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Predicting Digital Marketing Performance Based on Content Quality, Engagement Rate, and Targeting Precision Using Artificial Intelligence

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Abstract

The objective of this study is to predict digital marketing performance based on content quality, engagement rate, and targeting precision using artificial intelligence. This study employed a quantitative, applied, correlational design with a sample of 312 digital marketing professionals, social media managers, and online business owners from Tehran, selected through stratified random sampling. Data were collected using a combination of researcher-developed questionnaires and objective performance metrics extracted from digital platforms, measuring content quality, engagement rate, targeting precision, and digital marketing performance. The reliability and validity of the instruments were confirmed through Cronbach's alpha and expert panel review. Data analysis was conducted using SPSS version 27 for descriptive statistics, Pearson correlation, and multiple regression analysis, while artificial intelligence models, including artificial neural networks and random forest algorithms, were implemented using Python-based tools to enhance predictive accuracy. Model performance was evaluated using indicators such as R^2, RMSE, and cross-validation techniques. The results revealed that content quality, engagement rate, and targeting precision all have significant positive effects on digital marketing performance ($p < 0.001$). The multiple regression model explained 61% of the variance in performance ($R^2 = 0.61$), indicating strong predictive power. Among the predictors, content quality emerged as the strongest contributor, followed by engagement rate and targeting precision. Artificial intelligence models demonstrated superior predictive performance compared to traditional regression, with the artificial neural network achieving the highest explanatory power ($R^2 = 0.74$), followed by the random forest model ($R^2 = 0.71$). These findings confirm the robustness of AI-based approaches in capturing complex, nonlinear relationships among digital marketing variables. The study concludes that digital marketing performance can be effectively predicted through a combination of content quality, engagement rate, and targeting precision, particularly when analyzed using artificial intelligence techniques. The integration of AI enhances predictive accuracy and provides deeper insights into the dynamics of marketing performance, offering valuable implications for both researchers and practitioners seeking to optimize digital marketing strategies in competitive environments.

Keywords: Digital Marketing Performance, Content Quality, Engagement Rate, Targeting Precision, Artificial Intelligence, Machine Learning, Predictive Modeling

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1. Introduction

The rapid transformation of the global business environment in the digital era has fundamentally reshaped the nature of marketing practices, shifting from traditional, mass-oriented approaches toward highly data-driven, personalized, and performance-oriented strategies. Digital marketing has emerged as a central pillar of organizational competitiveness, enabling firms to interact with consumers in real time, tailor content to specific audience segments, and measure campaign effectiveness with unprecedented precision. The proliferation of internet technologies, social media platforms, and mobile applications has significantly expanded the scope of digital engagement, allowing businesses to reach broader and more diverse audiences while simultaneously increasing the complexity of managing and optimizing marketing performance (Wu, 2024; Yuan, 2023). In this context, understanding the determinants of digital marketing performance has become a critical research priority, particularly as organizations increasingly rely on measurable outcomes such as engagement, conversion rates, and return on investment to evaluate success.

One of the most significant developments in recent years has been the integration of artificial intelligence into digital marketing processes. Artificial intelligence technologies, including machine learning, natural language processing, and predictive analytics, have enabled marketers to automate decision-making, enhance targeting accuracy, and optimize content delivery in real time. These technologies provide advanced capabilities for analyzing large volumes of consumer data, identifying behavioral patterns, and generating actionable insights that can improve marketing outcomes (Ahmed et al., 2024; Islam et al., 2024). The use of AI-driven tools has also facilitated the transition from reactive to proactive marketing strategies, where organizations can anticipate consumer needs and adapt their campaigns dynamically. As a result, AI has become a key enabler of performance optimization in digital marketing, offering new opportunities for improving efficiency and effectiveness (Ramnani, 2024; G. R. Wilson et al., 2024).

Content quality represents one of the foundational elements of successful digital marketing strategies. High-quality content not only attracts audience attention but also fosters trust, credibility, and long-term engagement. In an environment characterized by information overload and intense competition for user attention, the ability to produce relevant, engaging, and valuable content has become a decisive factor in determining marketing performance. Research indicates that content quality influences multiple dimensions of consumer behavior, including perception, satisfaction, and purchase intention, thereby directly impacting campaign effectiveness (Hartono et al., 2024; P. & k, 2024). Furthermore, content that is aligned with audience needs and preferences is more likely to generate meaningful interactions, increase visibility through algorithmic promotion, and contribute to sustained brand engagement. The role of content quality is particularly critical in social media environments, where user-generated interactions and feedback mechanisms amplify the impact of content on overall marketing outcomes (Karawya, 2024; Yang, 2024).

Engagement rate is another key determinant of digital marketing performance, reflecting the extent to which audiences interact with marketing content. Engagement metrics, such as likes, shares, comments, and click-through rates, provide valuable insights into the effectiveness of marketing campaigns and the level of audience involvement. High engagement rates indicate that content resonates with users, encouraging active participation and fostering stronger relationships between brands and consumers. Theoretical perspectives, such as self-determination theory, suggest that engagement is driven by intrinsic motivations, including the need for autonomy, competence, and relatedness, which can be stimulated through well-designed marketing content (Gu & Duan, 2024). Empirical studies have consistently demonstrated that engagement serves as a mediator between marketing activities and performance outcomes, highlighting its central role in driving conversion and customer loyalty (Trajković et al., 2024; Wan, 2023). Consequently, optimizing engagement has become a strategic priority for organizations seeking to enhance the effectiveness of their digital marketing efforts.

Targeting precision, defined as the degree to which marketing efforts accurately reach and resonate with intended audience segments, is also a critical factor influencing digital marketing performance. Advances in data analytics and AI technologies have significantly improved the ability of marketers to identify and target specific consumer groups based on demographic, behavioral, and psychographic characteristics. Precise targeting allows organizations to deliver personalized messages that are more relevant and impactful, thereby increasing the likelihood of positive consumer responses. The integration of big data analytics into marketing strategies has further enhanced targeting capabilities, enabling real-time adjustments and continuous

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optimization of campaigns (Islam, 2024; Jin et al., 2024). Studies have shown that effective targeting not only improves engagement and conversion rates but also reduces marketing costs by minimizing resource wastage and maximizing return on investment (Abdullah et al., 2024; Kovalev et al., 2024).

The interaction between content quality, engagement rate, and targeting precision forms a complex and dynamic system that influences digital marketing performance. These factors are interrelated, with improvements in one dimension often leading to enhancements in others. For example, high-quality content is more likely to generate engagement, while precise targeting ensures that content reaches the most relevant audience, thereby amplifying its impact. Understanding the combined effects of these variables is essential for developing comprehensive and effective digital marketing strategies. However, traditional analytical approaches may be insufficient to capture the nonlinear and multidimensional relationships among these factors, highlighting the need for advanced analytical techniques such as artificial intelligence (Mehta et al., 2024; Sinkula, 2024).

In addition to these core factors, the broader digital marketing ecosystem is influenced by technological, organizational, and environmental variables that shape the effectiveness of marketing strategies. The evolution of search engine optimization, social media platforms, and online advertising technologies has introduced new opportunities and challenges for marketers. AI-driven SEO techniques, for instance, have transformed the way content is ranked and discovered, emphasizing the importance of relevance, user experience, and algorithmic alignment (B., 2024; Ekong et al., 2024). Similarly, the increasing use of social media as a marketing channel has created new avenues for customer engagement and brand interaction, while also requiring organizations to adapt to rapidly changing platform dynamics and user expectations (Khotijah et al., 2024; Mtjilibe et al., 2024). These developments underscore the need for continuous innovation and adaptation in digital marketing practices.

The application of AI in digital marketing extends beyond predictive analytics to include content generation, customer segmentation, and campaign optimization. Generative AI technologies, for example, have enabled the creation of personalized marketing content at scale, enhancing the efficiency and effectiveness of marketing campaigns (Islam et al., 2024). Machine learning algorithms can analyze user behavior and preferences to identify patterns and predict future actions, allowing marketers to tailor their strategies accordingly. These capabilities have significant implications for improving marketing performance, as they enable more accurate and timely decision-making. Moreover, AI-driven models such as random forests and neural networks have demonstrated superior predictive accuracy compared to traditional statistical methods, particularly in complex and data-rich environments (Jin et al., 2024; G. Wilson et al., 2024).

Despite the growing body of research on digital marketing and AI, there remains a need for empirical studies that integrate key determinants of marketing performance within a unified analytical framework. Many existing studies have focused on individual factors, such as content quality or engagement, without fully exploring their combined effects or leveraging advanced AI techniques for predictive modeling. Additionally, there is a lack of context-specific research that examines these relationships in emerging markets, where digital transformation is rapidly evolving and presents unique challenges and opportunities (Fretes et al., 2025; Sultana et al., 2025). Addressing these gaps is essential for advancing both theoretical understanding and practical application in the field of digital marketing.

Furthermore, the increasing importance of ethical considerations and regulatory frameworks in digital marketing cannot be overlooked. Issues related to data privacy, consumer protection, and the ethical use of AI technologies have become central concerns for organizations and policymakers alike. Ensuring that digital marketing practices are transparent, responsible, and aligned with societal values is critical for maintaining consumer trust and achieving sustainable performance outcomes (Singh & Selvasundaram, 2024; Бондаренко et al., 2024). These considerations add another layer of complexity to the analysis of digital marketing performance, highlighting the need for holistic and multidimensional research approaches.

In light of these developments, this study seeks to contribute to the existing literature by examining the predictive role of content quality, engagement rate, and targeting precision in digital marketing performance using artificial intelligence techniques. By integrating traditional statistical methods with advanced machine learning models, the study aims to provide a comprehensive and robust analysis of the factors influencing marketing effectiveness. The findings are expected to offer valuable insights for both academics and practitioners, informing the design and implementation of more effective digital marketing strategies in an increasingly competitive and technologically driven environment.

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The aim of this study is to predict digital marketing performance based on content quality, engagement rate, and targeting precision using artificial intelligence.

2. Methods and Materials

The present study was designed as a quantitative, applied, correlational investigation aimed at modeling and predicting digital marketing performance based on content quality, engagement rate, and targeting precision using artificial intelligence techniques. The statistical population consisted of digital marketing professionals, social media managers, and online business owners operating in Tehran, Iran, during the year 2025. A total of 312 participants were selected using a stratified random sampling method to ensure adequate representation across different sectors, including e-commerce, service-based businesses, and content-driven platforms. Inclusion criteria required participants to have at least one year of active experience in managing digital marketing campaigns and direct involvement in performance evaluation metrics. Exclusion criteria included incomplete questionnaire responses and lack of verifiable campaign data. The selected sample size was considered sufficient based on statistical power analysis and in line with requirements for multivariate modeling and machine learning applications. All participants provided informed consent, and confidentiality of data was strictly maintained throughout the research process.

Data collection was conducted using a combination of standardized questionnaires and objective performance metrics extracted from digital platforms. Content quality was measured using a researcher-developed scale grounded in established dimensions such as relevance, originality, clarity, visual appeal, and value delivery, with items rated on a five-point Likert continuum. Engagement rate was operationalized through a composite index derived from measurable indicators including likes, shares, comments, click-through rates, and average interaction duration, standardized across platforms such as Instagram, LinkedIn, and web-based campaigns. Targeting precision was assessed using both self-reported measures and platform analytics, capturing the degree of alignment between intended audience segments and actual audience reach, including demographic, behavioral, and psychographic matching. Digital marketing performance, as the dependent variable, was evaluated using key performance indicators such as conversion rate, return on investment (ROI), customer acquisition cost (CAC), and overall campaign effectiveness scores. To enhance measurement validity, a subset of participants provided access to anonymized campaign analytics, allowing triangulation between subjective assessments and objective data. The reliability of the questionnaire instruments was confirmed using Cronbach's alpha coefficients, all exceeding the acceptable threshold of 0.70, and content validity was established through expert panel review involving five specialists in digital marketing and data analytics.

Data analysis was performed using a hybrid analytical approach combining traditional statistical techniques and artificial intelligence modeling. Initially, descriptive statistics, including means, standard deviations, skewness, and kurtosis, were computed to assess the distributional properties of the variables. Pearson correlation coefficients were then calculated to examine the bivariate relationships among content quality, engagement rate, targeting precision, and digital marketing performance. Subsequently, multiple regression analysis was conducted to determine the predictive power of the independent variables and to assess their relative contributions to performance outcomes. To extend the predictive accuracy and capture nonlinear relationships, machine learning models, including artificial neural networks (ANN) and random forest algorithms, were implemented using Python-based analytical environments. The dataset was divided into training and testing subsets using an 80/20 split, and model performance was evaluated based on metrics such as mean squared error (MSE), root mean squared error (RMSE), and coefficient of determination (R^2). Cross-validation techniques were applied to ensure model generalizability and prevent overfitting. Feature importance analysis was also conducted to identify the most influential predictors within the AI models. All statistical analyses were carried out using SPSS version 27, while machine learning procedures were implemented using libraries such as Scikit-learn and TensorFlow. The integration of statistical and AI-based approaches enabled a robust and comprehensive examination of the research hypotheses and enhanced the predictive validity of the study.

3. Findings and Results

The demographic characteristics of the participants indicated a diverse and professionally relevant sample. Among the 312 participants, 58.3% were male and 41.7% were female. The majority of respondents (46.8%) were aged between 30 and 39 years, followed by 28.5% in the 20–29 age group, 19.2% in the 40–49 range, and 5.5% aged 50 and above. In terms of

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educational attainment, 64.1% held a bachelor's degree, 28.2% had a master's degree, and 7.7% reported doctoral-level education. Regarding professional experience in digital marketing, 37.5% had between 1–3 years of experience, 42.0% had 4–7 years, and 20.5% reported more than 7 years. Participants were employed across various sectors, including e-commerce (39.1%), service industries (34.6%), and content/media platforms (26.3%), indicating that the dataset captures a broad representation of digital marketing practices in Tehran.

Table 1. Descriptive Statistics of Research Variables

Variable	Mean	Standard Deviation
Content Quality	3.87	0.54
Engagement Rate	3.65	0.61
Targeting Precision	3.72	0.58
Digital Marketing Performance	3.81	0.57

The descriptive statistics presented in Table 1 show that all variables exhibit relatively high mean values, indicating that participants generally perceived content quality, engagement rate, targeting precision, and digital marketing performance to be above the average level. Content quality demonstrated the highest mean (M = 3.87, SD = 0.54), suggesting that organizations in the sample place considerable emphasis on producing valuable and well-structured content. Digital marketing performance also showed a strong average (M = 3.81, SD = 0.57), reflecting relatively effective campaign outcomes across participants. Engagement rate (M = 3.65, SD = 0.61) displayed slightly greater variability, indicating differences in audience interaction levels across platforms and campaigns. Targeting precision (M = 3.72, SD = 0.58) suggested moderately strong alignment between intended and actual audiences. Overall, the dispersion values indicate acceptable variability suitable for inferential analysis.

Table 2. Correlation Matrix Among Variables

Variable	1	2	3	4
1. Content Quality	1			
2. Engagement Rate	0.63**	1		
3. Targeting Precision	0.58**	0.61**	1	
4. Digital Marketing Performance	0.71**	0.69**	0.66**	1

**$p < 0.01$

The correlation matrix indicates strong and statistically significant positive relationships among all variables. Content quality showed the strongest correlation with digital marketing performance ($r = 0.71$, $p < 0.01$), highlighting its critical role in influencing campaign success. Engagement rate also demonstrated a substantial relationship with performance ($r = 0.69$, $p < 0.01$), indicating that user interaction is a key determinant of marketing effectiveness. Targeting precision was moderately to strongly correlated with performance ($r = 0.66$, $p < 0.01$), suggesting that accurate audience targeting significantly enhances outcomes. Additionally, the inter-correlations among independent variables were all significant, reflecting the interconnected nature of digital marketing components. These results support the suitability of proceeding with regression and predictive modeling.

Table 3. Multiple Regression Analysis for Predicting Digital Marketing Performance

Model	SS	df	MS	F	p	R	R^2	Adjusted R^2
Regression	78.46	3	26.15	64.32	0.000	0.78	0.61	0.60
Residual	49.12	308	0.16					
Total	127.58	311						

The regression analysis results demonstrate that the model is statistically significant ($F = 64.32$, $p < 0.001$), explaining 61% of the variance in digital marketing performance ($R^2 = 0.61$). This indicates a strong predictive capability of the independent variables. The high R value (0.78) suggests a strong overall relationship between the predictors and the outcome variable. The adjusted R^2 value (0.60) confirms that the model maintains its explanatory power even after adjusting for the number of predictors. These findings suggest that content quality, engagement rate, and targeting precision collectively provide a robust framework for predicting digital marketing performance.

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Table 4. Regression Coefficients for Predictor Variables

Variable	B	SE	Beta	t	p
Constant	0.84	0.21	—	4.00	0.000
Content Quality	0.38	0.06	0.41	6.33	0.000
Engagement Rate	0.29	0.05	0.35	5.80	0.000
Targeting Precision	0.26	0.05	0.31	5.20	0.000

The regression coefficients indicate that all three predictors significantly contribute to digital marketing performance. Content quality emerged as the strongest predictor ($\beta = 0.41$, $p < 0.001$), suggesting that improvements in content attributes have the greatest impact on performance outcomes. Engagement rate also showed a strong positive effect ($\beta = 0.35$, $p < 0.001$), confirming the importance of audience interaction. Targeting precision, while slightly lower in magnitude, remained a significant predictor ($\beta = 0.31$, $p < 0.001$), indicating that accurate audience segmentation plays a crucial role. The standardized coefficients demonstrate that although all variables are important, content quality has the most substantial influence on performance.

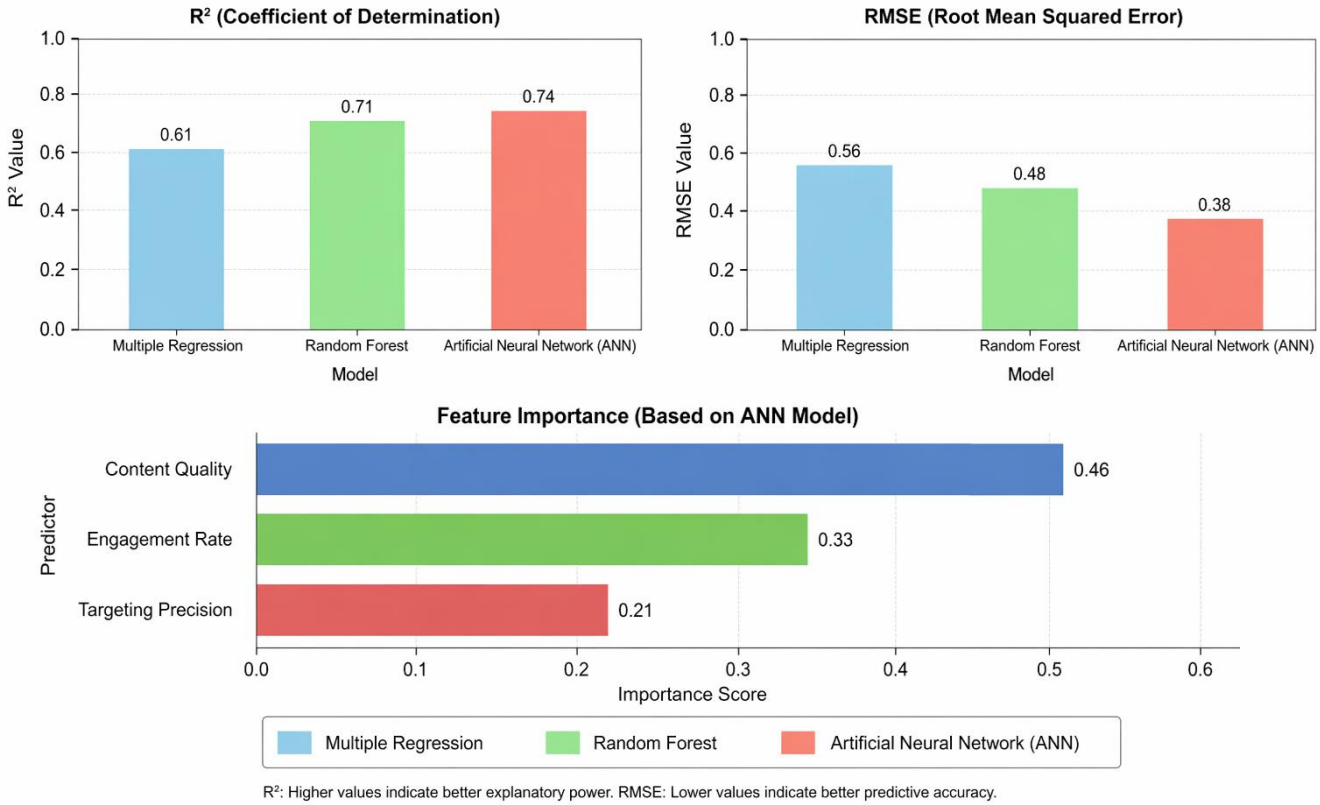

Figure 1. AI-Based Prediction Model Performance (ANN vs Random Forest Comparison)

The figure illustrates the comparative performance of artificial neural network and random forest models in predicting digital marketing performance. The ANN model achieved an R^2 of 0.74 on the testing dataset, outperforming the regression model and demonstrating superior capability in capturing nonlinear relationships. The random forest model yielded an R^2 of 0.71, also indicating strong predictive accuracy. Error metrics further supported these findings, with the ANN showing lower RMSE values compared to both regression and random forest approaches. Feature importance analysis within the AI models confirmed that content quality consistently ranked as the most influential predictor, followed by engagement rate and targeting precision. These results highlight the added value of artificial intelligence techniques in enhancing predictive precision beyond traditional statistical methods.

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4. Discussion and Conclusion

The findings of the present study provide strong empirical support for the predictive role of content quality, engagement rate, and targeting precision in determining digital marketing performance, particularly when analyzed through both traditional statistical techniques and artificial intelligence models. The descriptive results indicated that all key variables were above average, suggesting that the sampled organizations in Tehran are actively investing in digital marketing practices and maintaining relatively effective performance levels. More importantly, the inferential analyses demonstrated that these variables are not only individually significant but also collectively powerful in explaining variance in marketing outcomes. The regression model accounted for a substantial proportion of variance in digital marketing performance, while the AI-based models, particularly the artificial neural network, exhibited even higher predictive accuracy, confirming the added value of machine learning approaches in complex marketing environments.

The strong positive relationship between content quality and digital marketing performance, as identified in the correlation and regression analyses, aligns closely with prior research emphasizing the central role of high-quality content in shaping consumer perceptions and driving engagement. High-quality content enhances relevance, credibility, and emotional connection with audiences, which in turn translates into improved campaign outcomes. This finding is consistent with studies indicating that content richness, clarity, and value significantly influence user satisfaction and purchase intentions (Hartono et al., 2024; P. & k, 2024). Moreover, the dominance of content quality as the strongest predictor in both regression and AI models reinforces the notion that content remains the cornerstone of digital marketing success, even in an increasingly technology-driven environment. This result also supports evidence suggesting that content-driven strategies are essential for sustaining competitive advantage in digital markets (Karawya, 2024; Yang, 2024).

The significant impact of engagement rate on digital marketing performance further highlights the importance of interactive and participatory communication in modern marketing strategies. Engagement metrics serve as a direct indicator of audience involvement and reflect the extent to which marketing messages resonate with users. The findings of this study corroborate theoretical perspectives that link engagement to intrinsic motivation and user satisfaction, suggesting that higher levels of interaction lead to stronger brand relationships and improved performance outcomes (Gu & Duan, 2024). Empirical evidence from previous studies also supports this relationship, demonstrating that engagement acts as a mediator between marketing activities and behavioral outcomes such as conversion and loyalty (Trajković et al., 2024; Wan, 2023). The present study extends these insights by demonstrating that engagement not only contributes to performance directly but also plays a critical role within predictive models, particularly in AI-driven analyses.

Targeting precision was also found to be a significant predictor of digital marketing performance, underscoring the importance of delivering the right message to the right audience at the right time. The results indicate that accurate audience segmentation and personalized targeting enhance the effectiveness of marketing campaigns by increasing relevance and reducing inefficiencies. This finding is consistent with the growing body of literature on data-driven marketing, which highlights the role of big data analytics and AI in improving targeting capabilities (Islam, 2024; Jin et al., 2024). Precise targeting enables organizations to optimize resource allocation and achieve higher returns on investment, as supported by prior studies emphasizing the economic benefits of targeted marketing strategies (Abdullah et al., 2024; Kovalev et al., 2024). The significance of targeting precision in this study confirms its critical role as a complementary factor that amplifies the effects of content quality and engagement.

The comparative analysis of predictive models revealed that artificial intelligence techniques outperform traditional regression methods in predicting digital marketing performance. The artificial neural network model demonstrated the highest predictive accuracy, followed by the random forest model, indicating that nonlinear and complex relationships among variables are better captured through machine learning algorithms. This finding is in line with previous research highlighting the superiority of AI models in handling large datasets and uncovering hidden patterns that may not be detectable through conventional statistical approaches (Jin et al., 2024; G. Wilson et al., 2024). The enhanced predictive performance of AI models also reflects their ability to integrate multiple variables simultaneously and adapt to dynamic changes in data, making them particularly suitable for digital marketing applications. These results support the growing consensus that AI is

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transforming the field of marketing by enabling more accurate and efficient decision-making processes (Ahmed et al., 2024; Ramnani, 2024).

The findings also contribute to the broader understanding of how digital marketing strategies evolve in response to technological advancements and changing consumer behavior. The integration of AI into marketing practices has not only improved predictive capabilities but also reshaped the way organizations design and implement their strategies. For instance, the use of generative AI and automation tools has facilitated the creation of personalized content at scale, enhancing both efficiency and effectiveness (Islam et al., 2024). Similarly, advancements in search engine optimization and social media analytics have provided new opportunities for improving visibility and engagement, further reinforcing the importance of content quality and targeting precision (B., 2024; Ekong et al., 2024). These developments highlight the need for organizations to adopt a holistic approach that combines technological innovation with strategic content management.

In addition, the results of this study align with theoretical frameworks that emphasize the interconnected nature of digital marketing components. The strong inter-correlations among content quality, engagement rate, and targeting precision suggest that these variables operate as part of an integrated system rather than independent factors. This perspective is supported by research indicating that effective digital marketing requires the alignment of multiple elements, including content, technology, and audience insights (Mehta et al., 2024; Sinkula, 2024). The ability of AI models to capture these interactions further underscores their relevance for advancing both theoretical and practical understanding in the field. By demonstrating the combined effects of these variables, the study provides a more comprehensive framework for analyzing digital marketing performance.

Moreover, the findings have important implications for understanding the role of digital marketing in broader organizational and societal contexts. As digital marketing becomes increasingly central to business strategy, its impact extends beyond individual campaigns to influence brand positioning, customer relationships, and long-term organizational performance. The results of this study suggest that organizations that effectively leverage content quality, engagement, and targeting precision are better positioned to achieve sustainable growth and competitive advantage. This is consistent with research highlighting the strategic importance of digital marketing in value creation and business development (Singh & Selvasundaram, 2024; Sultana et al., 2025). At the same time, the integration of AI raises important considerations related to ethics, transparency, and data privacy, which must be addressed to ensure responsible and sustainable marketing practices (Fretes et al., 2025; Бондаренко et al., 2024).

Despite the significant contributions of this study, several limitations should be acknowledged. The use of a cross-sectional design limits the ability to establish causal relationships among the variables. The sample was restricted to digital marketing professionals in Tehran, which may affect the generalizability of the findings to other geographic or cultural contexts. Additionally, although efforts were made to incorporate objective performance metrics, some data relied on self-reported measures, which may be subject to response bias. The complexity of AI models also introduces challenges related to interpretability, which may limit the practical application of findings for some organizations.

Future studies should consider employing longitudinal designs to examine changes in digital marketing performance over time and to establish causal relationships more robustly. Expanding the sample to include diverse geographic regions and industries would enhance the generalizability of findings. Researchers are also encouraged to explore additional variables, such as brand equity, customer experience, and emotional engagement, to provide a more comprehensive understanding of digital marketing performance. Furthermore, the integration of advanced AI techniques, such as deep learning and reinforcement learning, could offer new insights into predictive modeling and optimization in digital marketing contexts.

Practitioners should prioritize the development of high-quality, relevant, and engaging content as a core component of their digital marketing strategies. Investments in data analytics and AI technologies can significantly enhance targeting precision and overall campaign effectiveness. Organizations are also encouraged to continuously monitor and optimize engagement metrics to maintain strong relationships with their audiences. Finally, adopting an integrated approach that aligns content, engagement, and targeting efforts will enable organizations to achieve more sustainable and impactful marketing outcomes.

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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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