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The Role of Artificial Intelligence in Improving the Performance of Digital Marketing Strategies

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Abstract

This study examines the effect of artificial intelligence on the performance of digital marketing strategies, with a focus on key components such as sales volume, profitability, competitiveness, customer loyalty, and risk management. The research method is applied and descriptive-survey in nature, and the data were collected through a 35-item questionnaire based on a Likert scale from a statistical population consisting of 50 companies active on the Tehran Stock Exchange. The Analytic Hierarchy Process was used to prioritize the factors, and the Point Estimation Method was employed to model digital marketing risks. The research instrument was designed after its content validity was confirmed by experts and its reliability was found to be acceptable, with Cronbach's alpha values above 0.70. The findings indicate that the use of artificial intelligence has a significant effect on improving key digital marketing indicators, including an increase in conversion rate, a reduction in customer acquisition cost, and an improvement in return on investment. In addition, artificial intelligence improved performance across different channels, especially email marketing, by increasing email open and click-through rates, and social media marketing, by increasing user engagement. The data analysis showed that artificial intelligence, through optimizing audience targeting and providing personalized content, has the greatest effect on customer loyalty and increased sales. However, its effect on content marketing and SEO was more relative. Overall, the results indicate that artificial intelligence can substantially enhance the performance of digital marketing strategies in the dimensions of sales, profitability, competitiveness, and customer loyalty through complex data analysis and intelligent decision-making.

Keywords: Artificial intelligence, digital marketing strategy, profitability, competitiveness, Point Estimation Method, Analytic Hierarchy Process.

1. Introduction

Digital marketing has become one of the most important strategic domains for contemporary organizations because it connects market intelligence, customer interaction, brand positioning, sales development, and performance evaluation within a data-intensive environment. Unlike traditional marketing, which is often based on broad segmentation, delayed feedback, and relatively linear communication with customers, digital marketing enables firms to monitor consumer behavior continuously, design personalized messages, optimize campaigns in real time, and evaluate performance through measurable indicators such as conversion rate, customer acquisition cost, customer lifetime value, return on investment, engagement rate, and customer loyalty. In this context, digital marketing is not merely a set of online promotional activities, but a strategic system for creating, delivering, and sustaining value across digital channels. Planning, optimizing, and integrating online marketing require

systematic attention to content, targeting, analytics, automation, customer relationship management, and channel coordination, all of which have made digital marketing a core dimension of organizational competitiveness (Chaffey & Smith, 2022; Zaman, 2022).

The growing complexity of digital markets has intensified the need for advanced analytical and decision-making technologies. Firms now operate in environments characterized by rapidly changing customer expectations, high volumes of behavioral data, algorithmic competition, platform dependency, and increasing pressure to achieve measurable marketing outcomes. Artificial intelligence has emerged as a transformative technology in this environment because it enables organizations to process large and complex datasets, identify hidden behavioral patterns, predict customer responses, automate repetitive decisions, personalize content, and improve the precision of marketing interventions. In marketing, artificial intelligence is increasingly used in customer analytics, recommendation systems, conversational agents, predictive modeling, campaign optimization, sentiment analysis, pricing decisions, and automated content delivery. These applications suggest that artificial intelligence can fundamentally change the way marketing activities are designed, implemented, monitored, and evaluated (Anca, 2023; Davenport et al., 2020; Haleem et al., 2022; Van Esch & Stewart Black, 2021).

From a strategic management perspective, the value of artificial intelligence in digital marketing depends not only on the availability of technology, but also on the capability of organizations to integrate artificial intelligence into marketing processes and business models. Artificial intelligence can support dynamic capabilities by enabling firms to sense market changes, seize emerging opportunities, and reconfigure resources in response to environmental uncertainty. This capability-oriented view is especially important because digital marketing performance is shaped by both technological infrastructure and managerial capacity. Organizations that adopt artificial intelligence without appropriate data governance, organizational readiness, strategic alignment, and operational integration may not achieve expected performance improvements. Therefore, artificial intelligence should be understood as a strategic capability rather than only a technical tool (Madanchian, 2024; Tahid et al., 2024; Teece, 2018; Venkateswaran et al., 2024).

The literature indicates that artificial intelligence can improve digital marketing performance through several mechanisms. First, artificial intelligence enhances data analysis by converting raw behavioral, transactional, and interactional data into actionable insights. Second, it strengthens decision-making by supporting prediction, classification, recommendation, and optimization. Third, it enables personalization by adapting messages, offers, and content to customer preferences and behavioral histories. Fourth, it improves marketing efficiency by automating campaign management, reducing manual errors, and enabling rapid adjustment of marketing actions. These mechanisms can influence several key performance outcomes, including sales growth, profitability, customer retention, competitiveness, and marketing return on investment. Recent reviews and empirical studies emphasize that the performance effects of artificial intelligence are most visible when analytical capabilities are connected to customer-oriented strategies and measurable business outcomes (Frontiers in, 2024; Jain & Kumar, 2024; Labib, 2024; Saleh et al., 2023).

Sales performance is one of the most direct outcomes through which the effectiveness of artificial intelligence in digital marketing can be evaluated. Artificial intelligence can increase sales by improving lead scoring, predicting purchase intention, recommending relevant products or services, identifying high-value customer segments, and optimizing the timing and content of marketing messages. In digital channels, even small improvements in targeting accuracy or message relevance can generate meaningful increases in conversion rates. Artificial intelligence also supports cross-selling and up-selling by analyzing customer histories and predicting future needs. In pay-per-click advertising, for example, algorithmic optimization can improve keyword selection, bidding strategies, audience targeting, and campaign efficiency, while in financial and service markets, artificial intelligence-supported digital advertising can influence continuous service intentions and customer response patterns (Agarwal, 2021; Rezaei et al., 2024; Yeeprasert et al., 2023).

Profitability is another central dimension of digital marketing performance because successful marketing strategies should not only increase sales, but also improve the economic efficiency of customer acquisition and retention. Artificial intelligence can contribute to profitability by reducing wasted advertising expenditure, identifying profitable customer segments, automating repetitive marketing tasks, and improving the allocation of campaign budgets across channels. Predictive analytics can help firms invest in customers and channels with higher expected returns, while personalization can increase the probability of conversion without proportionally increasing marketing costs. In addition, artificial intelligence may improve the

effectiveness of e-customer relationship management by supporting more timely and relevant interactions with customers, which can reduce churn and increase the economic value of long-term relationships (Haudi et al., 2022; Ozay et al., 2024; Saleh et al., 2023).

Competitiveness is especially important in digital marketing because firms compete not only through products and prices, but also through customer experience, digital visibility, response speed, analytical sophistication, and content relevance. Artificial intelligence can strengthen competitiveness by enabling organizations to respond faster to market signals, monitor competitors, optimize digital touchpoints, and create more adaptive marketing strategies. In highly competitive online environments, the ability to analyze user behavior, test multiple campaign alternatives, and adjust strategies in real time can become a source of strategic advantage. Artificial intelligence also supports innovation in business models and customer engagement mechanisms, particularly when firms combine marketing analytics with agile decision-making and organizational learning (Madanchian, 2024; Omamahsuari, 2024; Venkateswaran et al., 2024).

Customer loyalty represents a deeper and more sustainable outcome of artificial intelligence-enabled digital marketing. While conversion and traffic indicators often reflect short-term campaign success, loyalty reflects customers' continued preference, trust, satisfaction, and intention to maintain the relationship with a brand. Artificial intelligence can support loyalty by enabling personalized communication, predictive service recovery, automated customer support, relevant product recommendations, and timely engagement across customer journey stages. Digital content marketing also plays a significant role in loyalty formation because valuable and relevant content can strengthen customer trust, reduce uncertainty, and maintain engagement before and after purchase. When artificial intelligence is used to analyze customer needs and personalize content along the customer journey, it can help convert digital interactions into durable relationships (Haudi et al., 2022; Ozay et al., 2024; Terho et al., 2022).

At the channel level, artificial intelligence has important implications for different digital marketing strategies, including email marketing, social media marketing, content marketing, search engine optimization, pay-per-click advertising, and e-marketing platforms. In email marketing, artificial intelligence can optimize subject lines, sending times, audience segmentation, and content personalization, thereby improving open rates and click-through rates. In social media marketing, artificial intelligence supports sentiment analysis, trend detection, audience profiling, influencer identification, and engagement optimization. In content marketing, artificial intelligence can help identify audience interests, recommend topics, and adapt content to customer journey stages. In e-marketing systems, responsive web design and digital platform integration can further support the implementation of customer-oriented marketing strategies across devices and channels (Agarwal, 2021; Agustian, 2023; Rezaei et al., 2024; Terho et al., 2022).

Despite these opportunities, artificial intelligence in digital marketing also creates challenges and risks that require systematic analysis. Ethical concerns, data privacy, algorithmic bias, transparency, consumer trust, vulnerability, and over-automation can affect the acceptance and effectiveness of artificial intelligence-based marketing. In consumer markets, artificial intelligence may generate paradoxes because the same technologies that improve personalization and efficiency may also increase concerns about surveillance, manipulation, discrimination, and loss of human agency. These issues are especially important in financial services and other sensitive markets, where vulnerable customers may be affected by opaque algorithmic targeting or automated persuasion. Therefore, the performance evaluation of artificial intelligence in digital marketing should include not only positive outcomes, but also the risks associated with implementation (Du & Xie, 2021; Gao & Liu, 2023; Mogaji et al., 2023).

The effective use of artificial intelligence also depends on data strategy and integration. Artificial intelligence systems require reliable, relevant, integrated, and well-governed data. Without appropriate data infrastructure, artificial intelligence may produce inaccurate predictions, fragmented customer insights, or biased decisions. Data integration is particularly important in digital marketing because customer data are often distributed across websites, customer relationship management systems, social media platforms, email systems, advertising dashboards, and transaction databases. The broader literature on artificial intelligence highlights both the promise and the challenges of using artificial intelligence in complex organizational contexts, showing that successful adoption requires attention to technical quality, ethical governance, explainability, and domain-specific adaptation (Aldoseri et al., 2023; Aung et al., 2021; Jiang et al., 2022; Zhang & Lu, 2021).

Generative artificial intelligence has further expanded the discussion of artificial intelligence in digital marketing by introducing new possibilities for content production, customer interaction, campaign ideation, and automated communication. Tools based on generative conversational artificial intelligence can support marketers in producing text, designing personalized responses, analyzing customer queries, and accelerating creative workflows. However, the use of generative artificial intelligence also raises concerns about content quality, authenticity, accountability, misinformation, and the boundaries between human and machine-generated communication. Therefore, while generative artificial intelligence can increase the speed and scalability of digital marketing operations, its strategic value depends on responsible use, human oversight, and alignment with brand identity and customer trust (Dwivedi et al., 2023; Frontiers in, 2024; Jain & Kumar, 2024).

In addition to technological and marketing considerations, the adoption of artificial intelligence in digital marketing can be understood through the broader lens of opportunity recognition and exploitation in business. Organizations must identify opportunities created by artificial intelligence, assess their relevance to market needs, mobilize resources, and decide how to exploit them under uncertainty. Research on entrepreneurial opportunity exploitation emphasizes the role of decision-making, inspiration, bricolage, and entrepreneurial agency in transforming opportunities into practical outcomes. Although these studies are mainly situated in sports business contexts, their implications are relevant to digital marketing because the adoption of artificial intelligence also requires managers to recognize emerging opportunities, combine available resources creatively, and make strategic decisions in uncertain environments (Bahramfard et al., 2025, 2026; Bahramfard et al., 2023).

A review of the existing literature shows that although many studies have examined artificial intelligence applications in marketing, important gaps remain in the integrated evaluation of its effects on multiple performance indicators. Much of the literature focuses on specific applications, such as customer analytics, e-CRM, pay-per-click advertising, digital content marketing, or customer relationship management, while fewer studies simultaneously assess sales, profitability, competitiveness, customer loyalty, and risk management within a unified analytical framework. Moreover, many studies emphasize conceptual opportunities and challenges, while empirical models that compare performance under scenarios with and without artificial intelligence remain relatively limited. This gap is important because managers need evidence-based prioritization of artificial intelligence applications and a clearer understanding of how artificial intelligence affects different dimensions of digital marketing performance under uncertainty (Haleem et al., 2022; Labib, 2024; Omamahsuari, 2024; Yeeprasert et al., 2023).

Accordingly, the present study is positioned at the intersection of artificial intelligence, digital marketing performance, strategic capability, and risk analysis. By focusing on companies listed on the Tehran Stock Exchange, the study examines how artificial intelligence can improve the performance of digital marketing strategies in organizational settings where competitiveness, profitability, data-driven decision-making, and customer loyalty are strategically important. The use of the Analytic Hierarchy Process makes it possible to prioritize the main criteria and artificial intelligence-based alternatives, while the Point Estimation Method provides a basis for modeling risk and uncertainty in digital marketing performance. This integrated approach can provide practical insights for managers seeking to allocate resources, select artificial intelligence applications, and improve the effectiveness of digital marketing strategies.

The aim of this study is to examine the role of artificial intelligence in improving the performance of digital marketing strategies, with emphasis on sales volume, profitability, competitiveness, customer loyalty, and risk management.

2. Methods and Materials

In terms of purpose, this study is applied research, and in terms of nature and method, it is descriptive-survey research. It uses a quantitative approach to examine the effect of applying artificial intelligence on the performance of digital marketing strategies. The conceptual framework of the study is based on the assumption that artificial intelligence, as the independent variable, affects key digital marketing performance indicators, including sales volume, profitability, competitiveness, and customer loyalty, by improving the processes of data analysis, decision-making, and personalization of marketing activities. In addition, considering the dynamic and uncertain nature of the digital marketing environment, the risks associated with implementing these strategies were also considered as one of the fundamental dimensions of the study and were evaluated within an integrated analytical framework. Therefore, by simultaneously using multi-criteria decision-making methods and uncertainty modeling, the present study seeks to provide a comprehensive picture of the role of artificial intelligence in

improving the performance and managing the risks of digital marketing strategies. The statistical population of the study included manufacturing and service companies listed on the Tehran Stock Exchange that use digital marketing tools and strategies in their marketing activities. The selection of the studied units was based on criteria such as continuous activity on the stock exchange during the last three years, documented use of digital marketing tools, and access to valid performance information. The research sample was selected using a multi-stage cluster sampling method, and the sample size was determined using Cochran's formula at a 95% confidence level and a 5% margin of error to enable the generalization of the results to the target population. The units of analysis in this study were managers, experts, and specialists in the fields of marketing and information technology in the selected companies, who, due to their familiarity with digital marketing processes and artificial intelligence applications, were capable of providing expert evaluations of the research variables.

Data were collected through a researcher-made questionnaire consisting of 35 items, covering the main dimensions of the study, including sales volume, profitability, competitiveness, customer loyalty, and the overall role of artificial intelligence. All items were measured based on a five-point Likert scale ranging from "strongly disagree" to "strongly agree." To ensure content validity, after reviewing the theoretical foundations and research literature, the questionnaire was submitted to a group of academic experts and specialists in artificial intelligence and digital marketing, and it was revised and finalized based on their views. In addition, to evaluate the reliability of the instrument, Cronbach's alpha coefficient was calculated for all dimensions of the questionnaire. All obtained values were greater than 0.70, indicating desirable internal consistency and acceptable reliability of the measurement instrument.

Data analysis was performed at two levels. At the first level, the Analytic Hierarchy Process (AHP) was used to determine the relative importance of the indicators and evaluate the extent of the effect of artificial intelligence on the performance components of digital marketing strategies. At this stage, the hierarchical structure of the problem was developed, pairwise comparisons among the criteria were conducted, relative weights were extracted using the eigenvector method, and the consistency of judgments was assessed through the consistency index and consistency ratio. At the second level, the Point Estimation Method was used to analyze the risks associated with digital marketing strategies under conditions of uncertainty. This method, by using the statistical moments of input variables, makes it possible to estimate the probabilistic behavior of output variables and assess the effect of uncertainty on system performance. Finally, the results obtained from the Analytic Hierarchy Process and risk modeling were interpreted in an integrated manner so that, in addition to determining the extent of the effect of artificial intelligence on performance indicators, the most important risks affecting digital marketing strategies could also be identified and prioritized.

3. Findings and Results

This section presents and analyzes the findings obtained from examining the role of artificial intelligence in improving the performance of digital marketing strategies. The data collected through a questionnaire consisting of 35 items and a five-point Likert scale from a statistical population of 50 companies listed on the Tehran Stock Exchange were analyzed using two methods: the Analytic Hierarchy Process (AHP) for prioritizing factors and the Point Estimation Method (PEM) for modeling risks. The findings are presented in two main sections, including the comparison of performance in scenarios with and without artificial intelligence and the validation of results through comparison with traditional methods. Table 1 presents a summary of the descriptive statistics related to the questionnaire responses across five main dimensions. All dimensions have means above 4 out of 5 and acceptable reliability, with Cronbach's alpha values above 0.80, indicating respondents' positive perception of the effect of artificial intelligence on digital marketing performance.

Table 1. Descriptive Statistics and Reliability of Questionnaire Dimensions

Dimension	Number of Items	Mean	Standard Deviation	Cronbach's Alpha
Sales volume	7	4.12	0.78	0.86
Profitability	7	4.05	0.82	0.89
Competitiveness	7	4.18	0.69	0.84
Customer loyalty	7	4.23	0.65	0.87
Overall role of artificial intelligence	7	4.30	0.58	0.91

Table 2 presents the relative weights of the main criteria affecting the performance of digital marketing strategies. The criterion of "competitiveness," with a weight of 0.325, had the highest importance, while the criterion of "artificial intelligence," with a weight of 0.185, had the lowest importance from the respondents' perspective. The consistency ratio (CR = 0.048), which is less than 0.10, indicates acceptable consistency in the pairwise comparisons.

Table 2. Criteria Weights and Consistency Ratio

Criterion	Weight	Rank
Competitiveness	0.325	1
Customer loyalty	0.280	2
Profitability	0.215	3
Sales volume	0.195	4
Artificial intelligence	0.185	5
Consistency ratio (CR)	0.048	-

Table 3 presents the final scores of the four main artificial intelligence-based alternatives. "Content personalization tools," with a score of 0.291, obtained the highest priority. This finding indicates that, from the experts' perspective, content personalization is recognized as the most effective application of artificial intelligence in improving digital marketing strategies.

Table 3. Ranking of Artificial Intelligence-Based Alternatives

Rank	Alternative	Final Score
1	Content personalization tools	0.291
2	Big data analytics platforms	0.262
3	Customer behavior prediction platforms	0.245
4	Advertising campaign management tools	0.202

Figure 1 compares changes in conversion rate under two conditions, with and without the use of artificial intelligence, over 200 time periods. In the baseline period, before implementation, the conversion rate fluctuated around a mean of 1.5% with natural variations. After the implementation of artificial intelligence in period 100, the conversion rate increased substantially and stabilized around a mean of 2.5%. The t-test confirmed a significant difference between the two periods (p-value < 0.001).

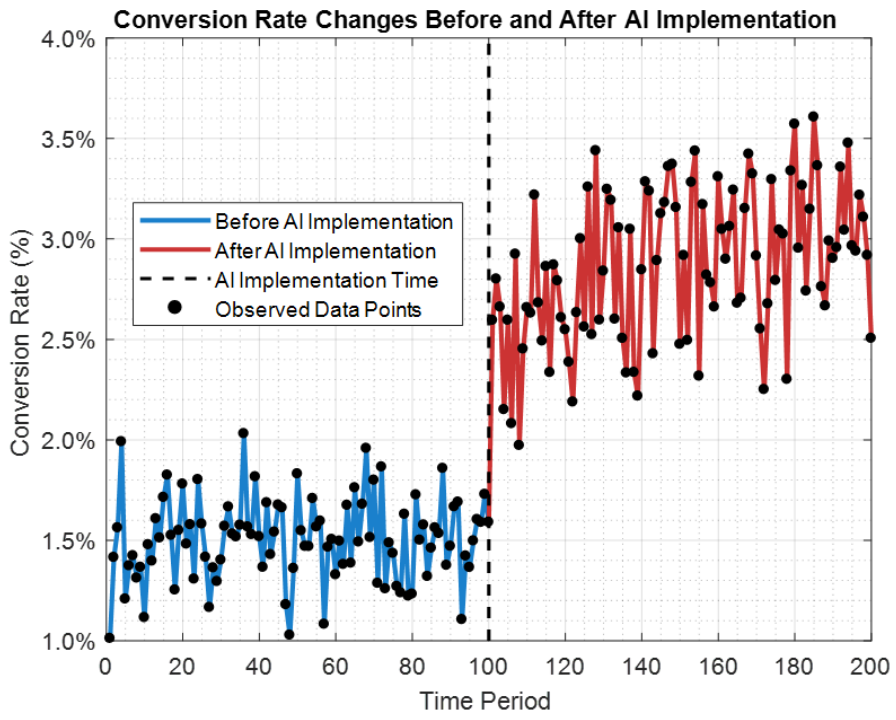

Figure 1. Comparison of Changes in Conversion Rate With and Without the Use of Artificial Intelligence

Figure 2 shows customer acquisition cost (CAC) in two scenarios, with and without artificial intelligence, over 50 periods. In the scenario without artificial intelligence, the cost remained around a mean of 50 units with random fluctuations. In the

scenario with artificial intelligence, the cost started from an initial value of 60 units and decreased at a slope of 0.5 units per period, experiencing an average reduction of 43%.

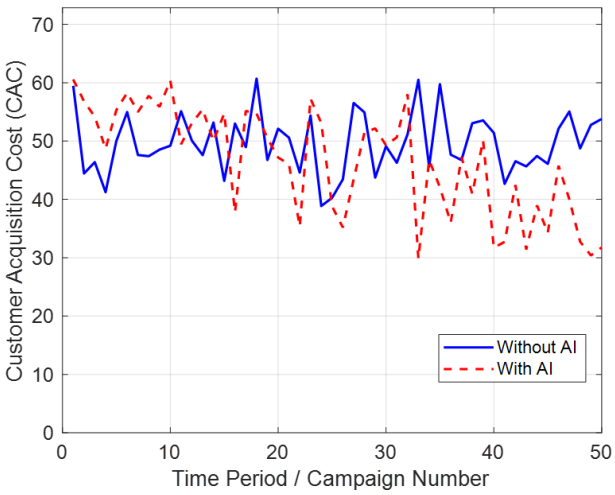

Figure 2. Comparison of Customer Acquisition Cost in Two Scenarios With and Without the Use of Artificial Intelligence

Figure 3 shows changes in adjusted return on investment over 24 months. The scenario without artificial intelligence displayed a fluctuating pattern around a mean of 0.15, whereas the scenario with artificial intelligence showed a clear upward trend from 0.10 to more than 0.22. The intersection point around month 15 indicates the beginning of the superior return generated by artificial intelligence.

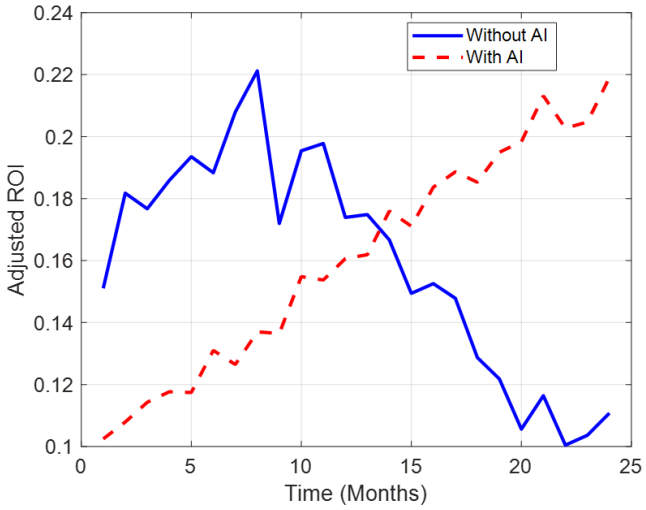

Figure 3. Changes in Adjusted Return on Investment Over 24 Months

Figure 4 shows the effect of artificial intelligence on website traffic over 100 days. After the implementation of artificial intelligence on day 30, traffic grew at a steeper slope than the baseline condition and increased by an average of 35%. This increase resulted from audience targeting optimization and content personalization by artificial intelligence algorithms.

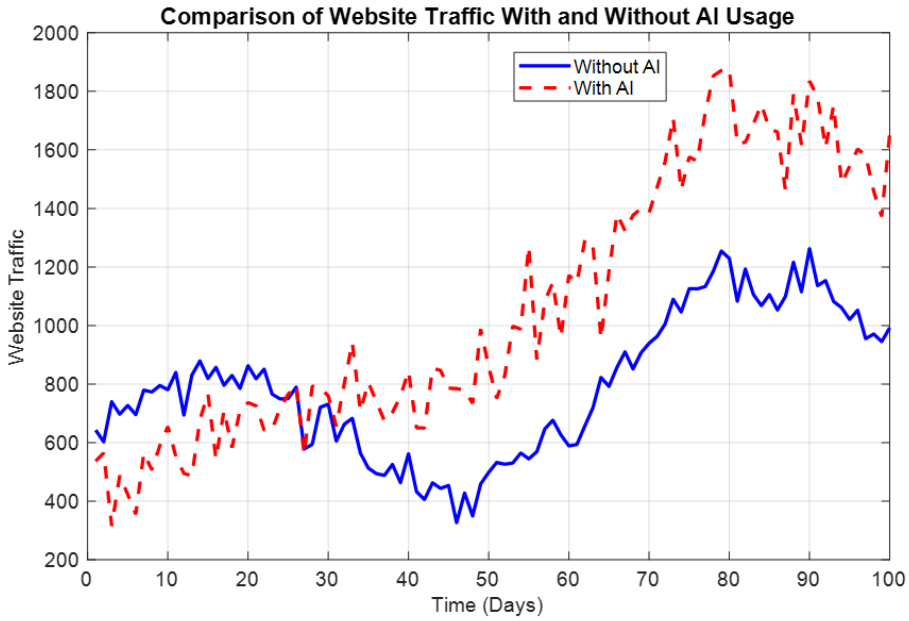

Figure 4. Examination of the Effect of Artificial Intelligence on Website Traffic in Digital Marketing

Figure 5 shows the level of social media engagement under two conditions, with and without artificial intelligence. After day 30, the curve for the artificial intelligence condition experienced an initial jump followed by an upward trend with a steeper slope, showing an average increase of 55% in engagement. This improvement resulted from sentiment analysis, optimal timing, and content personalization.

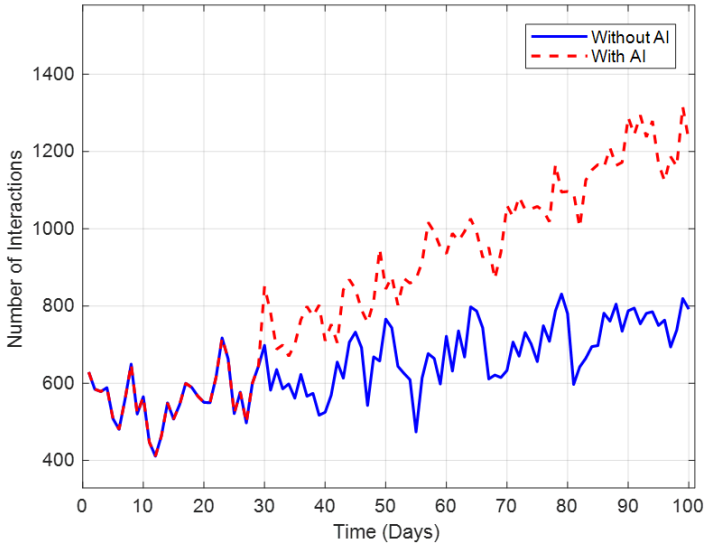

Figure 5. Examination of Social Media Engagement Under Two Conditions With and Without the Use of Artificial Intelligence

Figure 6 shows the effect of artificial intelligence on email open rate over 100 days. In the scenario without artificial intelligence, the open rate fluctuated around 15% with daily and weekly variations. After the implementation of artificial intelligence on day 30, an initial 5% jump occurred, followed by a gradual upward trend with a growth rate of 0.08% per day, and the average open rate increased by 45%.

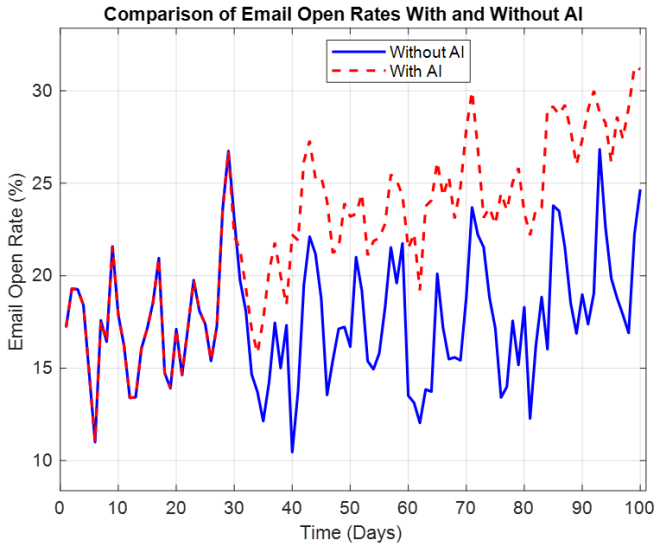

Figure 6. Examination of the Effect of Applying Artificial Intelligence on Email Open Rate in Digital Marketing Strategies

Figure 7 compares click-through rate under two conditions, with and without artificial intelligence, over 100 days. The scenario without artificial intelligence showed a slight downward trend with high fluctuations, whereas the scenario with artificial intelligence experienced an initial jump after day 30, followed by an improvement in growth slope around day 60, showing an average increase of 38% in click-through rate.

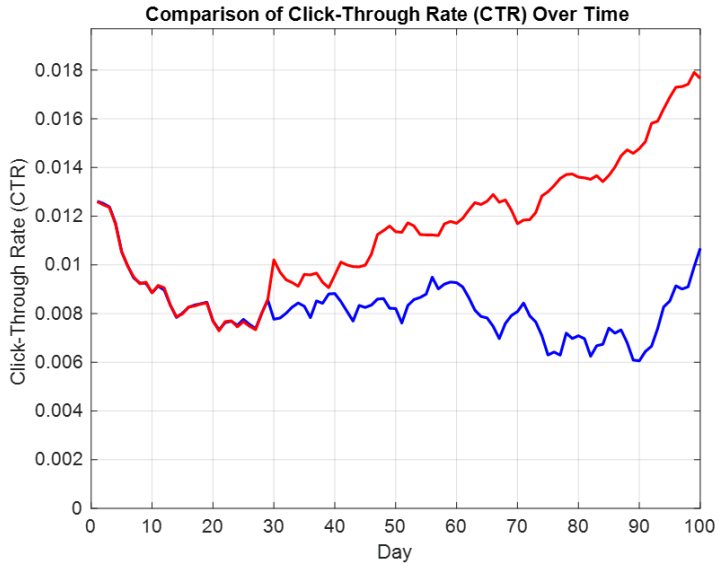

Figure 7. Comparison of Click-Through Rate Under Two Conditions With and Without the Use of Artificial Intelligence-Based Marketing

Table 4 shows the improvement in the performance of different digital marketing strategies using artificial intelligence from the perspective of four dimensions: sales, profitability, competitiveness, and customer loyalty. Email marketing, with an average improvement of 67.5%, was the most affected strategy, followed by social media marketing with 62.5%. In contrast, SEO, with 33.75%, was the least affected by artificial intelligence.

Table 4. Improvement in the Performance of Digital Marketing Strategies Using Artificial Intelligence (%)

Strategy	Sales	Profitability	Competitiveness	Customer Loyalty	Mean
Email marketing	70	65	60	75	67.5
Social media marketing	60	55	70	65	62.5
Content marketing	45	40	55	50	47.5
SEO	35	30	40	30	33.75

To validate the results, the performance of the artificial intelligence-based method was compared with two other common methods, namely manual data analysis and the traditional method based on experience and intuition. The results show that the artificial intelligence method had superior performance across all key indicators, including conversion rate, with a 67% increase compared with 18% and -5% for the other two methods; customer acquisition cost, with a 43% reduction compared with 18.5% and +7%; and return on investment, with a 35% improvement compared with 12% and -3%. These findings confirm that the proposed artificial intelligence-based model has higher validity and practical efficiency.

4. Discussion and Conclusion

The present study examined the role of artificial intelligence in improving the performance of digital marketing strategies, with emphasis on sales volume, profitability, competitiveness, customer loyalty, and risk management. The findings generally confirmed that the application of artificial intelligence has a meaningful and positive role in enhancing digital marketing performance. The descriptive results showed that all questionnaire dimensions had mean scores above the midpoint and, in fact, above 4 out of 5, indicating that respondents had a favorable perception of the contribution of artificial intelligence to digital marketing outcomes. The reliability coefficients of all dimensions were also acceptable, suggesting that the measurement structure was internally consistent. These findings are consistent with the growing body of research arguing that artificial intelligence has moved beyond a merely technical function and has become a strategic marketing capability that supports customer analytics, automation, personalization, and performance optimization (Anca, 2023; Davenport et al., 2020; Haleem et al., 2022; Van Esch & Stewart Black, 2021).

One of the central findings of the study was that artificial intelligence improved key digital marketing indicators, including conversion rate, customer acquisition cost, return on investment, website traffic, social media engagement, email open rate, and click-through rate. The increase in conversion rate after the implementation of artificial intelligence indicates that intelligent targeting, predictive analytics, and personalized communication can transform digital traffic into actual customer action more effectively than conventional approaches. This result is aligned with studies showing that artificial intelligence enables marketers to identify high-potential customers, predict behavioral tendencies, optimize message timing, and increase the relevance of digital interactions (Labib, 2024; Saleh et al., 2023; Yeeprasert et al., 2023). In this sense, artificial intelligence improves not only the technical execution of marketing campaigns but also the strategic fit between customer needs and organizational offerings.

The finding that customer acquisition cost decreased substantially in the artificial intelligence-based scenario is also theoretically and practically important. In digital marketing, profitability depends not only on attracting more customers but also on reducing inefficient advertising expenditure and improving the productivity of marketing resources. Artificial intelligence can reduce acquisition costs by refining audience segmentation, eliminating low-probability targets, automating campaign optimization, and reallocating budgets toward more responsive customer segments. This finding supports previous arguments that artificial intelligence contributes to marketing efficiency by improving decision quality, reducing waste, and enabling data-driven resource allocation (Chaffey & Smith, 2022; Madanchian, 2024; Venkateswaran et al., 2024). It is also consistent with research on pay-per-click advertising, which shows that analytical targeting and continuous optimization can improve campaign outcomes in competitive digital environments (Agarwal, 2021; Rezaei et al., 2024).

The results related to return on investment further confirm the strategic value of artificial intelligence in digital marketing. The study showed that the artificial intelligence-based scenario gradually outperformed the non-artificial intelligence scenario and generated superior returns after the implementation period. This pattern suggests that artificial intelligence may require initial investment and adaptation time, but its benefits become more visible as algorithms learn from data, campaigns are optimized, and customer interactions become more personalized. This interpretation is consistent with the dynamic capabilities perspective, according to which organizations gain competitive advantage when they can sense market changes, seize technological opportunities, and reconfigure resources in response to environmental uncertainty (Teece, 2018). Therefore, the return generated by artificial intelligence should be understood as the result of cumulative learning, data integration, and strategic alignment rather than as an immediate technical effect.

The Analytic Hierarchy Process results showed that competitiveness had the highest priority among the main performance criteria, followed by customer loyalty, profitability, sales volume, and the overall role of artificial intelligence. This finding indicates that respondents viewed artificial intelligence primarily as a tool for strengthening market position and customer relationships rather than only as a short-term sales mechanism. In highly competitive digital environments, firms must differentiate themselves through speed, personalization, customer experience, and analytical intelligence. Artificial intelligence supports these dimensions by enabling real-time response, competitor monitoring, customer profiling, and adaptive campaign design. This finding aligns with studies emphasizing that artificial intelligence is a strategic driver of digital transformation and can strengthen organizational competitiveness when embedded in marketing capabilities and business strategy (Jain & Kumar, 2024; Omamahsuari, 2024; Tahid et al., 2024).

Customer loyalty also received a high priority in the findings, which shows that artificial intelligence is perceived as important for sustaining long-term customer relationships. The positive effects observed in email marketing, social media engagement, and personalized content demonstrate that artificial intelligence can improve the relevance, timing, and emotional resonance of customer communication. This result supports previous research showing that e-marketing and electronic customer relationship management can enhance e-loyalty by improving customer interaction and relationship continuity (Haudi et al., 2022). It is also consistent with studies on artificial intelligence and customer relationship management, which suggest that artificial intelligence enables firms to predict customer needs, personalize service, reduce churn, and strengthen customer retention (Ozay et al., 2024). Thus, artificial intelligence may contribute to loyalty not simply by increasing exposure to digital messages, but by improving the perceived usefulness and relevance of brand communication.

The ranking of artificial intelligence-based alternatives showed that content personalization tools had the highest priority, followed by big data analytics platforms, customer behavior prediction platforms, and advertising campaign management tools. This finding is highly consistent with the logic of contemporary digital marketing, in which personalized content is one of the most visible and customer-facing applications of artificial intelligence. Content personalization helps firms deliver the right message to the right audience at the right time and through the right channel. Previous studies on digital content marketing emphasize that content effectiveness depends on relevance, customer journey alignment, and contextual adaptation (Terho et al., 2022). Similarly, artificial intelligence research in marketing suggests that personalization is among the most important mechanisms through which artificial intelligence enhances customer engagement and conversion (Davenport et al., 2020; Haleem et al., 2022). Therefore, the prioritization of content personalization in the present study confirms that managers and experts perceive customer relevance as a central pathway linking artificial intelligence to marketing performance.

The findings also showed that email marketing experienced the highest average improvement among digital marketing strategies, followed by social media marketing, content marketing, and SEO. The strong improvement in email marketing can be explained by the high suitability of this channel for artificial intelligence-based optimization. Email marketing produces measurable behavioral data, including open rates, click-through rates, response patterns, and unsubscribe behavior, all of which can be used by artificial intelligence systems to optimize audience segmentation, subject lines, message timing, and content design. Similarly, the improvement in social media marketing reflects the ability of artificial intelligence to analyze sentiment, detect trends, optimize posting time, and personalize engagement. These results are consistent with studies showing that artificial intelligence applications in digital marketing are especially effective when the channel provides continuous feedback and behavioral data for algorithmic learning (Frontiers in, 2024; Labib, 2024; Yeeprasert et al., 2023).

By contrast, the relatively lower improvement observed in SEO and content marketing suggests that the effect of artificial intelligence may vary across digital marketing domains. SEO performance often depends on external search engine algorithms, competitive keyword environments, technical website structure, content authority, and time-lagged organic visibility. Therefore, although artificial intelligence can support keyword analysis, content optimization, and search intent prediction, its effect may be slower and more indirect than in channels such as email marketing or paid advertising. This finding corresponds with the view that artificial intelligence adoption is not uniform across marketing functions and that its effectiveness depends on channel characteristics, organizational capability, and data availability (Omamahsuari, 2024; Tahid et al., 2024). It also highlights the importance of integrating artificial intelligence with broader digital marketing planning rather than treating it as an isolated solution (Chaffey & Smith, 2022; Zaman, 2022).

The validation results showed that the artificial intelligence-based method outperformed manual data analysis and traditional experience-based methods across conversion rate, customer acquisition cost, and return on investment. This finding confirms that artificial intelligence offers superior analytical power in data-intensive marketing environments. Manual and intuition-based methods may remain useful for strategic interpretation and human judgment, but they are often limited in processing large-scale behavioral data, detecting complex patterns, and adjusting campaigns in real time. Artificial intelligence, by contrast, can analyze high-volume and high-velocity data and convert them into operational decisions. This result is aligned with broader artificial intelligence research showing that intelligent systems can support prediction, classification, optimization, and decision-making across complex domains (Aldoseri et al., 2023; Jiang et al., 2022; Zhang & Lu, 2021).

At the same time, the findings should be interpreted with attention to the risks and ethical challenges of artificial intelligence-based digital marketing. While the results demonstrated clear performance improvements, artificial intelligence can also create concerns related to privacy, transparency, consumer trust, bias, and excessive automation. Previous studies have emphasized that artificial intelligence in consumer markets involves paradoxes because the same systems that improve personalization and efficiency may also generate ethical concerns about manipulation, surveillance, and algorithmic discrimination (Du & Xie, 2021; Gao & Liu, 2023). These concerns are particularly important in sectors such as financial services, where vulnerable customers may be affected by automated targeting and persuasive digital communication (Mogaji et al., 2023). Therefore, organizations should balance performance optimization with responsible artificial intelligence governance.

The results of the present study can also be interpreted through the broader lens of organizational opportunity exploitation. Artificial intelligence creates opportunities for firms to redesign digital marketing strategies, discover new customer segments, and build more adaptive business models. However, exploiting these opportunities requires managerial agency, strategic decision-making, and the creative use of available resources. Research on opportunity exploitation, bricolage, and entrepreneurial decision-making emphasizes that organizations achieve better outcomes when they recognize emerging opportunities and mobilize resources effectively under uncertainty (Bahramfard et al., 2025, 2026; Bahramfard et al., 2023). In the context of this study, artificial intelligence can be viewed as an opportunity-enabling capability that improves digital marketing performance when combined with managerial expertise, organizational readiness, and data-driven culture.

Generative artificial intelligence also provides an important extension to the findings, especially in relation to content personalization, customer communication, and campaign automation. As generative conversational systems become more integrated into digital marketing practice, organizations can use them to produce personalized messages, support customer service, generate campaign ideas, and automate parts of the customer journey. However, the use of generative artificial intelligence should be accompanied by quality control, brand consistency, ethical oversight, and human supervision. This is consistent with multidisciplinary discussions showing that generative artificial intelligence provides important opportunities for research and practice while also creating challenges related to authenticity, accountability, and governance (Dwivedi et al., 2023). Therefore, the superior performance of artificial intelligence-based strategies in this study should not be interpreted as a replacement of human judgment, but as evidence for the value of human–AI collaboration in digital marketing.

Overall, the findings confirm that artificial intelligence can substantially improve the performance of digital marketing strategies by enhancing data analysis, personalization, targeting, automation, customer relationship management, and risk-sensitive decision-making. The strongest effects appeared in channels and functions where customer data are frequent, measurable, and directly actionable, such as email marketing, social media marketing, conversion optimization, and customer acquisition management. The results are consistent with previous studies that identify artificial intelligence as a major driver of marketing transformation, customer analytics, and strategic digital capability (Davenport et al., 2020; Haleem et al., 2022; Jain & Kumar, 2024; Van Esch & Stewart Black, 2021). Therefore, the study contributes to the literature by showing that artificial intelligence can improve not only individual digital marketing tools but also broader strategic outcomes such as competitiveness, profitability, customer loyalty, and risk management.

The present study had several limitations. First, the statistical population was limited to companies listed on the Tehran Stock Exchange, which may restrict the generalizability of the findings to small businesses, start-ups, non-listed firms, and organizations operating in different institutional contexts. Second, the data were collected through a questionnaire, and respondents' perceptions may have been influenced by subjective judgments, organizational experience, or positive attitudes

toward new technologies. Third, although the study compared scenarios with and without artificial intelligence, the analysis was based on selected performance indicators and may not fully capture long-term organizational, ethical, and operational consequences. Fourth, the study focused on a limited set of digital marketing strategies and did not examine all possible artificial intelligence applications, such as chatbots, recommender systems, dynamic pricing, marketing automation platforms, or generative content systems in detail.

Future research should expand the scope of analysis by examining different industries, firm sizes, and market environments to determine whether the effect of artificial intelligence on digital marketing performance varies across organizational and contextual conditions. Longitudinal studies are also recommended to evaluate whether the benefits of artificial intelligence remain stable over time or change as firms gain more experience with implementation. Future studies can also compare different types of artificial intelligence tools and investigate the mediating roles of data quality, organizational readiness, marketing capability, customer trust, and digital maturity. In addition, future researchers may use mixed-methods designs to combine quantitative performance evaluation with qualitative insights from managers, marketers, customers, and technology specialists.

From a practical perspective, managers should treat artificial intelligence as a strategic marketing capability rather than a stand-alone technological tool. Organizations should first identify the digital marketing areas where artificial intelligence can generate the highest value, especially content personalization, customer analytics, email marketing, social media engagement, and campaign optimization. Firms should also invest in data quality, employee training, ethical governance, and integration between marketing and information technology units. In practice, the most effective approach is likely to be a human–AI collaborative model in which artificial intelligence supports data processing, prediction, personalization, and automation, while managers retain responsibility for strategic judgment, ethical control, brand meaning, and customer relationship quality.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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References

Agarwal, M. (2021). A Study on Pay-Per-Click Advertising. *Asian Journal of Multidimensional Research*, *10*(11), 618-624. https://doi.org/10.5958/2278-4853.2021.01042.9

Agustian, R. (2023). Perancangan Aplikasi E-Marketing Menggunakan Responsive Web Design. *Jurnal Informatika dan Rekayasa Perangkat Lunak*, *2*(3), 361-367. https://doi.org/10.33365/jatika.v2i3.1236

Aldoseri, A., Al-Khalifa, K. N., & Hamouda, A. M. (2023). Re-thinking Data Strategy and Integration for Artificial Intelligence: Concepts, Opportunities, and Challenges. *Applied Sciences*, *13*(12), 7082. https://doi.org/10.3390/app13127082

Anca, M. (2023). The Role of Artificial Intelligence in Digital Marketing. *Journal of Digital Marketing*, *15*(2), 45-58.

Aung, Y. Y., Wong, D. C., & Ting, D. S. (2021). The Promise of Artificial Intelligence: A Review of the Opportunities and Challenges of Artificial Intelligence in Healthcare. *British Medical Bulletin*, *139*(1), 4-15. https://doi.org/10.1093/bmb/ldab016

Bahramfard, H., Bagheri, G., Kordnaeij, A., & Saberi, A. (2025). The Role of Bricolage in Exploiting Opportunities in Sports SMEs. *Sport Management Studies*, *17*(90), 39-62. https://doi.org/10.22089/smrj.2025.15506.3933

Bahramfard, H., Bagheri, G., Kordnaeij, A., & Saberi, A. (2026). The Decision to Take Advantage of the Opportunity by Emphasizing the Role of the Entrepreneur in Sports Businesses. *Research in Sports Management and Movement Behavior*, *15*(29), 252-279.

Bahramfard, H., Bagheri Ragheb, G., & Kordnaeij, A. (2023). The Role of Inspiration in the Decision to Exploit Entrepreneurial Opportunities in Sports Businesses. *Sport Management Journal*, *15*(4), 237-257. https://doi.org/10.22059/jsm.2023.358291.3135

Chaffey, D., & Smith, P. R. (2022). *Digital Marketing Excellence: Planning, Optimizing and Integrating Online Marketing*. Routledge. https://doi.org/10.4324/9781003009498

Davenport, T. H., Guha, A., Grewal, D., & Bressgott, T. (2020). How Artificial Intelligence Will Change the Future of Marketing. *Journal of the Academy of Marketing Science*, *48*(1), 24-42. https://doi.org/10.1007/s11747-019-00696-0

Du, S., & Xie, C. (2021). Paradoxes of Artificial Intelligence in Consumer Markets: Ethical Challenges and Opportunities. *Journal of Business Research*, *129*, 961-974. https://doi.org/10.1016/j.jbusres.2020.08.024

Dwivedi, Y. K., Kshetri, N., Hughes, L., Slade, E. L., Jeyaraj, A., Kar, A. K., & Wright, R. (2023). So What if ChatGPT Wrote It? Multidisciplinary Perspectives on Opportunities, Challenges and Implications of Generative Conversational AI for Research, Practice and Policy. *International Journal of Information Management*, *71*, 102642. https://doi.org/10.1016/j.ijinfomgt.2023.102642

Frontiers in, C. (2024). Artificial Intelligence and Digital Marketing: Emerging Trends and Applications. *Frontiers in Communication*, *9*, 1-10.

Gao, P., & Liu, Y. (2023). Artificial Intelligence, Consumer Trust and Ethical Issues in Digital Marketing: A Systematic Review. *Journal of Retailing and Consumer Services*, *75*, 103527.

Haleem, A., Javaid, M., Qadri, M. A., Singh, R. P., & Suman, R. (2022). Artificial Intelligence (AI) Applications for Marketing: A Literature-Based Study. *International Journal of Intelligent Networks*, *3*, 119-132. https://doi.org/10.1016/j.ijin.2022.08.005

Haudi, H., Rahadjeng, E., Santamoko, R., Putra, R., Purwoko, D., Nurjannah, D., & Purwanto, A. (2022). The Role of E-Marketing and E-CRM on E-Loyalty of Indonesian Companies During Covid Pandemic and Digital Era. *Uncertain Supply Chain Management*, *10*(1), 217-224. https://doi.org/10.5267/j.uscm.2021.9.006

Jain, R., & Kumar, A. (2024). Artificial Intelligence and Digital Marketing: A Systematic Review and Future Directions. *Journal of Business Research*, *180*, 114702.

Jiang, Y., Li, X., Luo, H., Yin, S., & Kaynak, O. (2022). Quo Vadis Artificial Intelligence? *Discover Artificial Intelligence*, *2*(1), 4. https://doi.org/10.1007/s44163-022-00022-8

Labib, M. (2024). Artificial Intelligence in Digital Marketing: A Comprehensive Review of Applications and Performance Outcomes. *Technology in Society*, *78*, 102641.

Madanchian, M. (2024). Artificial Intelligence and Digital Transformation: Strategic Implications for Marketing. *Journal of Strategic Marketing*, *32*(1), 1-15.

Mogaji, E., Soetan, T. O., & Kieu, T. A. (2023). The Implications of Artificial Intelligence on the Digital Marketing of Financial Services to Vulnerable Customers. *Australasian Marketing Journal*, j-ausmj.

Omamahsuari, N. (2024). The Evolution of Artificial Intelligence Adoption in Digital Marketing: Challenges and Opportunities. *Journal of Marketing Analytics*, *12*(2), 87-102.

Ozay, M., Karabay, M. E., & Arslan, M. (2024). Artificial Intelligence and Customer Relationship Management: A New Frontier in Digital Marketing. *Journal of Business Research*, *175*, 114489.

Rezaei, S., Amin, M., & Herjanto, H. (2024). Pay-per-Click (PPC) Advertising and Continuous Banking Service Intentions. *Journal of Financial Services Marketing*, 1-17. https://doi.org/10.1057/s41264-024-00282-8

Saleh, K., Al-Hawari, M., & Alryalat, M. (2023). Artificial Intelligence Applications and Digital Marketing Performance: Evidence from Service Industries. *Sustainability*, *15*(18), 13642.

Tahid, M., Rahman, M. M., & Islam, M. A. (2024). Artificial Intelligence Adoption and Digital Marketing Effectiveness: The Moderating Role of Organizational Capability. *Technological Forecasting and Social Change*, *200*, 123276.

Teece, D. J. (2018). Business Models and Dynamic Capabilities. *Long Range Planning*, *51*(1), 40-49. https://doi.org/10.1016/j.lrp.2017.06.007

Terho, H., Mero, J., Siutla, L., & Jaakkola, E. (2022). Digital Content Marketing in Business Markets: Activities, Consequences, and Contingencies Along the Customer Journey. *Industrial Marketing Management*, *105*, 294-310. https://doi.org/10.1016/j.indmarman.2022.06.006

Van Esch, P., & Stewart Black, J. (2021). Artificial Intelligence (AI): Revolutionizing Digital Marketing. *Australasian Marketing Journal*, *29*(3), 199-203. https://doi.org/10.1177/18393349211037684

Venkateswaran, V., Sivarajah, U., & Irani, Z. (2024). Strategic Applications of Artificial Intelligence in Digital Marketing: A Capability Perspective. *Industrial Marketing Management*, *118*, 34-48.

Yeeprasert, P., Charoensukmongkol, P., & Moqbel, M. (2023). AI-Driven Customer Analytics and Digital Marketing Performance: Evidence from Online Businesses. *Journal of Business Research*, *165*, 114065.

Zaman, A. (2022). Artificial Intelligence and Digital Marketing: A Strategic Perspective. *Journal of Digital Innovation*, *8*(3), 112-128.

Zhang, C., & Lu, Y. (2021). Study on Artificial Intelligence: The State of the Art and Future Prospects. *Journal of Industrial Information Integration*, *23*, 100224. https://doi.org/10.1016/j.jii.2021.100224