

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON THE EFFECTIVENESS OF DIGITAL MARKETING STRATEGIES: A CASE STUDY OF SAUDI TELECOM COMPANIES

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Abstract

This research aims to examine the impact of artificial intelligence (AI) on the effectiveness of e-marketing strategies in Saudi telecommunications companies, given the rapid digital transformation in the business sector. The study employed a descriptive-analytical approach, and the sample comprised 64 participants working in digital marketing. An online questionnaire was used to measure the level of AI adoption, its impact on marketing strategies, its relationship to after-sales services, marketing performance, and infrastructure, and the risks associated with using these technologies.

The results showed a high level of AI impact, with these technologies effectively contributing to improved digital marketing strategies through big data analysis and content personalization. The findings also indicated that AI contributes to the development of after-sales services and enhances customer satisfaction and loyalty. However, the study revealed challenges with infrastructure and a shortage of skilled personnel, as well as risks to data protection and privacy. The study recommends enhancing specialized employee training, investing in technological infrastructure, and developing effective information security policies. It also suggests conducting future studies addressing the ethical dimensions of artificial intelligence technologies.

Keywords: Artificial intelligence, digital marketing, marketing strategies, big dat

Acknowledgments

The author would like to express sincere appreciation to the University of Jeddah for its academic environment and continuous support that contributed to the completion of this research. Special thanks are extended to the participants from Saudi telecommunications companies who generously dedicated their time and insights to complete the questionnaire. Their valuable contributions were essential to the success of this study. The author also appreciates the constructive feedback provided by colleagues and reviewers, which helped enhance the quality and clarity of this work.

Funding

This research received no external funding and was conducted as part of the author's academic research activities at the University of Jeddah, Saudi Arabia.

Conflict of Interest

The author declares that there is no conflict of interest regarding the publication of this paper. The research was conducted independently, and no financial or commercial relationships could be construed as a potential conflict of interest.

Biography

Dr. Thair Abed Alrahman Mohamed Habbosh is an Associate Professor of Business Administration at the College of Business, University of Jeddah, Saudi Arabia. He received his PhD in Business Administration and Marketing from Universiti Sains Malaysia (USM) in 2013. He also holds a master's degree in business administration and marketing from the Arab Academy for Financial and Banking Sciences and a bachelor's degree in business administration from Yarmouk University.

Dr. Habbosh has over twenty years of academic and professional experience in higher education, research, and administration. His research interests include marketing, consumer behavior, marketing innovation, marketing information systems, e-commerce, and administrative leadership.

Introduction

Due to technological improvements, there have been substantial changes in several areas in recent years, especially in industry and internet marketing. Companies now use digital marketing as a vital tool to communicate with customers and display their products, creating new opportunities and improving the customer experience. By focusing on a full, technologically advanced digital environment, the digital revolution has changed how consumers think and how businesses approach problems. One of the most significant areas of computer science today is artificial intelligence (AI), which aims to create systems that can understand, make decisions, and analyze data in ways similar to how humans do. AI helps businesses enhance their digital marketing strategies and tailor content to better meet customer needs by recognizing people, analyzing large amounts of data, and making intelligent recommendations.

Early in the 1990s, digital marketing emerged with an emphasis on electronic media advertising. With the advent of smartphones and social media, these tools became useful for improving the user experience and for customer interaction. To accurately analyze data, customize advertising campaigns, and better understand consumer behavior—all of which contribute to improved marketing efficiency and more effective communication with the target audience—it has become imperative in recent years to integrate artificial intelligence technologies into digital marketing. Chatbots, big data analytics, search engine optimization (SEO), ad performance analysis, and email marketing tactics are examples of artificial intelligence (AI) uses in digital marketing that increase campaign efficacy and ROI. There are still gaps in the full use of these technologies, though, which call for specialist research on how AI affects the creation of digital marketing strategies and gives businesses a long-term competitive edge.

Given their usefulness in big data analysis, content personalization, and customer experience improvement, artificial intelligence (AI) technologies have emerged as a key area of focus in global digital marketing development. This has led to increased audience engagement and better marketing campaign efficiency (Kong, Li, Nassif, Fiez & Chakrabarti, 2023). According to a study by Al-Asdoudi (2023), AI applications like dynamic pricing, intelligent content organization, and marketing analytics are crucial for boosting a company's competitive edge in terms of market share, profitability, and brand image.

A study conducted at the regional level in Egypt found that using artificial intelligence (AI) tools improves the quality of digital marketing in dairy businesses. The findings demonstrated how these technologies boost sales and give businesses a competitive edge by offering efficient after-sales support through automated responses and ongoing client communication (Ismail, 2021). A recent Saudi study by Moodhi Raid et al. (2024) showed that implementing AI in customer relationship management (CRM) and communication marketing operations is a crucial tool for enhancing the effectiveness of marketing campaigns in Saudi businesses at the local level. Another study in this area (Hebah Al-Munae, 2025) found that while small businesses encounter obstacles like implementation costs and a lack of technical expertise, which restrict their ability to benefit from these technologies fully, large companies are better equipped to adopt AI technologies because they have access to advanced digital infrastructure and financial resources.

Even though these local studies have produced encouraging results, their scope remains narrow, indicating a glaring research gap that calls for larger studies that include a broader range of businesses and industries in the Saudi market. The goal of these studies should be to investigate how artificial intelligence (AI) might improve e-marketing tactics and bolster competitive advantage. Consequently, the following query might be used to summarize the research problem: How effectively can AI technologies be applied to boost marketing performance, sustain a durable competitive advantage, and enhance e-marketing tactics in Saudi telecom companies?

Thus, this study aims to investigate e-marketing strategies and their implementation in Saudi telecommunications businesses, and to define artificial intelligence (AI) technologies and their many uses in the context of e-marketing. Additionally, the study aims to investigate the nature of the link between AI and other components of digital marketing, including email marketing, digital advertising, social media, and after-sales services. The study also aims to quantify the effect of AI technologies on improving the effectiveness of e-marketing tactics and boosting marketing performance efficiency in businesses. Furthermore, the study aims to identify the main barriers and challenges that AI use in e-marketing faces, and to provide a list of useful suggestions to optimize these technologies' advantages.

Literary Review

Artificial Intelligence Concept

Because of its wide range of applications across industries, artificial intelligence (AI) is among the most notable effects of the Fourth Industrial Revolution. It is anticipated that this field will be a catalyst for advancement and prosperity in the years to come, opening vast avenues for innovation that will lead to further industrial revolutions and profound transformations in human existence. AI is a field of computer science that aims to enable intelligent behavior, according to Alsheikh (2016, p. 269). In this field, we require a programming language to express the information and algorithms, a data system to display the knowledge, and algorithms to determine how to use this information.

According to Russell (2009), artificial intelligence (AI) refers to systems that can execute tasks by imitating human intelligence and that can improve based on the data they collect. This has less to do with their ability to perform certain tasks and more to do with their capacity for

reasoning and analysis. Using chatbots that interpret natural language to comprehend client needs and enable them to ask inquiries and get answers is one of the many applications of artificial intelligence. Over time, these chatbots can learn to improve customer experiences (Chintalapati & Pandey, 2021); comprehend customer issues more quickly and provide more useful responses (Wang, 2022); and use artificial intelligence (AI) to extract important information from massive text datasets to enhance scheduling (Hardiansyah & Judijanto, 2022).

According to Copeland (2003), artificial intelligence (AI) refers to the ability of computer programs or computers to simulate different aspects of human thought and behavior, including speech and movement. Additionally, they can complete a variety of tasks with less human assistance by using the knowledge they have gained. Therefore, specialists define AI as the science that aims to make things intelligent, including robots and natural language processing. AI is now employed to help individuals purchase in a variety of ways, using new technologies to resolve time and shopping issues, improve digital marketing quality, and provide businesses with a competitive advantage (Ziakis & Vlachopoulou, 2023). According to the, we think AI is a strategic tool that helps businesses make better decisions and run their operations more efficiently, particularly in digital marketing, where data can be used to enhance the customer experience. It is not just about mimicking human intelligence.

Characteristics of Artificial Intelligence

Bakr (2008), Phuong (2016), Al-Hawamdeh and Abdel-Moneim (2019), and Dimitris C (2019) have all shown that when artificial intelligence (AI) is incorporated into computer programming, it confers special properties that enable these systems to be considered intelligent. According to Chintalapati and Pandey (2021), these attributes include the following: the ability to handle incomplete information; the ability to represent knowledge through symbols; the ability to represent knowledge within a structured framework that connects facts, relationships, and rules within an organization; the use of an optimistic, experimental approach focused on holistic solutions; and the capacity to learn from past experiences and improve performance. We conclude that these features give businesses a distinct competitive edge when using AI in marketing, enabling them to adapt to market changes and learn from the past quickly.

Artificial Intelligence Applications

Expert system design, reasoning (logic), games, knowledge representation, learning, robotics, vision, and image; speech and writing recognition; human-machine interaction; natural language understanding; multi-abilities systems; planning; deconstraints; computational linguistics; and neural networks are just a few of the domains in which artificial intelligence finds use, according to O'Brien (2011), Geisel (2018), Shahid M (2019), and Zi (2011).

Applications of artificial intelligence can be broadly divided into three categories: applications in robotics, cognitive science, and natural interfaces. As a result, we think that grouping applications into these three primary categories helps businesses find the right tools for any goal, be it data analysis, product development, or customer experience enhancement.

Artificial Intelligence in Business

Among the artificial intelligence systems are: Fuzzy logic systems, which rely on comprehending uncertain values and offering compromise solutions (Ziakis & Vlachopoulou,

2023); Neural networks, which work in parallel across multiple processors to mimic the human brain and learn from data (Chintalapati & Pandey, 2021); expert systems, which imitate the thought processes of human experts in particular fields (Hardiansyah & Judijanto, 2022); and Intelligent Agent systems, which can react to their surroundings, analyze data, and make recommendations (Wang, 2022). In our view, the business's needs and strategy determine which type of AI system is best. For instance, expert systems help make specific decisions, whereas neural networks are appropriate for processing complex data.

Digital Marketing Concept

Bakr (2008), Phuong (2016), Al-Hawamdeh and Abdel-Moneim (2019), and Dimitris C (2019) have all shown that when artificial intelligence is incorporated into computer programming, it confers special properties that enable these systems to be considered intelligent. These qualities include: Knowledge is represented by symbols. The capacity to articulate information in a structured way that links facts, relationships, and organizational regulations. The application of a hopeful experimental strategy that emphasizes all-encompassing solutions. The capacity to deal with insufficient information. The ability to enhance performance by drawing lessons from the past (Chintalapati & Pandey, 2021).

As a result, artificial intelligence's special qualities enable businesses to improve operational efficiency and make better decisions. While dealing with inadequate information gives businesses greater flexibility in handling incomplete data, presenting knowledge in an organized manner and drawing lessons from prior experience help them adjust to rapid market changes. Because of this, artificial intelligence can be used as a strategic tool to help with digital marketing and gain a competitive edge.

Using Artificial Intelligence Tools in Digital Marketing

Artificial intelligence is being used in digital marketing in several ways, such as: AI voice and chatbots to offer round-the-clock customer service and analyze customer inquiries (Chintalapati & Pandey, 2021); enhanced programmatic advertising effectiveness by using data to improve audience targeting and analyze results (Ziakos & Vlachopoulou, 2023); enhanced content creation using AI tools to create customized content for websites, blogs, and social media (Wang, 2022); analysis of customer behavior by analyzing transaction and location data to deliver precise offers and enhance user experience (Hardiansyah & Judijanto, 2022); and higher conversions and sales by identifying patterns in behavior and automatically optimizing website interfaces (Marius).

Because it enables a significant increase in marketing efficiency and a significant improvement in the consumer experience, we can conclude that integrating artificial intelligence into digital marketing is an essential strategic move for businesses. Businesses have a distinct competitive edge in the current digital market thanks to the clever use of technologies like chatbots, automated advertising, and personalized content creation, which help them better understand customer needs and deliver offers specifically designed to increase conversions and sales.

Experimental Studies

According to a study by Abdulrahman (2020), social media platforms have become useful tools for marketing initiatives, and artificial intelligence affects the effectiveness of online marketing

techniques. The impact of marketing intelligence on an organization's competitive performance was examined in a study by Al-Nouri (2020), which also highlighted the application's advantages and disadvantages. According to a study by Dan & Mirona (2020), artificial intelligence solutions can be utilized to solve time, place, and time management issues in digital marketing, demonstrating how these technologies improve competitiveness.

Artificial intelligence (AI) has a significant impact on the development of marketing strategies in industrial organizations, according to a study by Abdul Sheikh Dheeb (2016). The study noted advances in marketing factors, including costing, differentiation, diversification, and collaboration. According to a study by Kumari et al. (2019), AI facilitates the creation of marketing personas through communication, creativity, and customer-specific offerings. Marius (2018) demonstrated how AI affects user-generated content on social media and explained how it helps digital marketing tactics. A 2019 study by Habil also highlighted the influence of big data and marketing intelligence on marketing strategies, emphasizing how the incorporation of AI approaches has transformed marketing both technologically and culturally. Abd Al-Sheikh (2016) also examined the impact of artificial intelligence (AI) on enhancing marketing strategies in industrial firms, including cost reduction, differentiation, diversification, and collaboration. While Marius (2018) demonstrated how AI affects user-generated content on social media platforms and supports digital marketing strategies, Kumari et al. (2019) clarified AI's role in creating marketing personas through personalized offers and enhanced customer communication. The research methods used in earlier studies have differed. To better understand how consumers interact with digital technologies, some studies have used survey or experimental methodologies, while the majority, like Kumari et al. (2019) and Marius (2018), have relied on descriptive-analytical approaches. Other studies have examined how AI deployment affects firms using field methods, including Abd Al-Sheikh (2016).

By increasing the effectiveness of digital marketing strategies and creating customer communication practices, studies have also discovered a positive correlation between the adoption of AI and the improvement of marketing and institutional performance, whether in terms of decision quality, process improvement, or competitiveness. What sets the current study apart is its response to the research request posed by earlier studies, which highlighted the need to extend research on the deployment of artificial intelligence (AI) technologies in Gulf and Arab contexts, especially Saudi ones. Targeting, content, digital advertising, and after-sales services are all integrated in this all-encompassing strategy. The study also seeks to identify the challenges of using AI and to assess the extent of its use in Saudi digital marketing firms. Additionally, to create its theoretical framework, identify variables, choose an appropriate methodology, and design the research instrument, the current study draws on prior research. To support the practical parts of the research and develop hypotheses, it also uses data analysis techniques from those studies.

Study Hypotheses

Based on the research objectives and the theoretical framework, the study formulates the following hypotheses to examine the relationship between the use of Artificial Intelligence (AI) technologies and various dimensions of digital marketing within Saudi telecom companies:

H1: There is a statistically significant relationship between the use of Artificial Intelligence (AI) technologies and the development of digital marketing strategies in Saudi telecom companies.

H2: There is no statistically significant relationship between the use of Artificial Intelligence (AI) technologies and the use of social media in digital marketing.

H3: There is a statistically significant relationship between the use of Artificial Intelligence (AI) technologies and the effectiveness of email marketing as a digital marketing tool.

H4: There is a statistically significant relationship between the use of Artificial Intelligence (AI) technologies and digital advertising performance.

H5: There is no statistically significant relationship between the use of Artificial Intelligence (AI) technologies and the provision of after-sales services.

These hypotheses aim to empirically test the extent to which AI technologies influence different components of digital marketing and customer engagement processes in the Saudi telecommunications sector.

Methodology

Because it is most suited to investigating contemporary phenomena, such as the application of AI technology in the creation of e-marketing strategies, this study used a descriptive-analytical approach. This method enables the description of the real situation in Saudi telecom firms and the analysis of correlations between variables using quantitative data gathered from the sample. The study's goals, which include determining the extent of AI technology adoption and its effects on marketing effectiveness, customer loyalty, and customer experience, are well served by this methodology. Additionally, the research approach focuses on a population of workers who have direct exposure to AI tools and technologies or professional experience working in digital marketing organizations and e-marketing firms in the Kingdom of Saudi Arabia in 2025.

Sample

The study used purposive sampling, focusing on those with experience in digital marketing and its technology applications, as it was challenging to reach every member of the target demographic. All valid replies were included in the statistical analysis, and the sample comprised 64 individuals. The main data collection instrument was an online survey. The questionnaire, which included demographic information and six major sections, was developed in line with the study's goals and topics. A five-point Likert scale was used to design the items.

Descriptive Analysis of Sample Demographic Variables

According to the table, women accounted for most of the sample (56.2%), while men accounted for 43.8%. This suggests that both genders are well represented, broadening the range of viewpoints among participants and enhancing the study's conclusions. According to the data, the study's largest age group was 31–40 years old (34.4%), followed by 25–30 years old (31.2%). This increases the reliability of the results regarding the employment of artificial intelligence because it implies that many participants were young, middle-class individuals who were also the most active in digital marketing and were renowned for embracing new technology.

Three to five years of experience was the most common range (31.3%), followed by one to three years and more than five years (28.1% each). This suggests that many participants have

sufficient real-world expertise in digital marketing, making their evaluation of AI adoption more realistic and balanced. According to the table, the sample is nearly evenly split between large, medium, and small businesses, with medium-sized businesses accounting for 31.2% and large and small businesses for 34.4%. This balanced distribution provides a true picture of AI adoption in the local market, ensuring the study includes a variety of company types.

Notably, most participants—71.9%—have an average to high degree of expertise regarding AI technologies. This is a clear sign that the sample can objectively and precisely evaluate the influence of AI, thereby improving the caliber of responses in other research domains. A reasonable percentage that reflects the existence of in-depth technical expertise inside organizations is the 12.5% specialist group.

Study Tool

By breaking the questionnaire into major units, each representing a study dimension, the units and their research goals were examined. The independent and dependent variables associated with the research hypotheses are intended to be measured by these units. The units were created to quantify the effects of artificial intelligence technology on the development of e-marketing strategies in Saudi telecom businesses, as well as to reflect the study's theoretical framework. Since this was considered the primary independent variable in the study, the unit on using artificial intelligence specifically sought to gauge the extent of smart technology use in businesses, including big data analytics, decision support, content personalization, and chatbot usage.

The purpose of the Digital Marketing Strategies module was to assess how well businesses have created and implemented contemporary digital strategies, including email optimization, targeted advertising, and marketing campaign analysis. One of the dependent variables that is directly tied to the primary hypothesis of the investigation is represented by this module. To gauge the long-term marketing reach of employing smart technologies, the After-Sales and Loyalty Services module sought to assess how artificial intelligence affected customer service, complaint analysis, and consumer satisfaction, and how it fostered loyalty. Lastly, the Marketing Performance module sought to quantify the effects of AI on decision-making, sales growth, corporate image enhancement, and marketing performance efficiency.

Assessing organizations' preparedness in terms of available technological systems, personnel competencies, and training related to the use of artificial intelligence technologies was another area of focus for the Infrastructure and Human Resources section. Finally, the Risks and Challenges section sought to identify the main obstacles businesses encounter when implementing artificial intelligence, including data security, excessive reliance on intelligent systems, and the challenge of integrating them with conventional systems.

The purpose of the questionnaire was to examine the study hypotheses directly. The first hypothesis examined the relationship between the digital marketing strategy axis and the application of artificial intelligence. The digital strategies, after-sales services, and loyalty axes were connected to hypotheses about email marketing, digital advertising, and after-sales services. By comparing the average response scores for each axis to the standard value on a five-point Likert scale and applying the relevant statistical tests, the average response scores served as quantitative indicators to ascertain whether the hypotheses were accepted or rejected.

Scale Measure

The following five-point Likert scale was employed to assess the questionnaire items: five levels make up the response scale, ranging from strongly agree to disagree strongly. (1) stands for “strongly disagree,” which denotes a total denial of the assertion. (2) stands for “disagree,” which denotes a partial disagreement. (3) denotes “somewhat true,” which denotes a moderate or partial level of agreement. (4) stands for “agree,” which denotes a general or partial acceptance of the statement. “Strongly agree,” which indicates full and strong agreement with the statement’s content, is shown in (5). All the items in the six study themes were on this scale. A higher score indicates a higher degree of adoption or influence of artificial intelligence technology on that axis. The overall score for each axis was determined by adding the scores of its sub-items. On a five-point Likert scale, the arithmetic means were evaluated. A mean over the neutral value (3) denotes a statistically significant positive influence, whereas a mean close to or below the neutral value denotes a weak or statistically unlikely effect. This method enabled conversion of participant responses into quantitative data suitable for statistical analysis, thereby validating the study’s goals and testing its hypotheses.

Validity and Reliability

Initially, Instrument Validity: A panel of specialists with backgrounds in artificial intelligence, statistics, and digital marketing was consulted to confirm the instrument’s validity. Based on their comments, the researcher made the necessary changes to ensure the items were clear and pertinent to the study’s themes. Second: Instrument Reliability: Following data collection, the internal consistency of the items was confirmed by calculating Cronbach’s alpha for each questionnaire axis. The reliability coefficients demonstrated the instrument’s reliability for each axis, which were all within the statistically acceptable range.

According to the study, none of the 64 responses were deemed ineligible for further examination. The completeness of the responses and the absence of any missing data points that would have impacted further analysis make this a major indicator of data quality. It also shows how well the researcher was able to modify the instruments used to gather the data and guarantee that the participants completed the questionnaire accurately.

According to the investigation, this axis has great internal consistency, with the Cronbach’s alpha coefficient (0.863) falling into the high reliability category. Personalization of marketing content has the highest correlation to this axis (0.767), indicating that it is a crucial use of AI in businesses. Additionally, there was a strong link (0.733) between data-driven marketing decision-making and AI’s contribution to improving marketing choice accuracy. Employee knowledge of AI had the lowest correlation (0.509), suggesting that employees had a comparatively poor grasp of the significance of these technologies with respect to other application-related factors. These findings imply that while businesses are successfully integrating AI into analysis and decision-making, human understanding of its application needs to be raised.

Axis of Consistency for Digital Marketing Strategies: The findings indicate that digital marketing strategies exhibit high internal consistency, indicating that the items are measured accurately. The analysis of marketing campaign performance shows the strongest correlation (0.788), consistent with contemporary trends that view performance analysis as a fundamental component of all marketing strategies. Additionally, there is a strong association between email

optimization and targeted advertising, reflecting businesses' growing reliance on AI for customer targeting. Cost reduction is the item with the lowest association, indicating that although AI contributes to increased efficiency, users might not immediately view it as a tool for cost reduction.

Stability of the Loyalty and After-Sales Axis: These findings show that this axis is extremely stable. Customer satisfaction improvement shows the strongest connection (0.824), demonstrating how important AI is to improving customer satisfaction. Items about loyalty and long-term partnerships follow, showing that businesses that successfully use AI see increases in customer loyalty. The Marketing Performance Axis is the most stable of all the study axes, indicating its precise assessment and close relationship with AI. The "Access to New Markets" item shows the highest correlation, indicating that companies view AI as a crucial tool for expansion.

Stability of the Infrastructure and HR Axis: The high correlation coefficients between the training and HR items show that human factors are crucial to the successful application of AI and that a strong technology infrastructure is a necessary condition for AI systems to be effective in marketing. **Axis stability: dangers and difficulties.** When removed, the alpha increases to 0.743, indicating that the item "misuse of artificial intelligence" has a weak contribution to measuring the variable and may need to be reformulated in the future. It also has a very low correlation coefficient (0.169), which negatively affects the axis's stability.

Data Collection

An online survey created with Google Forms was used to gather data in 2025. It was disseminated via email, professional working groups, and digital platforms used by experts in digital marketing. Complete answers were not included. Due to the lack of missing data, all 64 complete responses—which demonstrate the precision of the measurement instrument and the caliber of the data collection procedure—were approved for statistical analysis. We are dedicated to protecting the privacy of the data and using it exclusively for scientific research.

Statistical Methods

The data were analyzed using SPSS software, employing a range of statistical methods including frequencies and percentages for demographic analysis, arithmetic means and standard deviations to describe trends in the study's axes, reliability measurement using Cronbach's alpha coefficient, descriptive statistics for all axes, summation of total scores for each axis, and presentation of a summary of case management.

Results

Once the instrument's efficiency has been confirmed, the chapter proceeds to analyze the study's key axes by computing means and standard deviations. Then, it tests the research hypotheses by assessing the significance of correlations between variables using the appropriate statistical procedures. This chapter seeks to provide a thorough analytical overview that helps comprehend the extent to which Saudi businesses have adopted AI technology, how it affects the creation of digital marketing strategies, and the main risks and challenges when putting these technologies into practice.

Descriptive Analysis of The Study's Themes

This section aims to describe the general trends in the sample members' opinions regarding the six study axes, using arithmetic means, standard deviations, and minimum and maximum responses. The data were analyzed using 64 valid responses.

Table 1. Error! No text of the specified format is found in the document. 17
Descriptive statistics for study axes

| Axis | N | Minimum | Maximum | Arithmetic Mean | Standard Deviation |
|---|----|---------|---------|-----------------|--------------------|
| Axis 2: Leveraging Artificial Intelligence Technologies | 64 | 16.00 | 35.00 | 25.5938 | 5.37105 |
| Axis 2: Digital Marketing Strategies | 64 | 15.00 | 35.00 | 28.0625 | 4.87258 |
| Axis 3: After-Sales Services and Loyalty | 64 | 12.00 | 30.00 | 22.8750 | 5.01585 |
| Axis 4: Marketing Performance | 64 | 5.00 | 25.00 | 19.4219 | 4.10499 |
| Axis 5: Infrastructure and Human Resources | 64 | 6.00 | 25.00 | 18.6719 | 4.34633 |
| Axis 6: Risks and Challenges in Using Artificial Intelligence | 64 | 13.00 | 25.00 | 18.7031 | 3.16067 |
| Total | 64 | — | — | — | — |

The first axis, which ranged from 16 to 35, had a mean score of 25.59 and a standard deviation of 5.37. This high mean suggests that businesses whose members participated in the survey typically use AI technologies in their marketing operations, especially for decision support, data analysis, and content personalization. Given the disparities in the companies' resource levels and technological skills, it makes sense that the relatively high standard deviation would also represent variances in the companies' implementation levels.

The mean score for the Digital Marketing Strategies axis was 28.06, the highest among all axes of the study, with a standard deviation of 4.87. This indicates that: - Companies demonstrate a strong commitment to developing digital marketing strategies. - There is a clear reliance on targeted digital advertising. - Digital campaigns are continuously analyzed. - Artificial intelligence is used to improve email marketing, audience targeting, and campaign efficiency. - The high mean score reflects the strategic maturity of companies in terms of digital transformation, which aligns directly with global trends.

The third axis: After-sales services and loyalty. The arithmetic mean for this axis was 22.88 within the range of (12-30), with a standard deviation of 5.01. The results indicate that companies use artificial intelligence technologies in post-purchase customer support. - Rely on chatbots to provide immediate services. - Strive to analyze complaints and opinions, which enhances customer satisfaction and loyalty. - The relatively high standard deviation indicates a difference in the level of services provided between companies; this is expected due to the difference in company size and their focus on customer service.

The Marketing Performance pillar achieved an average score of 19.42 with a deviation of 4.10. This indicates that participants believe AI has improved company performance through enhanced decision-making, access to new markets, and increased operational and sales efficiency. While the average is lower than in the previous pillars, it remains within acceptable levels and reflects a clear, tangible impact of AI on performance.

The fifth axis: Infrastructure and Human Resources. The arithmetic mean for this axis was 18.67, which is close to the Marketing Performance axis, with a standard deviation of 4.34. This result indicates that: Companies possess an average level of technological infrastructure. There is a need for increased investment in modern systems. Developing employee skills and providing continuous training are essential. Allocated budgets are inadequate in many companies. This may reflect a challenge in full digital transformation.

The sixth axis: Risks and Challenges. This axis had a mean of 18.70 and a standard deviation of 3.16, the lowest among the axes, indicating convergence of participants' opinions. The results indicate that Companies recognize the risks associated with implementing artificial intelligence. The most significant challenges are: data protection, over-reliance, and system integration. The low standard deviation reflects general agreement among participants that these challenges clearly exist.

The following is a discussion of the results: Digital marketing strategies have the highest average (28.06), indicating that businesses are becoming more mature and using digital tools more quickly. Infrastructure and people Resources have the lowest average (18.67), suggesting a shortage of people and technical resources required to support AI. Participants' confidence in the efficacy of intelligent applications is reflected in the Artificial Intelligence score of 25.59. A common understanding of the difficulties posed by artificial intelligence is confirmed by the high level of agreement in risk assessment (SD = 3.16).

Analysis of Differences Using ANOVA

The One-Way Analysis of Variance (ANOVA) test aims to determine whether there are statistically significant differences among age groups in their evaluations of the study's themes.

Table 2. Error! No text of the specified format is found in the document. 21 ANOVA

| Axis | F | Sig. |
|--------|-------|-------|
| Axis 1 | 1.413 | 0.241 |
| Axis 2 | 0.239 | 0.915 |
| Axis 3 | 1.273 | 0.291 |
| Axis 4 | 1.165 | 0.335 |
| Axis 5 | 0.979 | 0.426 |
| Axis 6 | 0.149 | 0.963 |

Results for Age Differences

All statistical significance (Sig) values are greater than 0.05, meaning: - There are no statistically significant differences between age groups in any of the study's dimensions. - Although there are slight differences in the means between age groups in some dimensions, these differences are not statistically significant. This indicates that the evaluation of: - AI technology, - digital marketing strategies, - after-sales services, - marketing performance, - infrastructure, and even risks and challenges, is generally consistent across different age

groups. This reflects a consensus across all age groups regarding the importance of AI and its role in enhancing marketing performance within companies. There are no statistically significant differences between age groups in the evaluation of any of the study's dimensions. This indicates that the adoption of AI and digital marketing strategies is viewed similarly across all age groups. The general agreement across age groups strengthens the study's findings and demonstrates that opinions are not limited to a specific age group.

Statistical analysis of the multiple regression model

Table 4. error! No text of the specified format exists in the document. 23 Regression coefficients for the variable of years of experience in digital marketing according to the study axes.

| Axis | B | Std. Error | Beta | t | Sig. | Tolerance | VIF |
|----------|-------|------------|-------|-------|------|-----------|-------|
| Constant | .883 | .893 | — | .988 | .327 | — | — |
| Axis 1 | -.020 | .037 | -.115 | -.541 | .591 | .377 | 2.653 |
| Axis 2 | .022 | .037 | .118 | .611 | .544 | .459 | 2.180 |
| Axis 3 | .026 | .046 | .143 | .569 | .572 | .271 | 3.694 |
| Axis 4 | -.026 | .053 | -.115 | -.497 | .621 | .315 | 3.173 |
| Axis 5 | .008 | .043 | .040 | .196 | .845 | .415 | 2.412 |
| Axis 6 | .029 | .043 | .098 | .669 | .506 | .793 | 1.260 |

The dependent variable is years of experience in digital marketing. The table shows the results of multiple regression to determine the extent to which the six study axes influence years of experience in digital marketing. The results indicate that none of the independent variables are significant (all Sig values > 0.05), meaning that the six axes do not explain differences in years of experience. B coefficients range from negative to very small positive values, confirming the lack of a meaningful effect. The Beta values for all variables are low, indicating the model's weak explanatory power. The results are logical from an applied perspective, as years of experience are determined by an employee's career path, not by marketing practices or the adoption of artificial intelligence within companies.

Discussion

According to the study's findings, Saudi Arabian telecom firms are unmistakably embracing artificial intelligence (AI) technology, and this adoption has a direct bearing on how their marketing plans are developed. The study's general hypothesis was supported by statistical analysis, which showed strong agreement among the sample regarding the significance and usefulness of these technologies. These results also align with earlier research highlighting the value of AI in data analysis, content personalization, and digital campaign optimization, including Kumar et al. (2019), Marius (2018), and Habil (2019).

First, the findings of the AI technology utilization track revealed a high average participant opinion, suggesting that businesses are increasingly relying on AI tools, especially for data analysis, consumer behavior prediction, and personalized marketing materials. Employee awareness was the least connected item, according to internal correlation values, whereas data analysis and decision-making-related elements were the most significant. This implies that to

utilize these technologies fully, investments in improving human resource efficiency are necessary. The study by Kumari et al. (2019), which emphasized the use of AI in creating creative marketing personas, is consistent with these findings. But the latest analysis provides Saudi businesses with a direct, useful component that was largely ignored in earlier studies.

Secondly, the results of the digital marketing strategies pillar revealed a tangible development in companies' adoption of advanced digital marketing methods. This pillar achieved the highest average score among all pillars, with strong correlations among the items related to digital campaign analysis, targeted advertising, and email optimization. This indicates that companies are not content with using traditional digital tools but are striving to develop their strategies by leveraging artificial intelligence to improve audience targeting and enhance the effectiveness of advertising campaigns. These results are similar to those found in the Dan & Mirona (2020) and Abdul Sheikh Dheeb (2016) studies on enhancing competitiveness through AI tools. However, the current study differs in its comprehensiveness, addressing all aspects of digital marketing rather than focusing on a single aspect.

Third, the findings from the after-sales service and loyalty pillar demonstrated that artificial intelligence (AI) greatly improved the quality of post-purchase services, including instant chatbot responses, customer complaint analysis, and increased customer satisfaction and loyalty. The results indicate that companies are increasingly recognizing that developing after-sales services is a crucial element in building long-term customer relationships, which positively impacts loyalty and retention. These findings align with Habil's (2019) study, which confirmed the impact of AI on enhancing the digital customer experience, while the current study adds further depth by focusing on field data from employees within Saudi Arabia.

Participants' awareness of the concrete effects of artificial intelligence on marketing performance—particularly greater efficiency, better decision-making, and access to new markets—was reflected in the marketing performance axis's high average and high consistency. According to these findings, which are consistent with earlier studies, artificial intelligence has emerged as a crucial element in giving businesses a competitive edge. They also support global research trends. The new study, however, highlights regional infrastructure and human resource shortfalls that earlier studies have not focused on.

Finally, the Risks and Challenges pillar's findings show that participants are clearly aware of several risks related to the use of artificial intelligence, especially those involving data protection and privacy, excessive reliance on intelligent systems, and the challenges of integrating new systems with established ones. The perception of risks remains a crucial gauge of businesses' understanding of the difficulties that come with digital transformation initiatives, even though this pillar has shown comparatively less consistency.

The average ratings of women were higher than those of men across all categories, as indicated by statistical difference tests; however, these differences were not statistically significant, suggesting that gender has no bearing on trends in AI appraisal. Additionally, the one-sample test showed that each dimension had a score significantly above the standard value, indicating that the sample had a favorable opinion of AI's contribution to the development of digital marketing. These findings align with previous studies on a positive attitude towards AI. In contrast, the current study distinguishes itself by focusing on the practical realities of Saudi companies and the institutional aspects of implementing these technologies.

Conclusion

The study's findings highlighted several key points, most notably the high adoption of artificial intelligence (AI) technologies by Saudi telecommunications companies and their use in data analysis, content personalization, and marketing campaign optimization. The digital marketing strategies axis achieved the highest average scores, demonstrating the direct impact of AI on enhancing the effectiveness of digital strategies. A significant improvement in after-sales services and customer loyalty was observed using chatbots and predictive analytics. AI had a clear positive impact on marketing performance, particularly in efficiency, improved decision-making, and access to new markets. Infrastructure and human resource challenges were the most prominent, posing a significant obstacle to the expansion of smart technologies. A moderate correlation was found between the study's findings and risks such as data security and over-reliance on smart systems. No statistically significant differences were found between genders in the evaluation of the study's axes, indicating that participants' opinions were homogeneous.

Based on the findings, the study offers the following recommendations: 1. Enhance training and development programs for digital marketing professionals to raise their digital awareness and ability to work with artificial intelligence systems. 2. Invest in developing the technological infrastructure to meet the requirements of artificial intelligence and big data analytics. 3. Develop effective data protection and privacy policies, ensuring compliance with international cybersecurity standards. 4. Activate the role of intelligent systems in after-sales services to enhance customer satisfaction and loyalty. 5. Adopt predictive algorithms to analyze consumer trends and support marketing decision-making.

Contributions

This study is theoretically significant because it contributes to the body of knowledge on how artificial intelligence technologies shape the development of e-marketing strategies, especially in the Saudi context, where more applied research is still needed. Additionally, the study offers a theoretical framework that helps understand the relationship between artificial intelligence and various facets of e-marketing, assisting academics and researchers in conducting more thorough future research. This study's practical significance lies in its ability to help enterprises and business owners implement artificial intelligence, thereby enhancing marketing efforts and boosting client engagement. Additionally, it helps developers and programmers create and update digital tools and software to satisfy the needs of contemporary e-marketing. Additionally, it offers e-marketing experts helpful guidance on leveraging artificial intelligence's potential to improve marketing results.

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