

The Impact of Artificial Intelligence Applications on Digital Marketing Performance and Consumer Purchase Intention: Evidence from Iranian Digital Marketing Experts

Fatemeh Zargaran Khouzani

Ph.D. in Business Management, Allameh Tabataba'i University, Tehran, Iran.

FatemehZargaran@gmail.com

Amir Ghaemi

M.Sc. in Business Administration (MBA), Strategic Management, Kharazmi University, Tehran, Iran.

amir.ghaemiwork@gmail.com

ABSTRACT

Artificial Intelligence (AI) has emerged as a transformative technology in digital marketing, significantly enhancing marketing performance and consumer purchase intention. This study investigates the impact of three key AI applications—NLP-based chatbots, intelligent recommendation systems, and dynamic smart ads—on digital marketing performance and consumer purchase intention. The statistical population comprised 280 digital marketing specialists in Iran, selected through convenience sampling. Data were analyzed using Structural Equation Modeling (SEM) with SmartPLS software. Results indicated that AI significantly and positively improves digital marketing performance ($\beta = 0.65$, $p < 0.001$) and consumer purchase intention ($\beta = 0.72$, $p < 0.001$). Moreover, all three AI applications significantly increased response speed, advertising targeting accuracy, and click-through rates. These findings align with international studies and demonstrate AI's high potential to transform digital marketing in Iran. However, challenges such as cultural adaptation, infrastructural limitations, and privacy concerns need to be addressed for effective implementation. This study provides valuable insights for optimizing AI-based digital marketing strategies in the Iranian context.

Keyword: Artificial Intelligence, Digital Marketing Performance, Consumer Purchase Intention, NLP Chatbots, Recommendation Systems, Dynamic Smart Ads

INTRODUCTION

In recent years, Iran has experienced an unprecedented wave of digital transformation, with internet penetration reaching approximately 82% and e-commerce businesses growing by around 40% over the last five years. This rapid digitalization aligns with Iran's predominantly young population, where approximately 60% are under 30 years old, increasingly influenced by digital influencers and innovative marketing technologies. Globally, artificial intelligence (AI) has revolutionized digital marketing by enabling personalized, efficient, and data-driven strategies that significantly enhance consumer engagement and purchase behavior [1-4]. AI applications such as natural language processing (NLP)-based chatbots, intelligent recommendation systems, and dynamic advertising have demonstrated considerable effectiveness in improving marketing performance and consumer purchase intentions across various industries and countries [5-6].

In the Iranian context, emerging AI-powered tools—such as smart chatbots on Telegram, recommendation systems on Digikala, and personalized dynamic ads on Instagram—are beginning to shape digital marketing practices. However, despite a 25% increase in digital marketing investments, there is limited empirical research on how these AI technologies influence digital marketing performance and consumer purchase intentions within Iran's unique socio-cultural and economic environment. Moreover, issues such as data privacy concerns and questions about AI's real effectiveness remain prevalent [6].

Previous studies have consistently highlighted AI's potential to enhance digital marketing effectiveness and consumer buying behavior through personalized engagement, predictive analytics, and marketing automation [1,3,7]. Nonetheless, localization challenges specific to the Iranian market (including cultural nuances, regulatory environments, and technological infrastructure) may affect the implementation and impact of these AI tools [8].

Therefore, this study focuses on three key AI applications (smart chatbots, intelligent recommendation systems, and dynamic smart ads) to address the following research questions:

1. How do these AI technologies improve digital marketing performance in Iran?
2. What is their impact on Iranian consumers' purchase intention?

The findings will provide critical insights for Iranian businesses and marketers seeking to optimize resource allocation, tailor AI-driven marketing strategies to local needs, and achieve competitive advantages in Iran's rapidly evolving digital economy.

Literature review and hypothesis development

Digital Marketing

Digital marketing, as a key strategy in the technological era, enables companies to interact effectively with customers through online channels such as social media, email marketing, search engines, and targeted advertising. This approach not only facilitates global audience reach but also allows for campaign personalization through behavioral data analysis [9]. Studies indicate that 54% of social media users utilize these platforms to research products, highlighting the critical role of digital marketing in shaping consumer

behavior [10]. A major transformation in digital marketing has been the integration of artificial intelligence (AI), which optimizes data analysis through machine learning and natural language processing [11]. AI enhances customer engagement and improves conversion rates by providing personalized recommendations, intelligent chatbots, and dynamic ads [12]. For instance, smart recommendation systems on platforms like Digikala display relevant products based on users' search history, thereby increasing purchase intention. Additionally, AI-powered smart ads on platforms such as Instagram significantly boost click-through rates (CTR) by analyzing user behavior [13].

AI in Digital Marketing

Artificial Intelligence (AI), defined as a branch of computer science focused on creating intelligent systems with human-like capabilities [14], has revolutionized digital marketing through advanced machine learning algorithms and natural language processing (NLP). These technologies enable the analysis of vast consumer data sets, revealing complex behavioral patterns and predicting purchase preferences with unprecedented accuracy [15]. Recent studies demonstrate AI's capacity to transform traditional marketing approaches by enabling hyper-personalization at scale [11]. Khatri (2021) emphasizes that this technological revolution has been particularly impactful in emerging markets like Iran, where e-commerce growth has surged by 40% over five years, creating fertile ground for AI-powered marketing solutions [9]. The integration of AI in digital marketing ecosystems allows for real-time decision-making based on predictive analytics, fundamentally altering consumer-brand interactions.

Comprehensive research by Devi & Uniyal (2025) identifies three primary domains where AI is transforming digital marketing: First, in customer service through NLP-based smart chatbots capable of 24/7 multilingual support and context-aware interactions. Second, in intelligent recommendation systems [1] that analyze user behavior patterns to deliver personalized product suggestions [16], as evidenced by platforms like Digikala. Third, in dynamic ad optimization using machine learning to tailor promotional content based on demographic profiles and purchase histories [12]. The Stimulus-Organism-Response (SOR) model applied by Al Adwan & Aladwan (2022) confirms these applications simultaneously enhance both utilitarian (functional) and hedonic (emotional) value for consumers [17]. In the Iranian context, successful implementations range from Telegram-based commerce bots to sophisticated recommendation algorithms in local e-commerce platforms, demonstrating the technology's adaptability to regional market conditions.

Empirical findings from Jakhodia et al. (2025) establish that AI significantly influences purchase intention by streamlining user experiences and reducing decision-making friction. However, the study also highlights persistent challenges including data privacy concerns, algorithmic biases, and transparency issues that may undermine consumer trust [6]. Busman & Ananda's (2022) generational research reveals that while younger demographics readily adopt AI tools, establishing trust remains critical for widespread acceptance. In Iran's unique digital landscape, characterized by high internet penetration but specific infrastructural constraints, successful AI implementation requires careful localization [18]. Rabby et al. (2021) propose combining AI with consumer psychology frameworks to develop culturally-sensitive marketing solutions. The technology's potential is further amplified when integrated with emerging trends such as voice commerce and visual search [13].

Purchase Intention

Purchase intention, a key indicator of consumer behavior, reflects an individual's likelihood of buying a product or service, influenced by psychological and situational factors. This concept has been examined in consumer decision-making models such as the Theory of Planned Behavior (TPB) and the Technology Acceptance Model (TAM). Research shows that purchase intention is shaped by factors such as customer experience, brand trust, and perceived product quality [19].

AI plays a pivotal role in shaping purchase intention by analyzing big data and predicting consumer preferences. For example, NLP-based chatbots enhance customer satisfaction by providing quick and personalized responses, thereby increasing the likelihood of purchase [1]. Similarly, intelligent recommendation systems reduce decision fatigue by displaying relevant products based on user behavior, streamlining the purchasing process [20]. Studies confirm that AI-driven digital marketing significantly boosts purchase intention by enhancing engagement and personalization [21].

AI & Purchase Intention

Devi & Uniyal (2025) examined how AI enhances consumer purchase intentions through personalized marketing for organic products and AI-driven social media advertising. They found that AI improves recommendations, ad targeting, user engagement, and increases the likelihood of purchase [1]. Al Adwan & Aladwan (2022) highlighted that AI features such as accuracy, interactivity, and insight shape online purchasing behavior by enhancing hedonic and utilitarian perceived value [17]. Similarly, Jakhodia et al. (2025) showed that AI technologies (like personalized recommendations, optimized experiences, and chatbots) boost convenience and engagement, increasing purchase intentions while raising concerns about privacy and transparency [6]. Khandelwal et al. (2024) confirmed that AI-driven personalization, website design, and engagement strategies positively impact trust, satisfaction, and purchase behavior, with challenges including algorithmic bias and privacy [21]. Solikhah et al. (2024) demonstrated that combining AI with social media marketing enhances satisfaction and online purchase decisions in tourism [22]. Meddah (2024), Xiong (2022), and Khan (2022) emphasized AI's role in predicting consumer behavior and reshaping online shopping habits, increasing purchase frequency and engagement across demographics [23, 24, 20]. Dang (2024) and Steffi et al. (2024) further reinforced AI's impact on attitudes, perceived behavioral control, and purchase intentions via personalization, highlighting its strategic value in digital marketing [8, 25]. Khuong & An (2025) found that AI-powered personalized advertising enhances perceived relevance and usefulness, indirectly building trust and driving purchase intention [5]. Elmashhara et al. (2024) showed that gamified AI, such as chatbots, motivates engagement and positively influences purchase behavior, with hedonic gamification increasing engagement more effectively than utilitarian approaches [26].

AI and Digital Marketing

Gavrysh et al. (2024) emphasized AI's central role in modern digital marketing, highlighting its applications in analytics, personalized engagement, chatbots, and automated trend detection, while stressing ethical considerations [27]. Similarly, Nair & Gupta (2021) highlighted AI's disruptive potential in social media and digital advertising, noting that effective implementation enhances creativity,

collaboration, and ROI [28]. Several studies demonstrate AI's influence on online shopping and purchase intention. Chowdhury et al. (2024) showed that personalized recommendations, chatbots, behavioral targeting, and predictive analytics enhance engagement, simplify decision-making, and convert interest into purchases, with ethical and privacy considerations emphasized [16]. Arya et al. (2025) further indicated that AI-powered influencer marketing creates social engagement, positively shaping purchase behavior [29]. Pereira et al. (2023), Srinivas et al. (2023), and Aronkar & Maheshwari (2025) confirmed that AI applications (like NLP, expert systems, and automated tools) boost digital marketing effectiveness, provide competitive advantages, and outperform traditional marketing approaches [30,7,2].

Reviews and theoretical studies consistently underline AI's transformative impact, enhancing real-time customer insights, personalization, engagement, targeting, budget optimization, and consumer behavior prediction [9,11,13,18]. Ashli et al. (2025) emphasized AI-driven marketing automation and neural network analyses in improving prediction accuracy, personalization, and operational efficiency [3]. Empirical studies show that AI tools (including personalized recommendations, chatbots, predictive analytics, virtual assistants, voice/visual search, and gamification) enhance user experience, trust, engagement, and purchase intention [12, 19,31,32,33,34]. These studies highlight AI's role in tailoring marketing strategies, understanding consumer behavior, and improving conversion rates across demographics and platforms. Recent studies and applications indicate that artificial intelligence facilitates large-scale personalized marketing, enhances consumer behavior analysis, enables dynamic content recommendations, supports omnichannel strategies, and integrates AR/VR technologies [10, 35-37]. Additionally, these studies consistently stress that ethical considerations—such as data privacy, algorithmic bias, and transparency—are essential to maintain consumer trust and ensure long-term engagement.

Table 1- Overview of Previous Research

Ref.	Authors (Year)	Title/Theme	Methodology	Country/Industry	Key Findings
[1]	Devi & Uniyal (2025)	Leveraging AI to Drive Consumer's Intention to Purchase Organic Products	Quantitative	India	AI enables personalized marketing and increases purchase likelihood
[2]	Aronkar & Maheshwari (2025)	Assessing the Effectiveness of Artificial Intelligence in Digital Marketing	Mixed method	India	AI impacts digital marketing & consumer behavior
[3]	Ashli et al. (2025)	the Role of Artificial Intelligence in Digital Marketing and It's Influence on Customer Buying Behaviour	Review	Conceptual / Review (No specific country)	AI shapes consumer buying behavior and operations

Ref.	Authors (Year)	Title/Theme	Methodology	Country/Industry	Key Findings
[5]	Khuong & An (2025)	AI-powered personalized advertising and purchase intention in Vietnam's digital landscape	Quantitative	Vietnam	AI-driven personalized advertising influences consumer purchase intention
[6]	Jakhodia et al. (2025)	Impact of Artificial Intelligence on Consumer Online Purchase Intention	Quantitative	India	AI improves convenience but raises privacy concerns
[29]	Arya et al. (2025)	AI's impact on consumer purchase intent through influencer marketing—A determinant of purchase behaviour in e-commerce	Quantitative	India	Social enjoyment drives purchase intent
[23]	Meddah (2024)	The impact of artificial intelligence on consumer behavior: Insights and implications	Review	Review / General	AI in enabling marketers to align their offerings more closely with consumer expectations
[27]	Gavrysh et al. (2024)	The Impact of Modern Innovative Technologies on the Development of Digital Marketing	Review	Ukraine	Impact of AI use in digital marketing
[12]	Dahivale (2024)	AI-Driven Marketing Strategies and Their Impact on Consumer Purchase Behavior	Quantitative	India	AI's role in enhancing consumer engagement
[19]	Wilson et al. (2024)	The influence of digital marketing on consumer purchasing decisions	Qualitative	General / Not specified	AI-driven personalization further improved consumer engagement
[32]	Jayakumar et al. (2024)	Artificial Intelligence In Digital Marketing Platform: Impact In Consumer Buying Behaviour	Quantitative	India	AI's role in predicting customer needs and enhancing online shopping experiences

Ref.	Authors (Year)	Title/Theme	Methodology	Country/Industry	Key Findings
[8]	Dang (2024)	AI-Driven Advertising and Consumer Purchase Behaviour: A Systematic Literature Review Based on the Theory of Planned Behavior	Review	India	AI impacts buying behavior
[33]	Vij et al. (2024)	Evaluating the Effectiveness of AI-Integrated Digital Marketing on Consumer Behavior, Brand Perception, and Sales Performance.	Mixed Method	India	AI personalization influences consumer preferences and behaviors
[34]	Levianti (2024)	Artificial intelligence and digital marketing on online purchase intention mediating customer experience study on al washliyah university labuhanbatu students	Quantitative	Indonesia	both AI and digital marketing significantly and positively affect purchase intention
[35]	Prasanthi et al. (2024)	Personalized Marketing in the Digital Age: The Role of AI in Consumer Behavior Analytics	Review	India	AI-driven strategies enhance customer satisfaction and brand loyalty
[10]	Tyagi et al. (2025)	The Influence of Digital Marketing Strategies on Consumer Purchase Decisions	Mixed Method	India	AI-powered personalization and interactive content significantly boost purchase intent
[25]	Steffi et al. (2024)	The impact of AI-driven personalization on consumer behavior and brand engagement in online marketing	Quantitative	India	AI personalization positively affects consumer experiences
[16]	Chowdhury et al. (2024)	Influence of AI driven digital marketing on consumer purchase intention: An empirical study	Quantitative	India	AI enhances ad effectiveness through personalization

Ref.	Authors (Year)	Title/Theme	Methodology	Country/Industry	Key Findings
[21]	Khandelwal et al. (2024)	Examining the impact of AI and digital marketing on consumer purchase intention	Quantitative	India	Strong positive impact, demographic variations exist
[22]	Solikhah et al. (2024)	A Online Purchase Decision for Tourism: How do Social Media Marketing and Artificial Intelligence Impact it?	Quantitative	Indonesia	AI+social media improves tourism decisions
[30]	Pereira et al. (2023)	How artificial intelligence can improve digital marketing	Mixed Method	Portugal	AI plays a crucial role in Improve Digital Marketing
[7]	Srinivas et al. (2023)	Analysis of Artificial Intelligence Towards the Digital Marketing Revolution	Mixed Method	India	AI have significant positive influence on enhancing digital marketing effectiveness
[37]	Sharma et al. (2023)	AI-powered technologies used in online fashion retail for sustainable business: AI- powered technologies impacting consumer buying behavior	Quantitative	India	AI-powered tools significantly enhance customer experience
[36]	Biswas & Patra (2023)	Role of artificial intelligence (AI) in changing consumer buying behaviour	Review	India	AI technologies allows businesses to gain deeper insights at every stage of the customer journey
[11]	Ziakis & Vlachopoulou (2023)	Artificial intelligence in digital marketing: Insights from a comprehensive review	Review	Greece	AI applications optimize marketing strategies
[26]	Elmashhara et al. (2024)	How gamifying AI shapes customer motivation, engagement, and purchase behavior	Quantitative	Europe	gamified AI can enhance psychological engagement

Ref.	Authors (Year)	Title/Theme	Methodology	Country/Industry	Key Findings
[24]	Xiong (2022)	The impact of artificial intelligence and digital economy consumer online shopping behavior on market changes	Quantitative	China	AI drives market growth (820M+ shoppers) & AI-driven digital transformation is altering consumer habits
[20]	Khan (2022)	Impact of artificial intelligence on consumer buying behaviors: Study about the online retail purchase	Quantitative	Iraq	positive relationship between AI applications and consumer buying behavior
[18]	Busman & Ananda (2022)	Artificial intelligence and digital marketing role in increasing consumer purchase intention	Quantitative	Indonesia	the effectiveness of AI-driven strategies in targeting
[17]	Al Adwan & Aladwan (2022)	Use of artificial intelligence system to predict consumers' behaviors	Quantitative	Jordan	AI impacts hedonic/utilitarian values in online shopping
[9]	Khatri (2021)	How digital marketing along with artificial intelligence is transforming consumer behaviour	Review	India	the transformative role of AI in digital marketing and its influence on consumer behaviour
[28]	Nair & Gupta (2021)	Application of AI technology in modern digital marketing environment	Review	UAE	AI-driven strategies to optimize digital marketing efforts
[13]	Rabby et al. (2021)	Artificial intelligence in digital marketing influences consumer behaviour: a review and theoretical foundation for future research	Review	Australia	that AI offers significant potential to transform customer interaction across digital platforms and strongly influence purchase behavior.
[31]	Prabowo et al. (2019)	Digital marketing optimization in artificial intelligence era by	Quantitative	Indonesia	AI-driven algorithms can enhance digital marketing effectiveness by better

Ref.	Authors (Year)	Title/Theme	Methodology	Country/Industry	Key Findings
		applying consumer behavior algorithm			targeting consumer behavior

Research Gap

Numerous global studies have demonstrated that artificial intelligence plays a crucial role in enhancing digital marketing performance and increasing consumers' purchase intention [1-3,5]. Specific AI applications such as smart chatbots, intelligent recommendation systems, and dynamic smart ads have been extensively examined across different countries, showing positive effects on customer engagement and satisfaction [33]. However, there is a scarcity of research on the effectiveness of these AI technologies within the Iranian digital marketing context. Despite rapid growth in Iran's digital market and increasing investments, empirical data on how AI impacts marketing performance and Iranian consumer behavior remain limited. Moreover, localization challenges including cultural adaptation, infrastructural constraints, and privacy concerns have not been fully explored in this market. To fill this research gap, the present study concentrates on three primary AI applications in digital marketing (NLP-based intelligent chatbots, recommendation systems, and dynamic smart advertisements) and examines their influence on both digital marketing performance and Iranian consumers' purchase intentions. This will contribute to developing a precise conceptual model and testing relevant hypotheses, providing valuable insights for optimizing digital marketing strategies in Iran.

Main Hypotheses:

1. Artificial Intelligence has a significant positive impact on improving digital marketing performance.
2. The application of Artificial Intelligence in digital marketing effectively increases consumers' purchase intention.

Sub-hypotheses (focusing on 3 AI applications in digital marketing):

1. The use of NLP-based smart chatbots in customer service increases response speed.
2. Intelligent recommendation systems improve advertising targeting accuracy.

Dynamic smart advertisements powered by machine learning achieve higher click-through rates (CTR) than conventional advertising methods

METHODS

Research Design

This study employs a quantitative research design aimed at examining the impact of Artificial Intelligence (AI) on digital marketing processes and subsequently how digital marketing affects purchase intention. The research follows a correlational approach to test the proposed hypotheses using survey data collected from digital marketing specialists.

Population and Sample

The target population consists of digital marketing experts working in reputable Iranian companies based in Tehran. Since the total population size is unknown, the sample size was determined using Cochran's formula, resulting in a required sample size of 384 respondents. Ultimately, 280 valid responses were collected and analyzed.

Data Collection Instrument

Data were gathered through a researcher-developed structured questionnaire designed based on validated scales and adapted from credible sources in AI and digital marketing literature. The questionnaire consisted of three sections: demographic information, AI applications in digital marketing, and measures of digital transformation and purchase intention.

The AI application section focused on three key dimensions:

1. NLP-based smart chatbots in customer service,
2. Intelligent recommendation systems for advertising targeting,
3. Dynamic smart ads using machine learning.

Participants provided their responses using a five-point Likert scale, where 1 indicated “Strongly Disagree” and 5 indicated “Strongly Agree.” This scale allowed the researchers to capture the degree of agreement or disagreement of respondents regarding each statement in a structured and quantifiable manner.

Data Analysis Techniques

Collected data were analyzed using SmartPLS software to perform Partial Least Squares Structural Equation Modeling (PLS-SEM). This method was selected due to its suitability for exploratory research and handling complex models with latent variables.

The analysis included:

- Evaluation of the measurement model in terms of its reliability and validity.
- Testing the structural model to evaluate the hypothesized relationships,
- Examination of path coefficients, t-values, and R² values to determine the strength and significance of impacts.

RESULTS AND DISCUSSION

Table 2 presents the demographic profile of the respondents, showing a balanced representation of genders and a majority aged between 31-40 years. Most participants have between 6 to 10 years of professional experience in digital marketing, which ensures that the sample is knowledgeable and relevant to the research topic.

Table 2-Demographic Characteristics of Respondents (N=280)

Variable	Category	Frequency
Gender	Male	160
	Female	120
Age	20-30	90
	31-40	130
	41 and above	60
Work Experience	Less than 5 years	70
	6-10 years	140
	More than 10 years	70

Table 3- Reliability and Validity of Measurement Model

Construct	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
AI Impact on Digital Marketing	0.89	0.92	0.65
Digital Transformation	0.87	0.90	0.62
Purchase Intention	0.91	0.93	0.70
NLP-based Chatbots	0.85	0.88	0.60
Intelligent Recommendation System	0.88	0.90	0.63
Dynamic Ads	0.87	0.87	0.59

Table 3 shows that all constructs exhibit good internal consistency and reliability, as indicated by Cronbach's alpha and Composite Reliability values above the threshold of 0.7. Additionally, the Average Variance Extracted (AVE) values exceeding 0.5 confirm the convergent validity of the measurement model, ensuring that the questionnaire items appropriately measure the intended variables.

Table 4 presents a summary of the outcomes from hypothesis testing conducted with SmartPLS. All main and sub-hypotheses are supported with significant positive path coefficients (β) and t-values well above the critical threshold of 1.96, indicating strong evidence that AI applications positively influence digital marketing performance and purchase intention. Specifically, NLP chatbots, intelligent recommendation

systems, and dynamic smart ads significantly enhance customer satisfaction, targeting accuracy, and click-through rates, respectively.

Table 4-Structural Model Path Coefficients and Hypotheses Testing

Hypothesis	Path Coefficient (β)	t-value	p-value
H1: AI \rightarrow Digital Marketing Performance	0.65	9.82	<0.001
H2: Digital Marketing \rightarrow Purchase Intention	0.72	11.45	<0.001
H3a: NLP Chatbots \rightarrow response speed	0.58	7.33	<0.001
H3b: Recommendation System \rightarrow Targeting	0.61	8.02	<0.001
H3c: Dynamic Ads \rightarrow Click-Through Rate (CTR)	0.54	6.75	<0.001

Table 5 presents the R^2 values indicating the amount of variance explained by the predictor variables in each endogenous construct. For example, 42% of the variance in digital marketing performance is explained by AI impact, and 52% of the variance in purchase intention is explained by digital marketing performance. These moderate to high R^2 values suggest that the model has good explanatory power for the studied relationships.

Table 5-Coefficient of Determination (R^2) for Endogenous Constructs

Construct	R^2
Digital Marketing Performance	0.42
Purchase Intention	0.52
response speed	0.38
Advertising Targeting Accuracy	0.40
Click-Through Rate (CTR)	0.35

CONCLUSION

The findings of this study strongly confirm that artificial intelligence (AI) significantly enhances digital marketing performance ($\beta = 0.65$, $p < 0.001$) and positively influences consumers' purchase intention ($\beta = 0.72$, $p < 0.001$) in the Iranian digital marketing landscape. Specifically, the three key AI applications investigated—NLP-based smart chatbots, intelligent recommendation systems, and dynamic smart ads—demonstrated substantial positive effects on customer response speed ($\beta = 0.58$), targeting accuracy ($\beta = 0.61$), and click-through rates ($\beta = 0.54$), respectively, all with high statistical significance ($p < 0.001$).

These results align well with international research that highlights AI's role in enabling personalized marketing, enhancing customer engagement, and improving purchase decisions. Moreover, empirical evidence on AI's impact within Iran has remained scarce, highlighting the need for localized studies. This study thus contributes valuable insights into how AI-driven tools can be optimized to fit Iran's unique cultural, technological, and economic context.

Despite these promising results, several implementation challenges exist in Iran. First, infrastructural limitations, such as inconsistent internet connectivity and variable digital literacy, may hinder the seamless deployment and user adoption of AI-powered marketing tools. Second, cultural adaptation issues require AI systems to be tailored to Iranian consumer preferences and language nuances to maximize relevance and acceptance. Third, privacy and ethical concerns related to data usage in AI applications remain sensitive topics that marketers and policymakers must address to build trust and comply with regulations.

Given these challenges, the following recommendations are proposed for marketers and decision-makers in Iran:

- Invest in localized AI development that incorporates Persian language processing and cultural context to improve chatbot interactions and recommendation relevance.
- Enhance digital infrastructure and user education to facilitate wider access and effective use of AI-driven marketing solutions.
- Establish clear ethical guidelines and transparent data privacy policies to mitigate consumer concerns and foster trust in AI applications.
- Encourage collaboration between technology developers, marketing professionals, and regulators to create sustainable AI ecosystems tailored to the Iranian market.

In conclusion, this study validates the transformative potential of AI in Iran's digital marketing environment and provides a framework for both academic research and practical implementation. By addressing local challenges and leveraging AI's capabilities, Iranian businesses can significantly improve marketing effectiveness and customer engagement, consistent with trends observed in other countries.

References

- [1]. Devi, H., & Uniyal, A. K. (2025). Leveraging AI to drive consumer's intention to purchase organic products: A holistic marketing approach. In *Intersecting Natural Language Processing and FinTech Innovations in Service Marketing* (pp. 299–322). IGI Global.
- [2]. Aronkar, P., & Maheshwari, A. (2025). Assessing the effectiveness of artificial intelligence in digital marketing: A comparative study. *International Journal of Research in Management Studies*, 15(1), 1–7.

- [3]. Ashli, A. S., Joseph, R., Francis, N., & Mathews, T. (2025). A study on the role of artificial intelligence in digital marketing and its influence on customer buying behaviour. In *Social, Ethical and Legal Aspects of Generative AI: Tools, Techniques and Systems* (pp. 59–67). Cham: Springer Nature Switzerland.
- [4]. Tavakolirad, R., & Zargarani Khouzani, F. (2023). Successful organizational digital transformation model. In *6th International Conference on Interdisciplinary Studies in Management and Engineering* (pp. 1–14). Tehran.
- [5]. Khuong, A. G., & An, N. T. T. (2025). AI-powered personalized advertising and purchase intention in Vietnam's digital landscape: The role of trust, relevance, and usefulness. *Journal of Open Innovation: Technology, Market, and Complexity*, 100580.
- [6]. Jakhodia, Y., Gupta, T., & Singh, T. (2025). Impact of artificial intelligence on consumer online purchase intention. In *Multi-Industry Digitalization and Technological Governance in the AI Era* (pp. 297–316). IGI Global.
- [7]. Srinivas, D., Yadav, B. S., Masood, G., Thakor, M. B., Tiwari, T., & Chandan, R. R. (2023, December). Analysis of artificial intelligence towards the digital marketing revolution. In *2023 Global Conference on Information Technologies and Communications (GCITC)* (pp. 1–5). IEEE.
- [8]. Dang, T. (2024). AI-driven advertising and consumer purchase behaviour: A systematic literature review based on the theory of planned behavior. *Frontiers in Health Informatics*, 13(7), 414–422.
- [9]. Khatri, M. (2021). How digital marketing along with artificial intelligence is transforming consumer behaviour. *International Journal for Research in Applied Science and Engineering Technology*, 9(7), 523–527.
- [10]. Tyagi, P., Kumar, S., Sudharshan, G. M., Sera, R. J., Vakayil, S., & Hota, P. (2025). The influence of digital marketing strategies on consumer purchase decisions. *European Economic Letters*, 15(1), 2332–2343. Retrieved from <https://eelet.org.uk/index.php/journal/article/view/2628>
- [11]. Ziakis, C., & Vlachopoulou, M. (2023). Artificial intelligence in digital marketing: Insights from a comprehensive review. *Information*, 14(12), 664.
- [12]. Dahivale, R. P. (2024). AI-driven marketing strategies and their impact on consumer purchase behavior. *PARIDNYA – The MIBM Research Journal*, 38–41.
- [13]. Rabby, F., Chimhundu, R., & Hassan, R. (2021). Artificial intelligence in digital marketing influences consumer behaviour: A review and theoretical foundation for future research. *Academy of Marketing Studies Journal*, 25(5), 1–7.
- [14]. Russell, S. J., & Norvig, P. (2020). *Artificial intelligence: A modern approach* (4th ed.). Pearson.
- [15]. Kaplan, A., & Haenlein, M. (2019). Siri, Siri in my hand, who is the fairest in the land? On the interpretations, illustrations and implications of artificial intelligence. *Business Horizons*, 62(1), 15–25.
- [16]. Chowdhury, S., Basu, S., Ashoka, N., & Singh, P. K. (2024). Influence of AI-driven digital marketing on consumer purchase intention: An empirical study. *Journal of Informatics Education and Research*, 4(2), 575–582.
- [17]. Al Adwan, A., & Aladwan, R. (2022). Use of artificial intelligence system to predict consumers' behaviors. *International Journal of Data & Network Science*, 6(4), 1223–1232.
- [18]. Busman, S. A., & Ananda, N. A. (2022). Artificial intelligence and digital marketing role in increasing consumer purchase intention. *American International Journal of Business Management*, 5(1), 63–68.
- [19]. Wilson, G., Johnson, O., & Brown, W. (2024). The influence of digital marketing on consumer purchasing decisions [Preprint]. *Preprints.org*. <https://doi.org/10.20944/preprints202408.0347.v1>
- [20]. Khan, S. I. (2022). Impact of artificial intelligence on consumer buying behaviors: Study about the online retail purchase. *International Journal of Health Sciences*, 6(S2), 8121–8129. <https://doi.org/10.53730/ijhs.v6nS2.7025>

- [21]. Khandelwal, A. R., Yadav, R., Chaturvedi, A., & Kumar, A. S. (2024). Examining the impact of AI and digital marketing on consumer purchase intention. In *Emerging Developments and Technologies in Digital Government* (pp. 220–242). IGI Global.
- [22]. Solikhah, E., Nugraheni, S., & Pradana, F. R. (2024). Online purchase decision for tourism: How do social media marketing and artificial intelligence impact it? *Bulletin of Innovation in Management*, 2(1), 1–8.
- [23]. Meddah, N. (2024). The impact of artificial intelligence on consumer behavior: Insights and implications. *International Journal of Economic Perspectives*, 18(12), 2764–2772. Retrieved from <https://ijeponline.org/index.php/journal/article/view/810>
- [24]. Xiong, Y. (2022). The impact of artificial intelligence and digital economy consumer online shopping behavior on market changes. *Discrete Dynamics in Nature and Society*, 2022(1), 9772416.
- [25]. Steffi, S. L., Subha, B., Kuriakose, A., Singh, J., Arunkumar, B., & Rajalakshmi, V. (2024). The impact of AI-driven personalization on consumer behavior and brand engagement in online marketing. In *Harnessing AI, Machine Learning, and IoT for Intelligent Business: Volume 1* (pp. 485–492). Cham: Springer Nature Switzerland.
- [26]. Elmashhara, M. G., De Cicco, R., Silva, S. C., Hammerschmidt, M., & Silva, M. L. (2024). How gamifying AI shapes customer motivation, engagement, and purchase behavior. *Psychology & Marketing*, 41(1), 134–150.
- [27]. Gavrysh, I., & Shcherbatiuk, I. (2024). The impact of modern innovative technologies on the development of digital marketing. *Economics Time Realities*, 5(75), 23–30. <https://doi.org/10.15276/ETR.05.2024.3>
- [28]. Nair, K., & Gupta, R. (2021). Application of AI technology in modern digital marketing environment. *World Journal of Entrepreneurship, Management and Sustainable Development*, 17(3), 318–328.
- [29]. Arya, A., Goel, P., Verma, S. K., & Jain, K. (2025). AI's impact on consumer purchase intent through influencer marketing – A determinant of purchase behaviour in e-commerce. *Multidisciplinary Reviews*, 8(11), 2025349.
- [30]. Pereira, L., Tomás, D., Dias, Á., Costa, R. L. D., & Gonçalves, R. (2023). How artificial intelligence can improve digital marketing. *International Journal of Business Information Systems*, 44(4), 581–624.
- [31]. Prabowo, S. H. W., Murdiono, A., Hidayat, R., Rahayu, W. P., & Sutrisno, S. (2019). Digital marketing optimization in artificial intelligence era by applying consumer behavior algorithm. *Asian Journal of Entrepreneurship and Family Business*, 3(1), 41–48.
- [32]. Jayakumar, M., Jenefa, L., Mishra, N., Kumar, A., & Sumitha, S. (2024). Artificial intelligence in digital marketing platform: Impact in consumer buying behaviour. In *2024 International Conference on Emerging Research in Computational Science (ICERCS)* (pp. 1–6). IEEE.
- [33]. Vij, A., Vij, M., Farouk, M., & Kumar, P. (2024). Evaluating the effectiveness of AI-integrated digital marketing on consumer behavior, brand perception, and sales performance. In *2024 2nd International Conference on Cyber Resilience (ICCR)* (pp. 1–6). IEEE.
- [34]. Levianti, R. A. (2024). Artificial intelligence and digital marketing on online purchase intention mediating customer experience study on al Washliyah University Labuhanbatu students. *Jurnal Mantik*, 8(3), 1417–1427. <https://doi.org/10.35335/mantik.v8i3.5602>
- [35]. Prasanthi, M., Sahu, S. R., Bakshi, M., Shanmugam, R., & Wable, P. M. (2024). Personalized marketing in the digital age: The role of AI in consumer behavior analytics. *Library Progress International*, 44(3), 11480–11486. <https://doi.org/10.48165/bapas.2024.44.2.1>
- [36]. Biswas, K., & Patra, G. (2023). Role of artificial intelligence (AI) in changing consumer buying behaviour. *International Journal of Research Publication and Reviews*, 4(2), 943–951.

- [37]. Sharma, M., Shail, H., Painuly, P. K., & Kumar, A. S. (2023). AI-powered technologies used in online fashion retail for sustainable business. In *Sustainable Marketing, Branding, and Reputation Management: Strategies for a Greener Future* (pp. 538–561). IGI Global.