
THE ROLE OF CLOUD COMPUTING IN THE DEVELOPMENT OF ELECTRONIC MARKETING IN THE IRAQI STOCK MARKET

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Abstract

The main aim of the research is to study role of cloud computing in developing electronic marketing in the Iraqi stock market, as this technology is considered an innovative solution for enhancing competitiveness and efficiency in light of the global digital transformation. And also explores how Improving digital marketing strategies and investors attracting from through analyzing the relationship between cloud computing tools and the financial performance and marketing of institutions operating in the market. The study adopted on a descriptive analytical approach combining collect between theoretical and practical aspects. The sample included 10 companies from various sectors (banking, telecommunications, industry, and tourism) listed within index (ISX60) on the Iraqi Stock Exchange, and so through time series extended for five-year from 2020 to 2024. The study were used to Statistical methods such as Pearson correlation coefficient and regression analysis to measure the explanatory power of the model. The results showed there is a very strong positive statistically significant relationship between the adoption of cloud computing systems and the achievement of excellence in marketing performance. And the study Content analysis indicated a clear upward trend in the adoption of these technologies. And the cloud computing contributes to reducing operational costs through the pay-as-you-use model and provides exceptional flexibility in customizing journey of the digital customer and automating marketing processes. However, this process faces technical challenges and significant legislative in the Iraqi environment, most notably: internet quality instability, concerns related to cybersecurity and privacy investor data, and the shortage of qualified human resources. Finally, the study concluded that integration between the cloud and electronic marketing is necessity inevitable to improving market efficiency. And recommended the necessity of developing of digital infrastructure, the formulation of legal regulations to protect electronic transactions, and the intensification of training programs for employees to overcome problem of to change and enhancing a culture of digital transformation.

Keywords: Cloud Computing - Digital Transformation - Electronic Marketing - Information Technology in Financial Markets - Financial Marketing Efficiency.

Introduction

Cloud computing is considered of the most modern technologies that has spread across the world, especially during the last two decades, as it has solved innovative solutions in various fields, including the electronic marketing. In light of the global economic transformations, become from the necessary to financial markets, such as the Iraqi stock market, benefit from this technology to enhance their competitive capabilities and increase their efficiency. With fast technological development, cloud computing has become a main tool in different sectors, such as electronic marketing. The Iraqi stock market faces many challenges related to developing digital infrastructure and enhancing electronic marketing strategies to attract investors and enhance financial performance. This research aims to study the role of cloud computing in enhancing electronic marketing processes within the Iraqi stock market.

Institutions have sought in Iraq to reform the Iraqi economy from through adopting future-oriented visions faced the present challenges, where show role of the cloud information systems as a vital tool for enhancing financial performance and administrative operations. Field studies conducted in the Iraqi environment have also indicated the existence of a positive correlation between the use of cloud information systems and the achievement of optimal financial performance, due to the accuracy and speed they provide in delivering information. Nevertheless, Iraq still faces challenges related to ensuring the quality of continuous internet connectivity and the stable availability of services, which are among the major obstacles hindering the effective use of cloud computing in developing countries. Therefore, promoting this technology in Iraqi governmental and private institutions is considered essential for reducing repetitive errors and ensuring the transition toward a dynamic digital economy capable of competing in regional and international markets (Al-Saqqa et al., 2020).

Cloud computing played role as transformative Technique in the field of digital marketing, as it has enabled for companies extending their marketing capabilities without the need to huge budgets for physical infrastructure, making it an ideal choice for developing economies. In addition, services based to cloud has a vital role in processing and huge amounts analyzing of customers data in real time, leading to marketing responses more accurate and timely. As it has contributed the Cloud in automating core marketing operations such as prospective customers management, market segmentation, and the marketing through email, which reduces from the time to reach the market and lowers operational costs. Due to these capabilities, marketing teams are able to standardization of customer information from different sources to provide a customized and seamless marketing experience that enhances the customer journey and increases the efficiency of advertising campaigns (Hassan et al., 2021).

The cloud computing technology is considered a fundamental factor in achieving excellence in marketing performance, as it helps organizations on respond quickly to changes in customer preferences and updates in digital platforms. The Cloud infrastructure saving the required flexibility to reconfigure resources and marketing capabilities to face volatile and unstable market conditions. Based on the dynamic capabilities theory, Thus, investment in cloud computing does not create alone in competitive advantage; it should rather support processes enhancing organizational agility to enable companies from sense opportunities and

fast make decisions. The integration of cloud technologies with big data analytics gives institutions the ability on modify their marketing strategies within days rather than months, which positively reflects on indicators of electronic engagement, conversion rates, and online revenues (Hanelt et al., 2021).

Cloud computing stands out for its exceptional capacity to provide users with massive storage space with minimal administrative effort. In this model, software and information are treated as services rather than physical products that demand complex local maintenance. The core philosophy relies on shifting data processing from local devices to 'the cloud'—remote servers accessed via the internet. This eliminates geographical and time constraints on data access, allowing organizations to focus on operational quality instead of getting bogged down in the technical details of infrastructure, energy consumption, and regular software update costs. As defined by Abu Jabal (2023), cloud computing is an advanced technological model that enables flexible, dynamic access to a diverse pool of shared, distributed computing resources over the internet, including networks, servers, applications, and databases.

The rapid pace of technological advancement and the digital revolution in business have driven a major shift toward digital infrastructure. This has created an urgent need for technologies that offer massive data processing and storage capabilities. Chief among these is cloud computing, which has emerged as a modern model enabling organizations to store and exchange information over high-speed internet networks while leveraging artificial intelligence for data analysis. Cloud computing represents a paradigm shift designed to keep pace with the fast-moving changes in the business environment. By providing massive, globally distributed servers, it allows companies to control and manage information flows with maximum efficiency. This, in turn, helps organizations transcend traditional systems that are no longer capable of meeting modern market demands with the necessary flexibility and efficiency, ultimately laying the groundwork for the growth of the digital economy and improving communication channels with investors (Marwei, 2024).

Cloud computing also delivers numerous strategic advantages, making it an essential cornerstone in modern fields such as e-commerce, education, healthcare, and industry. Its importance is particularly evident in cutting computing costs by replacing independent, on-premise servers with shared cloud services. Furthermore, this technology has boosted productivity by enabling users to access applications and data quickly and seamlessly from anywhere and at any time, thereby accelerating the achievement of institutional goals. It also provides high flexibility and scalability; organizations can instantly scale computing resources up or down based on their actual needs. This not only mitigates the risk of investing in expensive technological assets that might quickly become obsolete, but also guarantees service continuity and permanent availability for both users and clients (Bakari, 2024).

Marketing operations in emerging economies have undergone a radical shift toward digital platforms, which have seen a massive surge in adoption. These technological innovations have enabled organizations to acquire consumer data in real time. E-marketing allows for the deployment of agile marketing strategies that can be adjusted instantly based on customer preferences, thereby enhancing market competitiveness and organizational responsiveness to changes. By integrating adaptive systems with structured feedback loops, e-marketing becomes a strategic driver for growth and innovation. It facilitates access to broad consumer

segments both locally and internationally, and allows for the highly accurate measurement of customer acquisition and retention rates. Ultimately, this contributes to building sustainable relationships grounded in a deep understanding of market needs and future trends (Su, 2024).

Integrating cloud computing with e-marketing has become an absolute necessity for enhancing the efficiency of the Iraqi Stock Exchange, as the cloud provides the infrastructure required for marketing agility and information transparency. Despite persistent challenges regarding the legislative and technical infrastructure, alongside a shortage of qualified human resources in Iraq, there is an urgent need for studies that explore ways to maximize the benefits of these technologies to bypass administrative bureaucracy and improve the investor experience. This study aims to bridge the research gap in the Iraqi context by analyzing the role of cloud computing as a core enabler for developing e-marketing strategies. This, in turn, ensures business continuity, boosts overall satisfaction among financial market participants, and provides practical guidelines and recommendations for bankers and investors to enhance the adoption of digital technologies in financial information systems (Maash & Wahab, 2024).

Consequently, service companies in Iraq—including financial institutions and internet service providers (ISPs)—need to leverage digital footprint tools to enhance customer experience and improve service quality. Research findings from Nineveh Governorate, for instance, indicate that while companies utilize data to gather customer information, they still lack the analytical sophistication required to translate this data into effective strategic marketing value. Adopting cloud computing would enable these firms to process big data and gain deeper insights into the behavior of Iraqi investors and customers. This, in turn, allows for the design of tailored marketing campaigns that meet their specific needs and foster greater trust in financial institutions. Bridging the gap between data collection and its effective utilization in marketing remains the greatest challenge for the growth of digital markets in Iraq—a hurdle that demands upper management support and organizational awareness of the vital importance of these tools (Al-Jubory et al., 2026).

Research Problem:

The quality and sustainability of internet connectivity represent a fundamental technical challenge that hinders the effectiveness of cloud-based electronic marketing in Iraq, as any interruption in service leads to a complete paralysis of marketing and financial operations. The problem of “latency” and slow system response also emerges as a critical factor in the digital investor experience, since trading in the stock market requires extremely high speed and precision that cannot tolerate technical delays. The weakness of technological infrastructure in developing countries makes access to cloud services associated with risks related to difficulties in retrieving information and data loss in cases of sudden failures. This requires Iraqi institutions to adopt alternative strategies for recovery from technical disasters and to provide advanced infrastructure that ensures continuous and stable connectivity in order to guarantee the success of their marketing and service campaigns (Al-Saqqqa et al., 2020).

The research problem lies in the clear execution gap between adopting cloud computing technology and achieving tangible results in digital marketing performance, as many organizations struggle to convert their technological investments into a sustainable competitive advantage. This issue is particularly evident in emerging markets, which suffer from a lack of the digital computing capabilities necessary to sense market opportunities and respond instantly to shifting investor preferences. Relying on legacy systems within the Iraqi Stock Exchange limits the capacity to process big data in real time, leading to weak online communication with market participants and an inability to deliver tailored marketing content. Consequently, there is an urgent need to examine how cloud computing can bridge this gap and develop more agile, effective marketing strategies to navigate continuous market volatility (Hanelt et al., 2021).

The process of developing cloud-based electronic marketing also faces highly complex security challenges represented by concerns over protecting sensitive investor data and ensuring its safety from unauthorized cyber intrusions. Privacy and confidentiality of financial information are considered the greatest obstacles to the spread of this technology, as users fear losing control over their data stored by a third party (the cloud service provider). These risks become more severe in the absence of sufficient legal guarantees to protect intellectual property rights and data from manipulation or digital theft that may damage the reputation of financial institutions. Building a successful cloud marketing system requires complex encryption measures and international security standards to enhance investor confidence, which currently represents a major challenge for institutions operating in the Iraqi environment (Bakari, 2024).

Legislative and legal challenges also constitute a major obstacle to regulating cloud-based electronic marketing activities in Iraq, as there is still a lack of laws that protect electronic transactions and define the legal responsibilities of service providers. There is an urgent need for clear governance frameworks regulating the contractual relationship between financial companies and cloud providers, especially regarding data storage locations and compliance with international privacy standards. The absence of unified government policies for digital transformation leads to varying levels of investor trust, thereby weakening the economic viability of adopting these advanced technologies. Consequently, drafting legislation that aligns with the modern nature of cloud technology has become an absolute necessity to guarantee a secure and sustainable investment environment—one that supports the growth of the Iraqi Stock Exchange in the digital era (Maash & Wahab, 2024).

The shortage of qualified personnel and limited awareness of cloud computing concepts pose a major obstacle to the development of e-marketing, as organizations lack the analytical skills required to manage advanced cloud systems. Furthermore, a significant gap persists in the capacity to process investors' digital footprints and translate them into marketing strategies that enhance customer satisfaction and loyalty within the Iraqi environment. In addition, the problem of resistance to change emerges among traditional employees who fear losing their job roles due to automation and the replacement of local devices with cloud systems. Overcoming this challenge requires intensive training programs to spread the culture of digital transformation among employees in the financial market and to develop their skills in effectively dealing with Software as a Service (SaaS) applications (Al-Jubory et al., 2026).

The research problem is represented by the inadequate utilization of cloud computing tools by the Iraqi stock market, which negatively affects the effectiveness of electronic marketing. There is also a lack of studies addressing this topic specifically within the Iraqi context, which hinders achieving the maximum benefit from available investment opportunities. Accordingly, the research raises the following questions:

1. What is the role of cloud computing technologies in developing electronic marketing strategies and enhancing marketing performance in the Iraqi stock market?
2. What are the contributions of cloud computing to the development of electronic marketing strategies within the Iraqi stock market?
3. What are the security and cybersecurity challenges facing investors' data in the cloud, and how do they affect investors' confidence in electronic platforms?
4. To what extent does cloud computing affect electronic marketing within the Iraqi stock market?

Study Objectives:

The objectives of the research are to identify the role of cloud computing in developing electronic marketing in the Iraqi stock market, which are represented in the following objectives:

- 1- To identify the role of cloud computing technologies in developing e-marketing strategies and enhancing marketing performance within the Iraqi Stock Exchange.
- 2- To demonstrate the contributions of cloud computing to the development of e-marketing strategies within the Iraqi Stock Exchange.
- 3- To examine the security and cyber challenges facing investor data in the cloud and their impact on trust in digital platforms.
- 4- To assess the impact of cloud computing on e-marketing within the Iraqi Stock Exchange.

Significance of the Study:

The significance of this research lies in its potential to develop the Iraqi Stock Exchange and enhance its e-marketing mechanisms. It provides valuable insights into how cloud computing can be leveraged to achieve better outcomes, which are categorized as follows:

1- Scientific Importance:

- Enriching managerial thought regarding the role of cloud computing in developing e-marketing strategies within the Iraqi Stock Exchange. This introduces innovative solutions that can help the exchange optimize its marketing practices and attract a larger pool of investors.
- Establishing theoretical frameworks and guidelines to understand the role of cloud computing in developing e-marketing, which is crucial for aligning marketing strategies with market needs. Furthermore, this research serves as a valuable reference for decision-makers and investors within the stock exchange.

- Highlighting the nature of the relationship between cloud computing and the development of e-marketing in the Iraqi Stock Exchange, thereby enhancing the transparency of marketing and financial information directed toward investors.

2- Practical Importance:

- Leveraging cloud computing to process massive datasets in real time, thereby enabling companies to execute omni-channel marketing campaigns and gain a more precise understanding of investor behavior. Additionally, this technology helps Iraqi financial institutions avoid the exorbitant costs of building on-premise infrastructure (servers and hardware), replacing it with a pay-as-you-go model that effectively reduces fixed expenditures.
- By providing accurate and instantly updated information, cloud computing contributes to improving the quality of investment decisions, which increases investors' confidence in the financial market. It also enables access to marketing applications and financial data from anywhere and at any time via the internet, which is vital for business sustainability under different conditions.
- Enhancing the cloud's ability to allow companies to increase or decrease computing resources according to market needs, which accelerates responsiveness to the rapid changes in the Iraqi stock market and overcomes the challenges of software maintenance and updating, as this responsibility falls on the cloud service provider, thereby allowing companies to focus on their core marketing and financial activities.

Theoretical Framework:

The researcher can present and analyze previous studies according to their relation to the research variables as follows:

- Studies addressing the determinants of cloud computing usage and its challenges.
- Studies on E-marketing, its strategies, and its significance in financial markets.

1- Studies Addressing the Determinants of Cloud Computing Usage and Its Challenges:

Low & Chen, 2011 aimed to identify and understand the fundamental determinants that drive organizations to adopt cloud computing technology, with a focus on technological, organizational, and environmental factors. The study reviewed how the technical characteristics of the cloud, such as flexibility and cost reduction, contribute to motivating companies to shift from traditional systems. **The results of the study concluded that technological compatibility and the relative advantage provided by the cloud compared to local infrastructure are among the most important motivating factors.** The importance of top management support was also identified as a critical organizational factor facilitating the digital transformation process. This study is considered a key reference in understanding how institutional contexts shape decisions regarding the adoption of cloud technologies. On the other hand, technological complexity and concerns related to information security were identified as negative determinants that may hinder the adoption process.

Shehata, 2019 also addressed the role of cloud computing technology as one of the innovations in information technology in improving the quality of financial reports for small and medium-sized enterprises, as well as the determinants of use and the risks of application, especially with regard to compliance with the requirements of the International Financial Reporting Standards (IFRS).

The results of the study concluded that cloud computing enhances the qualitative characteristics of accounting information, thereby providing technical and economic advantages for enterprises without bearing the burdens of owning technology. The study identified a number of challenges and risks, including increased information security risks and the need for a legislative environment that protects data privacy. It also found that cloud adoption contributes to enhancing compliance with international standards and improving transparency, in addition to the necessity for small enterprises to adopt this technology in order to reduce capital and operational costs.

Gab Allah, 2019 aimed to identify the most important factors affecting the adoption of cloud computing technology in the accounting field within commercial banks in Egypt. The study relied on the Technology Acceptance Model (TAM) through a field study involving accountants and financial managers.

The results of the study concluded that strong evidence regarding the suitability of the TAM model in determining influencing factors, where perceived usefulness and ease of use were the two main drivers of adoption. The study also found that organizational determinants, such as top management support and the availability of financial resources, play a vital role in the transition to the cloud. Furthermore, the study identified challenges related to the necessity of scientific and practical qualification for those responsible for implementation before the actual adoption process, as well as the need to conduct intensive training courses for employees to enable them to deal efficiently with cloud technologies.

Abdul-Ghaffar (2019) explored a future outlook for adopting cloud auditing practices within the Egyptian business environment, utilizing the Technology Acceptance Model (TAM). The study focused on two core dimensions from the auditors' perspective: perceived usefulness and perceived ease of use. The findings revealed that economic, organizational, and technological factors—alongside risk management—constitute the fundamental determinants influencing the decision to implement cloud accounting. While auditors recognize the value of the cloud in enhancing audit quality and saving time and effort, they still face challenges related to deficient technical skills.

The results of the study concluded that highlighted the urgent need for audit firms to upskill their personnel to keep pace with rapid digital transformation, recommending the promotion of a tech-driven culture to raise awareness of the benefits of cloud applications.

Al-Shahrani, 2020 revealed the existence of obstacles limiting the optimal utilization of cloud computing applications, including weak infrastructure in schools and the urgent need for specialized training programs for supervisors. The study aimed to identify the reality of mathematics supervisors' use of cloud computing applications in authentic assessment processes in the Kingdom of Saudi Arabia. The researcher used the descriptive analytical method and applied a questionnaire to a sample of 192 supervisors.

The results of the study concluded that the arithmetic means of application usage ranged between (2.07 and 3.63), indicating a high level of use in supervisory processes. The study also found statistically significant differences in the degree of utilization attributable to years of experience and training courses in favor of those with greater experience and training. The study recommended the necessity of developing technological infrastructure and reducing administrative burdens on teachers and supervisors to enhance the benefits derived from these technologies.

Al-Sawi et al., 2021 pointed to the existence of security concerns related to the retention of copies of deleted files by service providers and the lack of sufficient guarantees for confidentiality. The study aimed to identify cloud computing applications in document management within Omani institutions and the challenges facing document specialists. A total of 105 document specialists from 33 diverse Omani institutions participated in the study, which used a mixed-method approach (quantitative and qualitative).

The results of the study concluded that the lack of training courses for developing application skills represented the greatest challenge at a rate of (82.9%), followed by weak technical knowledge among specialists at a rate of (59%). Additionally, concerns regarding internet connectivity disruptions and difficulties accessing files emerged as a significant technical barrier, cited by 39% of respondents. The study further recommended raising awareness among executives regarding cloud-based document management systems, alongside establishing the necessary legal protections for data safeguarding.

Vasiljeva et al. (2022) examined the key factors influencing the adoption of cloud computing services among small and medium-sized enterprises (SMEs) in Latvia. The findings indicated that the primary drivers for adoption include realized competitive advantage and ease of data access, whereas initial setup costs for certain models and security concerns emerged as the main challenges. Utilizing a survey distributed to 380 employees across 86 different firms, the researchers found that small enterprises adopt cloud computing chiefly to enhance employee performance and boost customer satisfaction.

The results of the study concluded that medium-sized enterprises view the cloud as a strategic opportunity for growth, scalability, and overcoming the limitations of traditional infrastructure. The study concluded that while corporate awareness of cloud benefits is remarkably high, actual implementation remains constrained by certain technical and organizational barriers.

Al-Rukaf, 2022 focused on diagnosing the challenges facing higher education institutions when using cloud computing in educational processes. The study identified the problem of interoperability as an obstacle, as institutions face difficulties integrating the various cloud services and applications used. In addition, there is limited awareness of the cloud concept among academics, which requires further research to explore its full benefits.

The results of the study concluded that protecting sensitive student and employee data from cyber breaches is considered a major challenge, requiring strong security measures such as encryption and two-factor authentication. It also found that cloud performance depends entirely on the quality and speed of internet connectivity, making service interruptions an obstacle to an effective user experience. The study recommended selecting systems characterized by sufficient flexibility to accommodate rapid technological changes.

Al-Fumaih et al., 2022 addressed the role of cloud computing in improving the quality of financial reports within organizations in Kuwait, as well as the nature of cloud computing and its role in enhancing accounting operations. The study also discussed the challenges facing implementation, most notably concerns related to the security and confidentiality of accounting information when transferred to external servers.

The results of the study concluded that demonstrated adopting this technology leads to a substantial reduction in recruitment costs as well as data retention and storage expenses. Furthermore, it contributes to minimizing the time and effort required to execute all accounting processes, which in turn enhances the accuracy of financial reporting. The prevailing trend shifts toward cloud adoption to leverage its advantages despite potential risks. Consequently, the study recommended that companies integrate cloud solutions into their accounting departments while implementing robust technological measures to mitigate security risks.

Alkhasawneh et al. (2025) indicated that the absence of unified governance frameworks, combined with employees' limited digital skills, leads to the ineffective implementation of cloud systems. Examining the drivers and barriers influencing cloud computing adoption within government organizations, the study highlighted that safeguarding sensitive data and public information stands as the primary obstacle to digital transformation.

The results of the study concluded that security risks and privacy concerns constitute critical barriers preventing government agencies from fully adopting the cloud, particularly in developing nations characterized by regulatory ambiguity. Furthermore, weak institutional trust in the cloud's capacity to ensure data integrity hinders the full utilization of e-government applications. Consequently, the study recommended the development of clear risk management strategies and human capacity-building initiatives to ensure successful cloud adoption.

2- Studies on E-marketing, its strategies, and its significance in financial markets:

Lee et al. (2015) focused on the role of social media in capital markets, particularly regarding consumer data. The study highlighted that digitally circulated information can trigger immediate stock price reactions, explaining how digital marketing strategies help manage information crises that companies might face in the markets.

The results of the study concluded that social media serves as a vital information channel influencing financial market perceptions of companies. Furthermore, digital engagement with the public provides proactive indicators for investment managers and financial analysts. Additionally, Al-Sartawi (2019) evaluated the relationship between information transparency—achieved through social media disclosure—and corporate value. The study demonstrated that information marketing via these platforms serves as an effective tool for enhancing investor relations, noting that companies adopting active digital disclosure strategies tend to be more attractive in financial markets.

The results of the study concluded that the use of digital platforms to communicate with financial markets contributes directly to increasing the market value of firms, and that digital transparency enhances investors' ability to evaluate company performance more accurately.

Elsawy, 2022 aimed to examine the impact of accounting disclosure through the internet and social media on the cost of capital in the Egyptian Stock Exchange, indicating that this approach increases investor confidence and improves the corporate image of companies.

The results of the study concluded that found a significant negative relationship between disclosure through social media platforms and the cost of capital, meaning that digital informational marketing reduces financing costs. The study also concluded that the use of digital disclosure strategies improves the information environment and reduces information asymmetry in the financial market. The study recommended that companies should activate digital communication channels to enhance the efficiency of the capital market.

Gao et al., 2023 examined the impact of adopting e-commerce and digital marketing on the financial performance and sustainability of micro, small, and medium-sized enterprises (MSMEs) during the COVID-19 pandemic period. The study emphasized that digital transformation is no longer an option but a necessity to ensure financial sustainability and expand the customer base, and that companies integrating digital marketing strategies were more efficient in managing operational costs. This study serves as an essential reference for understanding the role of marketing in improving corporate financial indicators during crises.

The results of the study concluded that the adoption of e-marketing tools directly contributed to enhancing companies' financial outcomes, thereby bolstering their resilience and competitive edge in volatile markets.

Sharabati et al. (2024) the study is analyzed the impact of digital marketing on the performance of small and medium-sized enterprises (SMEs) in light of recent digital transformations. The study demonstrated that e-marketing provides real-time performance data, enabling management to make precise strategic decisions that serve the organization's financial goals; thus, it stands as evidence that digital marketing is a fundamental pillar for enhancing both marketing and financial efficiency in the digital era.

The results of the study concluded that digital marketing drivers significantly contribute to improving overall corporate performance, particularly when aligned with technological advancements. Furthermore, investing in digital marketing capabilities substantially bolsters companies' competitive advantage in the market.

Dhal et al. (2025) examined the impact of technology on customer experience in financial services, focusing on the role of digital tools in enhancing engagement. The study demonstrated that integrating technology into the marketing operations of financial services significantly improves customer satisfaction and loyalty, noting that financial institutions utilizing innovative digital marketing strategies achieve higher efficiency in attracting both investors and clients.

The results of the study concluded that digital interaction helps bridge the information gap between financial institutions and their clients, highlighting the necessity of adopting ethical digital strategies to bolster trust in the financial market.

Biyi Wu (2025) underscored the importance of market research and product planning in e-commerce projects, while analyzing their underlying strategies and methods. The study demonstrated that data-driven decisions and the integration of emerging technologies, such as Artificial Intelligence (AI), are the keys to success in digital marketing. Furthermore, optimizing mobile commerce (m-commerce) represents a fundamental shift in how

consumers interact with financial and commercial platforms. The study also noted that effective digital marketing relies on aligning products with actual market needs and technological trends,

The results of the study concluded that continuous market research helps companies adapt to rapid shifts in consumer preferences.

Rolando and Mulyono (2025) illustrated the role of e-commerce as a catalyst for growth in the digital economy and examined the impact of marketing strategies on this development. They highlighted a strategic pivot from product-centric to customer-centric marketing, which enhances value distribution across digital markets. Additionally, implementing multi-channel marketing significantly contributes to increasing conversion rates and customer lifetime value (CLV), while social media platforms have evolved into essential commercial channels that merge social interaction with business activities.

The results of the study concluded that the success of the digital economy is intrinsically linked to effective digital marketing strategies and technological innovations, such as big data analytics.

Danyal Mohiuddin (2026) examined adaptive marketing systems and consumer feedback loops, investigating their impact on market development in emerging economies. The study demonstrated that feedback mechanisms do not merely adjust operations, but rather drive tangible and measurable financial outcomes. Furthermore, these systems enhance the capacity of emerging markets to respond to customer demands in real time, making adaptive marketing a strategic necessity for sustainable growth in digital market environments.

The results of the study concluded that companies employing adaptive marketing systems and automated feedback loops experienced double-digit growth in both engagement and sales within the first year.

Basit and Nasir (2026) emphasized digital transformation enablers and the mediating role of digital agility in marketing performance. They highlighted that 'digital agility' empowers firms to detect and swiftly respond to market shifts while efficiently redefining their strategies. The authors argued that investments in digital technology must be backed by agility-enhancing processes to achieve long-term marketing outcomes, noting that big data analytics improve the quality of marketing decisions and provide a competitive edge. Ultimately,

The results of the study concluded that technologies such as Artificial Intelligence (AI), cloud computing, and big data analytics positively influence digital marketing performance through both direct and indirect pathways.

Research Hypotheses: They hypotheses can be formulated as following:

H1: There is a statistically significant impact of cloud computing technologies on developing e-marketing strategies and enhancing marketing performance within the Iraqi Stock Exchange.

H2: There is a statistically significant effect of the contributions of cloud computing in developing electronic marketing strategies within the Iraqi stock market.

H3: There is a statistically significant impact of the security and cyber challenges facing investor data in the cloud on their trust in electronic platforms.

H4: There is a statistically significant impact of cloud computing on e-marketing within the Iraqi Stock Exchange.

Practical Framework: The practical framework is structured as follows:

1- Research Limits and Scope:

- **Objective Scope:** This study is limited to examining the role of cloud computing in developing e-marketing within the Iraqi Stock Exchange, excluding other technical and operational aspects.
- **Spatial Scope:** The empirical research is conducted on Iraqi companies listed on the Iraqi Stock Exchange within the ISX60 index. While the index comprises approximately 60 companies, this study specifically focuses on a sample of 10 companies spanning various sectors.
- **Temporal Scope:** The study spans a five-year period, covering data from 2020 through 2024.

2- Study Methodology:

This study relies on an integrated mix of scientific methodologies to achieve a high degree of comprehensiveness and accuracy in analyzing the role of cloud computing in developing e-marketing within the Iraqi Stock Exchange. By combining inductive, deductive, and descriptive-analytical approaches, the study ensures a robust link between its theoretical and empirical dimensions.

- **The Inductive Approach:** This methodology is utilized to review and analyze existing Arabic and foreign literature on cloud computing and e-marketing, with a specific focus on studies examining the relationship between modern technology and financial market performance. This approach contributes to building a comprehensive perspective on core concepts, identifying research gaps, and shaping the study's conceptual framework, thereby supporting the development of testable scientific hypotheses.
- **The Deductive-Analytical Approach:** This methodology builds upon the hypotheses derived from the theoretical framework and applies them directly to the environment of the Iraqi Stock Exchange. It aims to transition from the general theoretical framework to specific conclusions by analyzing empirical data. This contributes to verifying the extent to which cloud computing adoption influences the development of e-marketing activities and enhances marketing performance efficiency within firms operating in the market. Consequently, it is used to describe the current state of cloud computing adoption inside financial institutions, analyze its various dimensions, and evaluate the implementation level of e-marketing strategies.

3- Study Population and Sample:

The population consists of all personnel operating within the Iraqi Stock Exchange (including administrators, technicians, and financial analysts), in addition to brokerage firms. A random sampling technique (either simple or stratified) is employed to accurately represent this population and facilitate the generalizability of the findings. Specifically, the study tests a

sample of 10 listed companies included in the ISX60 index over a five-year period from 2020 through 2024.

4- Sampling Unit:

The sampling unit is defined as the listed companies on the Iraqi Stock Exchange during the specified study period. Each company serves as an independent unit of analysis to examine the role of cloud computing in developing e-marketing. This aligns with the panel data methodology adopted for the statistical analysis, allowing for a more precise and objective examination of both time-series changes and cross-sectional differences among the firms.

5- Methods and Techniques of Data Collection:

This study relies on a combination of primary and secondary data to ensure the construction of a rigorous empirical model designed to evaluate the role of cloud computing in developing e-marketing within the Iraqi Stock Exchange. Annual financial statements published on the official websites of companies, as well as disclosure and trading reports available through the official website of the Iraqi Stock Exchange, are collected.

6- Study Variables:

The study variables are as follows:

- **Independent Variable:** Cloud Computing, measured through: infrastructure provision, Software as a Service (SaaS), and Platform as a Service (PaaS).
- **Dependent Variable:** Development of electronic marketing, measured through: automation of marketing processes, customer segmentation, and digital customer journey personalization.

7- Statistical Methods Used:

The SPSS software will be used through the following:

- Content analysis of variables.
- Multiple regression analysis to measure the extent of the impact of cloud computing as an independent variable on electronic marketing as a dependent variable.

Results of Statistical Analysis:

The study companies consist of 10 companies, as shown in the following table:

Table (1): Companies included in the study scope

No.	Company	Sector	Capital (Iraqi Dinar)
1	Asia Cell	Telecommunications	310,000,000,000.00
2	Iraqi Carpet and Furniture Company	Textile Industries	500,000,000.00
3	Al-Mansour Pharmaceutical Industries	Pharmaceutical Industries	18,560,000,000.00
4	Kurdistan International Islamic Bank for Investment and Development	Banking and Financial Services	400,000,000,000.00
5	Al-Mansour Investment Bank	Banking and Financial Services	445,000,000,000.00
6	Ishtar Hotels and Tourism	Tourism and Hotels	7,000,000,000.00
7	Baghdad Hotel	Tourism and Hotels	4,000,000,000.00
8	National Tourism Investment and Real Estate Projects Company	Tourism and Real Estate Investment	6,253,175,025.00
9	Baghdad Soft Drinks Company	Food and Beverage Industries	204,335,333,333.00
10	Iraqi National Bank	Banking and Financial Services	520,000,000,000.00

Source: Prepared by the researchers, based on the Iraqi Stock Exchange website.

Justification for selecting data from these companies for use:

- **Visiting official websites:** Reviewing the available information on company websites to obtain details about their use of cloud computing in electronic marketing.
- **Direct communication:** Contacting the public relations teams or marketing departments in these companies to request information or arrange interviews in order to obtain deeper insights.
- **Utilizing press and media reports:** Search for articles and reports covering these companies' activities in the field of cloud computing and electronic marketing.
- **Social Media Monitoring:** Review and analyze the official social media accounts of these companies (such as LinkedIn, Facebook, and X) to gather real-time updates and supplementary qualitative data.

1- Results of the First Hypothesis Test:

The first hypothesis states that there is a statistically significant impact of cloud computing technologies on developing e-marketing strategies and enhancing marketing performance within the Iraqi Stock Exchange. The statistical analysis results revealed that cloud computing effectively contributes to improving the efficiency of marketing activities by providing a flexible technical infrastructure. This infrastructure supports rapid data access, analysis, and exchange between companies and their clients. Furthermore, it enhances the capacity of listed companies to execute digital marketing campaigns with greater efficiency, elevates the quality of online communication with clients, and accelerates responsiveness to market demands. Consequently, this positively impacts the firms' marketing performance and boosts their competitive edge within the Iraqi Stock Exchange.

Table (2): Content Analysis Results for Cloud Computing Technology in the Sampled Companies

No.	Company	2020	2021	2022	2023	2024	Overall Average per Company
1	Asia Cell	0%	33%	67%	100%	100%	60%
2	Iraqi Carpet and Furniture Company	33%	33%	33%	67%	67%	47%
3	Al-Mansour Pharmaceutical Industries	33%	33%	67%	67%	67%	53%
4	Kurdistan International Islamic Bank for Investment and Development	33%	33%	67%	100%	100%	67%
5	Al-Mansour Investment Bank	33%	33%	67%	100%	100%	67%
6	Ishtar Hotels and Tourism	33%	33%	33%	67%	67%	47%
7	Baghdad Hotel	33%	33%	33%	67%	67%	47%
8	National Tourism Investment and Real Estate Projects Company	33%	33%	67%	67%	67%	53%
9	Baghdad Soft Drinks Company	33%	33%	67%	67%	67%	53%
10	Iraqi National Bank	33%	67%	100%	100%	100%	80%
Overall average of companies per year		30%	36%	60%	80%	80%	57%

Source: Prepared by the researchers, based on content analysis.

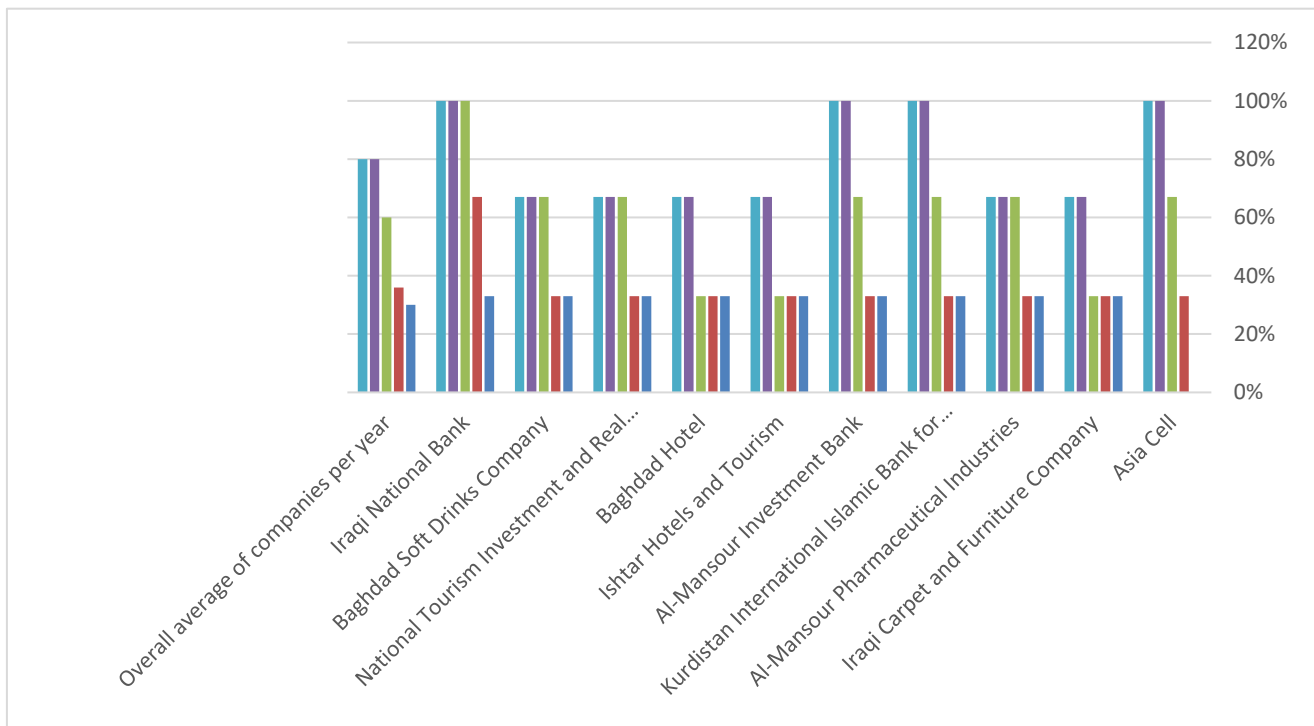


Figure (1): Content Analysis Results for Cloud Computing Technology in the Sampled Companies

The preceding table and figure clearly illustrate a continuous upward trend in the adoption of this technology. The overall average for the sampled companies rose from 30% in 2020, peaking at 80% in both 2023 and 2024, with a grand total average of 57%. The data also reveals a variance in the pace of digital transformation and responsiveness across different sectors. The National Bank of Iraq led the list with the highest overall average of 80%, achieving full (100%) compliance since 2022. It is followed by Kurdistan International Bank, Mansour Bank, and Asiacecell, all of which demonstrated high adoption rates ranging between 60% and 67%, reaching maximum readiness (100%) in recent years. This underscores the strategic importance of cloud computing within the telecommunications and banking sectors. Conversely, companies in the tourism and hospitality sector (such as Baghdad Hotel and Ishtar Hotel), along with certain industrial firms (such as the National Company for Chemical and Plastic Industries or Al-Sajjad), exhibited a more conventional and stable response, with an overall average not exceeding 47%. Despite this disparity, the aggregate result confirms a collective and positive shift toward relying on cloud computing as an essential tool for business development within the Iraqi investment environment.

2- Results of the Second Hypothesis Test:

The second hypothesis of the study states that there is a statistically significant impact of cloud computing contributions on developing e-marketing strategies within the Iraqi Stock Exchange. The results of the statistical analysis showed that cloud computing applications have contributed to enhancing the efficiency of digital marketing strategies by providing an advanced technological environment that enables companies to manage marketing data more

quickly, accurately, and flexibly. Cloud computing has also helped improve the quality of online advertising campaigns, expand access to customers and investors, and support the use of digital platforms and social media in promoting investment services and activities.

Table (3): Results of Content Analysis of Electronic Marketing in the Studied Companies

No.	Company	2020	2021	2022	2023	2024	Overall Average per Company
1	Asia Cell	33%	67%	100%	100%	100%	80%
2	Iraqi Carpet and Furniture Company	0%	33%	33%	67%	100%	47%
3	Al-Mansour Pharmaceutical Industries	33%	33%	67%	67%	67%	53%
4	Kurdistan International Islamic Bank for Investment and Development	33%	33%	67%	100%	100%	67%
5	Al-Mansour Investment Bank	33%	33%	67%	100%	100%	67%
6	Ishtar Hotels and Tourism	33%	33%	33%	67%	67%	47%
7	Baghdad Hotel	33%	33%	33%	67%	67%	47%
8	National Tourism Investment and Real Estate Projects Company	33%	33%	67%	67%	67%	53%
9	Baghdad Soft Drinks Company	33%	33%	67%	67%	67%	53%
10	Iraqi National Bank	33%	67%	100%	100%	100%	80%
Overall average of companies per year		30%	40%	63%	80%	84%	59%

Source: Prepared by the researchers, based on content analysis.

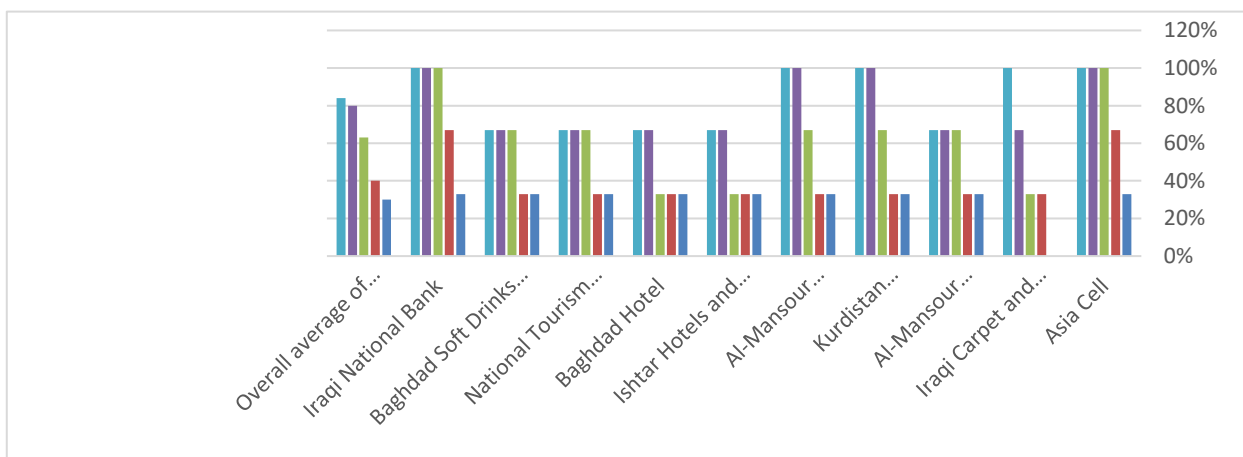


Figure (2): Results of Content Analysis of Electronic Marketing in the Studied Companies

It is evident from the previous table and figure that there is rapid growth and a clear strategic transformation toward the adoption of digital marketing tools, as the overall average of companies steadily increased from 30% in 2020 to reach its highest level of 84% in 2024, recording an overall general average of 59%. The data also show the joint leadership of both Asia Cell and the Iraqi National Bank as the highest overall average at 80%, with both achieving full readiness and compliance at 100% since 2022. They are followed directly by Kurdistan International Bank and Al-Mansour Investment Bank with an average of 67% and full compliance in the last two years. This highlights the significant importance and early

adoption of digital solutions in the telecommunications and banking sectors due to their direct linkage with the public and financial inclusion. In contrast, the remaining companies in industrial and tourism sectors (such as soft drinks, pharmaceuticals, hotels, and real estate investments) showed a gradual and stable growth trajectory, with overall averages ranging between (47%–53%). A notable exception is the Iraqi Carpet and Furniture Company, which moved from complete absence of indicators (0%) at the beginning of the period to full compliance at 100% in 2024. Taken together, these findings confirm a growing collective corporate awareness within the Iraqi business environment regarding the importance of automation, as well as the segmentation and customization of the digital customer journey to enhance competitive efficiency.

3- Results of the Third Hypothesis Test:

The third hypothesis of the study states that there is a statistically significant impact of security and cyber challenges facing investor data in the cloud on their trust in electronic platforms. The statistical analysis results revealed that information security risks—such as data breaches, weak protection systems, and financial information leakage—directly influence investors' level of trust in utilizing digital platforms and e-services associated with trading and investment.

Table (4): Pearson Correlation Analysis Results

Pearson Correlation	Sig.
0.896	0.000

Source: SPSS results.

The preceding table indicates that the Pearson Correlation analysis reveals a very strong, statistically highly significant positive relationship between the two variables under study. The correlation coefficient (r) reached 0.896, a value that closely approaches 1.00, demonstrating a robust positive interdependence and alignment between the variables. Absolute statistical confidence in this result is confirmed by the significance level (p-value / Sig.), which reached 0.000—a value substantially lower than the standard alpha level (alpha = 0.05). Consequently, the null hypothesis is rejected, and the alternative hypothesis is accepted, confirming that a true, stable relationship exists between the two variables within the study population rather than being a matter of mere coincidence.

4- Results of the Fourth Hypothesis Test:

The fourth hypothesis of the study states that there is a statistically significant impact of cloud computing on e-marketing within the Iraqi Stock Exchange. The statistical analysis results demonstrated that adopting cloud computing technologies enhanced the efficiency and effectiveness of digital marketing activities among the listed companies. These technologies contributed to providing a flexible digital environment that facilitates rapid access to marketing data and information, while elevating the quality of communication with clients and investors across various electronic platforms.

Table (5): Multiple Regression Results Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.896a	0.803	0.793	25.58603

Source: SPSS results.

The statistical model results indicate a high explanatory power for the model utilized to test the relationship between the independent and dependent variables. The correlation coefficient (R) reached 0.896, demonstrating a strong positive correlation between the variables under study. Furthermore, the coefficient of determination (Rsquared) was 0.803, implying that the independent variable explains 80.3% of the variance in the dependent variable. This high explanatory power reflects the model's efficiency in accounting for the phenomenon under investigation. Similarly, the Adjusted Rsquared reached 0.793, indicating that the model retains its strong explanatory robustness even after adjusting for the degrees of freedom related to sample size and the number of predictors. Lastly, the Standard Error of the Estimate (25.58603) illustrates the level of dispersion between the actual and predicted values, confirming that the model possesses an acceptable degree of predictive accuracy, which enhances the reliability of the empirical findings regarding the impact of the independent variable on the dependent variable.

Results and Recommendations:

1- Results:

- There is a very strong, statistically significant positive relationship between the adoption of cloud computing technologies and improving the efficiency of e-marketing strategies. The Pearson correlation coefficient reached 0.986, a remarkably high value that confirms this strong interdependence.
- The regression analysis reveals that cloud computing accounts for approximately 80.3% of the variance in e-marketing performance, reflecting the high efficiency of cloud-based solutions in this domain.
- Cybersecurity concerns and data breach risks exert a direct negative impact on investors' trust in utilizing digital platforms.

2- Recommendations:

- There is an urgent need to improve the quality and sustainability of internet services in Iraq to ensure the uninterrupted continuity of cloud-based financial and marketing operations.
- Financial institutions must adopt sophisticated encryption protocols and global security standards to enhance investor trust and safeguard sensitive data against cyber breaches.
- Training programs for financial market personnel must be intensified to develop their skills in handling Software as a Service (SaaS) systems, while promoting a culture of digital transformation to overcome resistance to change.
- Establishing governance frameworks regulating the contractual relationship between financial companies and cloud service providers, in line with international data privacy requirements.

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