, purchase history on the site, consumer preferences, and more.

The number of e-commerce retailers has grown over the past few years. With increasing competition, they face the difficult task of maximizing profits while maintaining price competitiveness. Dynamic pricing is a rational and effective solution to this problem because it takes into account changes in supply and demand and recommends an effective pricing structure. If this pricing strategy is implemented over a long period, it can significantly increase the overall revenue and profitability of the business (Galyna & Yaroslava, 2020, pp. 71-72).

3.8. Social media monitoring:

Predictive analysis with social media is an emerging tendency, which can be employed in numerous real-life applications.

Prediction based on social media data is used by numerous companies, industries and organisations to enhance their business by predicting trends and behaviours in several subjects, including e-commerce, marketing, movie box, elections, information dissemination and microeconomics to make precise predictions using social media data. along with their metrics (sentiment, time series, terminology, degree, density, centrality, structural hole). and prediction methods as regression methods, the Bayes classifier, the k-nearest neighbour classifier, artificial neural networks, decision trees and model-based prediction (Marco, Marina, Christian, Emanuele, & Antonio, 2022, pp. 2-3).

In e-commerce, predictive analytics has been utilized for a variety of purposes, including customer segmentation, product recommendations, and pricing optimization (C´ecile, Olga, Andrea, & Sarah, 2022, pp. 1065-1066-1067). Similarly, predictive analytics are used to analyze transaction data and customer behavior to generate product recommendations that are tailored to each customer's interests and preferences. Predictive analytics are also utilized to optimize

pricing strategies by analyzing demand patterns and adjusting prices accordingly (Sufi & Khalil, 2022, pp. 3-4-5).

3.9. Indicator analysis tools:

Web analytics plays a crucial role in a better understanding of e-business and effective planning of its development. The information collected and analysed is used to make informed decisions and identify problems, based on real data and not on subjective feelings. Complete data enables the identification of specific areas and activities that require optimisation (Veronica & Valentin, 2021, pp. 72-73).

Thanks to the analysis, e-shop owners can identify groups of recipients and adapt communication methods to their needs and expectations. This, in turn, is the best way to increase income – properly selected and implemented communication channels are not only an effective way to convince customers to buy in the shop, but also to encourage them to place another order.

(VIPIN, BINDOO, & SATYENDRA, 2021, p. 666) point out five popular tools for e-commerce analysis, which are as follows:

- Google Analytics
- Google Search Console
- Google Trends
- Semstorm
- HotJar

3.10. Payment Integration Systems:

A payment gateway is a software application that securely encrypts payment information from credit and debit cards. It transfers payment data between the merchant's website, the merchant's bank, and the customer's bank. The response of whether the payment was accepted or declined goes through the merchant's website's payment gateway (cardknox, 2022).

Online banking was first introduced in the early 1980s in New York, United States. It is the safest one among types of e-payment system as you can just pay for any product or service you like by using the money in your bank account. You do not need a credit or debit card to make the payment through internet banking, and you just need to provide your bank id and password to complete the transactions. When customer want to pay for a service or a product he use his bank application on his mobile or on the bank website which allow him to pay to service provider (Mohmed, Mohamed, & Mona, 2021, p. 19).

3.11. Blockchains:

The e-commerce requires the handling of sensitive information, such as personal data, document and credit card numbers, which require more and more care.

Therefore, it was important to find a technique that decreases the chances of hacker attacks and creates a permanent, tamper-proof database.

According to the main characteristics of blockchain technology including traceability, transparency, smart contracts, and security, this technology is not only used for its main application as a cryptocurrency but is also applicable in manifold areas such as government elections, healthcare, logistics, identity management, supply chain, Especially for e-commerce companies that want to guarantee the security of their operations (Taherdoost, 2022, pp. 1-2).

3.12. Augmented reality:

The consumer attitude persuasion through reality advertisements plays a major role, as utilizing VR technology, consumers are able to gain a virtual experience of a simulated product or service. AR marketing is widely used across various industries. For example, in the fashion and apparel industry, Essie, a nail polish brand, has introduced an AR app that allows its users to try-on virtual nail polish on their hands. Furthermore, Wanna Kicks, a popular shoe brand, has an AR try-on feature, allowing users to virtually wear sneakers from the collection. Retail giant such as IKEA is also catching up on this trend. IKEA has introduced an AR app called "IKEA place" that lets users virtually place IKEA furniture in actual home space (Jayawardena, Thaichon, Sara, Razzaq, & Abhishek, 2023, pp. 3-5).

Besides, Nike has created "Nikeland", a VR world. Within this virtual world, users can not only compete in different minigames but can also purchase Nike's newest digital merchandise. Another e-commerce company, Etsy, launched "Etsy virtual house" where shoppers can walk through a photorealistic 360-degree virtual house filled with Etsy items, giving people an immersive shoppable experience (Yuhao, 2021, pp. 192-194).

3.13. Big data:

Big data offers big e-commerce possibilities, helping the virtual e-commerce store to deeply engage and research its digital client. The right application of Big Data Analytics to e-commerce may change their online retailer experiences by "one before" and "one after." In October 2012 in Madrid, the European Ecommerce Conference said the big data, a meth od used to measure macro data, would raise the company's revenue by $34,000 million in 2013. In 2015, 4.4 million direct workers will also be created to meet the demands of big data analysis and administration (Prem, 2016, p. 6).

3.14. Cloud computing:

cloud computing is a way to use the internet to access, store, and process information on remote servers instead of running applications or storing data on personal computers or local servers, they are accessed from remote data centers through the internet, which allows for greater scalability, accessibility, and cost-efficiency.

"Cloud" refers to remote data centers that can be accessed via the internet and provide services such as storage, analytics, networking, software, and intelligence. It operates on a pay-per-use basis, enabling users to access and retrieve their data from any location at any time (Chi, Sui, Alazab, & Muthu, 2021, pp. 8-9-10).

3.15. Artificial intelligence (AI) :

Artificial intelligence is considered to be a new interdisciplinary technological science that develops theoretical methods, technologies, and applications for the simulation and expansion of human intelligence. The application of artificial intelligence has been examined in sectors such as health care, business, education, manufacturing, marketing, and financial management. Thus, artificial intelligence is able to carry out the automatic activity of mental work by simulating and expanding human intelligence (Fedorko, KráIˇ, & Baˇcík, 2021, pp. 680-681). That uses artificial intelligence to conduct an online conversation via text or voice media with consumers visiting a given Web site or application.

Using an artificial intelligence algorithm, it is possible to carry out statistical programming, forecasting, and analysis of consumer behavior, large datasets and predict which products have

the potential to attract customers. Based on recent searches for potential customers, the algorithm is able to record key information of the searched product. The recommendation tool then generates the appropriate suggestions for the browser and displays what will ultimately help customers find the product quickly Using artificial intelligence, it is possible to implement visual and audio searches on Web sites (Areiqat, Hamadan, Alheet, & Alareeni, 2021, pp. 6-7).

3.16. Voice assistants :

Voice commerce is a special sub-set of e-commerce using terminal devices equipped with conversational user interfaces (CUI) and intelligent software programs that users operate through regular voice commands. The terminal devices can be so called smart speakers (such as Amazon Echo, Google Home or HomePod by Apple), as well as smartphone or computers with a built-in voice assistant software such as Alexa (Amazon), Google Assistant, Siri (Apple) or Bixby (Samsung).

If online retailers wish to utilize voice commerce, then they must program an application for the respective voice assistant (for Alexa, these are called “skills” and for Google Assistant “actions”).

Smart Speakers are quickly becoming more ubiquitous. Between 2018 and 2022, the global number of smart speakers increased from 100 million to 230.5 million units (Zaharia & Würfel, 2020, p. 451).

3.17. Mobile apps:

As of 2023, around 60%, of e-Commerce sales are conducted on mobile apps. And as seen in Figure 2, the general trend suggests that the weight of mobile apps will be even more in the near future. Thus, having a custom mobile app is a beneficial e-Commerce technology for the businesses (Prem, 2016, p. 5).

Customers can interact with the brand continuously through apps, and they can learn about fresh and useful purchasing opportunities. Additionally, mobile apps provide customers a simple check-out process (Cem, 2023).

4. The reality of E-commerce in Algeria:

Algeria is currently experiencing a big technological boom, it is beginning to adapt to the various technological aspects (Internet, Smartphone, tablet, etc.), and Algerian society has gradually opened up to the world of new information and communication technologies.

The first Algerian E-commerce site was created in 2010 “Guidinni.com”, several other sites were created after that such as “Chrily.com” which is one of the pioneer sites for online sales created in July 2012, six months later the Algerian web hosts two new sites: “TBEZNYSS” launched on January 12, 2013, and “NECHRIFENET” launched on January 16, 2013.

E-commerce began to real take off in 2014 with the arrival of the Pan-African site Jumia, which remains the country’s most popular online sales site.

Along with other leading local online sales sites such as “OuedKniss”, “Batolis”, and “IdealForme”.

The number of e-commerce customers reported to have reached 2.45 million in 2017 - 6% of the country's population - according to Hootsuite and Jumia surveys. The growth in e-commerce sales expected to boost by mobile in the upcoming years as the smartphone penetration rate rose to 32.4% in 2017, reaching over 13 million devices (Mokrani, 2022, pp. 784-785).

Electronic devices, telephones, house and cleaning products as well as clothing items are among the most popular types of product on online.

In February 2018, the Algeria government adopted a law that defines the country's first e-commerce regulations, which stipulate that online markets must host their website in Algeria and registered at the Algerian Commercial Registry.

The law prohibits any online purchase of tobacco and alcoholic beverages, as well as medicines, online gambling, and gaming services. Under the current law, Algerian citizens cannot purchase items online from abroad.

Algerians have only recently started to use international credit cards (e.g., Mastercard and Visa) issued by local banks and accepted for use abroad.

E-commerce has grown enormously in popularity in recent years, it is now a mode of consumption very appreciated by Internet users. Algerians, in particular for its ease of use (in mobile or web application mode), its speed and its optimal efficiency.

In addition to being a trend and facing the travel restrictions imposed by covid-19 in 2020, online sales have experienced strong growth and have a considerable impact on the main sectors of activity. Indeed, today the E-commerce sites are more and more numerous in Algeria in view of the impressive demand from consumers.

During the year 2021, more than two million commercial operations via TPE (Electronic Payment Terminals) were recorded, with a total amount of nearly 15 billion dinars, an increase estimated at 220% compared to 2020 or the total amount reached 4.7 billion dinars.

Payment by internet has undergone an encouraging evolution, knowing that it has gone from 3.3 million operations in 2020, to more than 6.3 million operations in 2021.

Currently, cash on delivery is the preferred payment method among Algerians, as in most countries in the Arab world and Northern Africa (Amel, 2021, pp. 50-51-52).

5. The role of New Technologies in facilitating E-commerce platforms in Algeria:

Through the analysis of **big data**, it greatly helps in analyzing the available data in order to provide information that serves as future forecasts for the desires and requirements of individuals, which allows accurate follow-up of the market and from that the formulation of various appropriate strategies a good understanding of the psychology of customers depends mainly on tracking their past behavior and determining, their behavior in the field of commerce or otherwise, as the personal tendencies of individuals such as the favorite color or the series that the person is watching now can provide great information that helps in formulating the type and shape of the product that will meet his desire if it is Exposure to it, of course, with the help of artificial intelligence (AI) systems that are used to analyze big data (Mokrani, 2022, p. 793).

A Chatbot for JUMIA company in Algeria:

For example, it was created a company agent (**A Chatbot for JUMIA company**) that recognizes and responds to end-user complaints about Product Delivery Services or Payment Process of the company. You would likely define an intent for complaints about the agency location. If an end-user says "Where's the nearest agency?",

A company agent would match that end-user expression to the complaint. It can also define the intent to extract useful information from the end-user expression, like a time or location for the desired response. This extracted data is important for system to perform a complaint response

for the end-user (IRATEN, BOUGUEDOUR, BOUCHETARA, Zerouti, & Hachemi, 2022, pp. 37-38).

Social media in Algeria:

Among the objectives of social media in e-commerce (Facebook, Twitter, Youtube, Instagram, LinkedIn and Other), here in Algeria, nurturing relationships with consumers, reducing the barriers to customer feedback and to be used as a channel to listen to customers and in identifying their problems as an opportunity to solve and improve. This could be to stimulate recommendations and in effect turn a negative customer complaint which was successfully resolved into a positive and good customer service, thus converting targeted population into customers in the stores (Medjani, Richard, & Nadeau, 2019, pp. 11-12).

Artificial Intelligence in Algeria:

Artificial Intelligence is helping Algerian e-commerce businesses get closer to their customers, as with the help of AI e-commerce platforms are able to utilize large datasets regarding customers purchasing behaviour and product search patterns. Artificial intelligence self-learning algorithms can create personalized shopping experiences for online buyers.

Typically, businesses are implementing AI/ML to increase retail standards, customer experience, and profits and fast processing. Following are some facilities that AI is providing to e-commerce:

●Personalization: The clients are provided with a personalized experiences and easy to select products/searches based on their earlier searches (machine learning technique).

●Real-time intent targeting: It is the next step in personalization. Enabled by AI, it gives the ability to accurately predict ever-changing customer intent.

●Voice Assistant: AI is also facilitating voice assistants, by which customers can interact with and resolve their queries.

●Recommendation engines: A recommendation engine is a tool that filters the data by using algorithms and suggests popular products for customers. Based on the customers past purchasing behaviour, these engines will suggest items which the customer may probably purchase.

●Chat box support: It is a computer program that allows conversational performances, engaging purchasing more highly by text and voice. Nowadays, it is popularly used in mobile phone,

E-Commerce sales are conducted on mobile apps in Algeria:

Smartphone usage is on the rise and, with it, the amount of hours users spend on mobile. More importantly, over 95% of internet users access chat and messaging apps. Users expect to be able to solve more tasks without switching between different apps, they tend to use their favorite apps much more, and messengers are often among those favorites. Moreover, people want to have dialogues with brands in messaging apps: 74% of users prefer messaging with businesses if a real person is responding. In this mobile-first world, it is increasingly important for brands to be where their users are and leverage tools for effective mobile and messenger marketing and Viber (Martyrosian, 2022).

Absence of Augmented reality (AR) and Blockchain from Algerian Webs:

The practical experience of online shopping through AR contributes to the commemoration of the brand and immersion in shopping. As a result, AR improves efficiency and quality, and this

undoubtedly contributes to consumer perceptions of the brand. a desire to purchase in the future using AR, which is regarded as the most powerful shopping technology available now. The data indicated that AR aids customers in evaluating products, . The study concludes that chatbots increases the public's confidence in purchasing decisions, influences the consumer to repeat purchases from the brand that made big data available through its websites or applications, and increases the rate of online purchases. The participants' tendency toward help and facilitation was positive, as AR was considered valid, easy, and straightforward and the hypothetical measurement experiment is not complex.

In Algeria, people cannot try or experience products before purchasing them, even though Virtual reality (VR) technology solves that issue by creating 3D artificial environments, where those users can explore and interact with.

Thanks to VR, customers can virtually try out products, arrange furniture in their homes, and more.

Moreover, we just point that the Implementation of **blockchain technology** along with **smart contracts** has not yet been adopted by many e-commerce platforms in Algeria.

Without using a smart contract, a third party (i.e., banks or credit cards) has to connect the transaction between the buyer and the seller. It can be time-consuming and the company might take commissions that further increase the price of the product, which is not ideal for a buyer.

When a smart contract is used to complete a transaction, the need for a third party to link the buyer and seller is eliminated. The buyer and seller will execute the transaction directly. The transaction takes place as soon as the buyer clears the transaction status and the seller receives the transaction.

In addition, the cost of transactions in blockchain based platform is lower than normal e-commerce transactions. These lead to the possibility of rapid micropayment. Further, blockchain transactions are faster than traditional payment mechanisms in e-commerce.

As per the study of (Taleb, 2022, pp. 53-54), revealed that traditional payment system involved around 16 stages and results in 2 percent to 6 percent processing fees for the customers. Whereas blockchain based platforms can handle millions of transactions per second. This technology has the potential to offer cheaper payment transaction cost, strong security standards and smooth customer experience for e-commerce.

6. Conclusion

This study's findings support the hypothesis, which states that there is a significant correlation between the new technologies and activating e-commerce.

The main objective of this study is to highlight the maximum trends of global e-commerce, and to raise the importance of its future uses especially here in Algeria.

The results cited above enabled us to develop a list of different trends. the most likely trends to come in the future In terms of emerging technologies, the results show that e-commerce sites in Algeria have placed a great deal of importance on Big Data and Cloud computing where Customers will have more confidence in sales sites, which will push them to share their personal information with them.

In second place, Algerian sites also use AI in the analysis of customer behavior in order to predict the valued products and provide relevant recommendations, followed by an improvement in the quality of Smart Search, mobile apps, Chatbot and that will be more stable than now.

In third place, a significant number of start-ups participate in e-commerce in a sales activity via social media to test and convert after to be compliant.

At the same time, we note the absence of blockchain, Payment Integration Systems and AR and other technologies given the complexity of the e-commerce environment in Algeria and the lack of reliable information.

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