

An investigation about AI in business(marketing):Matter of Trust

Khanda Gharib Aziz, Nusaiba Naseeh Hasan, Srusht Iqbal Ali

Faculty of law and Administration, University of Halabja,Iraq



Abstract

Artificial intelligence (AI), as a field of computer science, has become increasingly integrated into marketing activities, influencing consumer behavior and decision-making processes. This study aims to examine the role of AI in marketing, with particular attention to its benefits, challenges, impact on consumer trust, and ethical implications in the Kurdistan Region of Iraq. A quantitative research design was adopted for this study. Data were collected through a structured questionnaire distributed to individuals aged 18 years and above in three cities - Erbil, Sulaymaniyah, and Halabja. A total of 145 respondents with knowledge and experience in electronics, information technology, computer systems, and technology-driven business environments participated in the survey. The data were analysed using descriptive statistical methods. The findings indicate that AI-driven marketing offers several advantages, including increased efficiency in processing consumer data and improved accuracy in predicting consumer behavior. However, the results also reveal significant challenges, such as concerns related to data privacy, job displacement, overreliance on technology, and limited understanding of AI systems. Ethical issues, including transparency, accountability, and fairness, were also identified as key factors influencing consumer trust. The study provides insights into the responsible adoption of AI in marketing within emerging markets.

Keywords: Artificial intelligence, customer trust, customer behavior ,Marketing Efficiency, Data Privacy.

Corresponding author: Nusaiba Naseeh Hasan (nwsaiba.Badry@gmail.com)

Introduction

Artificial intelligence (AI) is a branch of computer science. It involves developing computer programs to complete tasks which would otherwise require human intelligence. Artificial intelligence allows computerized machines to model, or even improves upon, the capabilities of the human mind (Valavanidis, 2023). Artificial intelligence algorithms are capable of learning, perceiving, solving problems, comprehending language, and/or applying logic (Saleh, 2019). Human intelligence, which is defined as the "biopsychological potential to process information, to solve problems or create products that are of value in a culture," is frequently used to define artificial intelligence (Kaplan & Haenlein, 2018).

The term "artificial intelligence" (AI) was coined by the computer scientist John McCarthy in 1954, who along with his colleagues Alan Turing, Marvin Minsky, Allen Newell, and Herb Simon organized the famous Dartmouth conference in the summer of 1956 (Cai, Mitsu, Feng, et al., 2020). At the conference at Dartmouth College in New Hampshire in 1956, AI received its name. There, the founders of the field set the agenda for AI research for the next 40 years (Clocksin, 2003). Over the past decade or so, advances in computer speed, data collection, data storage, and algorithms have led to substantial improvements in these techniques, such that their use for commercial applications is proceeding rapidly. Since its inception some 60 years ago, AI has evolved from an arcane academic field into a powerful driver of social transformation (Agrawal, Gans, & Goldfarb, 2019).

In AI, ANI, ASI, and AGI are the common types of artificial intelligence. Artificial General Intelligence (AGI) is also referred to as strong AI, which can imitate human cognitive functions and operate in complex situations (Khan, 2021; Pohl, 2015). Artificial Narrow Intelligence (ANI) represents most current AI applications, which are specialized for specific tasks. Artificial Super Intelligence (ASI) is a theoretical progression of AGI that could surpass human intelligence in multiple domains (IBM Data and AI Team, 2024; Gordon Scott, 2023).

AI is used extensively across a range of applications today, including recommendation systems, chatbots, virtual assistants, personalized shopping, fraud detection, intelligent manufacturing, cybercrime prevention, education, and medical applications (Valavanidis, 2023; ORLANDO, 2023; Utpal Kar, 2024; India, 2020). It reduces time spent on repetitive tasks, improves employee productivity, and enhances the overall customer experience (Gordon Scott, 2023).

Despite the rapid global adoption of artificial intelligence in marketing, most existing studies have focused on developed countries and advanced analytical approaches. There is limited empirical research that examines how artificial intelligence is perceived in marketing practices and how it relates to customer trust in developing and regional contexts. In particular, studies focusing on the Kurdistan Region of Iraq remain scarce. This lack of region-specific evidence creates a research gap in understanding the role of artificial intelligence in marketing and its implications for customer trust within emerging markets.

Therefore, this study aims to explore perceptions of artificial intelligence in marketing and customer trust in the Kurdistan Region of Iraq. The main research question guiding this study is: How do respondents perceive the use of artificial intelligence in marketing, and how is it related to customer trust? The objective of this research is to provide a descriptive understanding of AI applications in marketing and their perceived influence on customer trust.

This study contributes to the literature by providing empirical evidence from a regional and developing-market context, which has received limited attention in previous research. The findings indicate that artificial intelligence is generally perceived positively in marketing activities and is associated with higher levels of customer trust.

Literature Review

Artificial Intelligence (AI) is the field of study that describes the capability of machines to learn and respond like humans (Khaled Alsedrah, 2017). Since its introduction, AI has significantly accelerated changes in technology and business practices. AI-driven automation reflects substantial transformations in enterprise strategies, investments, and operational efficiency (Haleem et al., 2022). Despite the growing global adoption of AI, its application in the Kurdistan Region remains limited, highlighting the need for further research on AI's role in business and marketing, particularly regarding customer trust.

Artificial Intelligence (AI):The term “artificial intelligence” (AI) was coined by John McCarthy in 1954, alongside colleagues Alan Turing, Marvin Minsky, Allen Newell, and Herb Simon, who organized the Dartmouth Conference in 1956 (Cai, Mitsu, Feng, et al., 2020). Early AI focused on high-level cognition rather than perception or complex motor skills. In Iraq, despite political and economic challenges, AI presents opportunities to improve sustainable development, efficiency, and productivity (Faiz, 2023; Editing & Research Department, 2022). AI research in Iraq began in the 1970s–1990s with university computer science programs, later evolving into machine learning and deep learning projects across healthcare, education, and environmental monitoring.

Artificial Intelligence aims to develop machines that mimic human cognitive abilities, including learning, problem-solving, perception, and logical reasoning (Priyanga, 2023; Saleh, 2019). Since its inception, AI has experienced cycles of advancement and stagnation, with significant growth since 2010 due to computational power and data availability (Galo Pichucho, 2016; Laskowski et al., 2022).

Artificial Intelligence in Business: AI has transformed business operations by automating tasks, reducing repetitive labor, and providing actionable insights. Applications include weather and financial forecasting, production optimization, language processing, autonomous systems, and customer service (Gordon Scott, 2023; Maas & Spiegeleire, n.d.). AI tools can outperform humans in detail-oriented tasks such as document analysis, fraud detection, and lead generation. Businesses leverage AI for efficiency, personalized marketing, and enhanced decision-making (Laskowski et al., 2022b; Asi et al., 2023). Chatbots, personal assistants, and AI-enabled smart applications are increasingly used to improve customer interaction and reduce operational costs.

Artificial Intelligence in Marketing and Trust: Trust is crucial for technology adoption and effective customer engagement. Consumers are more likely to adopt AI services when they perceive the systems as reliable, transparent, and aligned with organizational values (Frank et al., 2023; Building Trust in AI, n.d.). Explainability and transparency are key factors in building trust, as AI algorithms are often considered “black boxes” (Lockey et al., 2021). Ethical AI usage also contributes to trust, ensuring systems support societal and environmental well-being. In marketing, trust influences consumer commitment, adoption of AI-powered services, and satisfaction (Siau & Wang, 2018; Pislaru et al., 2024; Muhammad Azeem Akbar et al., 2023). Legal and ethical concerns, such as bias and data privacy, remain critical considerations (Paul Roetzer & Mike Kaput, 2022, 2023).

Types of Artificial Intelligence

Based on capabilities

- **Artificial General Intelligence (AGI):** Theoretical AI capable of learning and performing any intellectual task like humans.
- **Artificial Super Intelligence (ASI):** Hypothetical AI surpassing human intelligence in all domains (IBM Data and AI Team, 2024).

- Artificial Narrow Intelligence (ANI): Current AI applications specialized for specific tasks, such as Siri or IBM Watson.

Based on functionalities

- Reactive Machines: Task-specific, no memory.
- Limited Memory AI: Uses past information to inform decisions (Khan, 2021).
- Theory of Mind AI: Under research; can understand human emotions and social interactions.
- Self-aware AI: Hypothetical; possesses self-consciousness (Google, 2023).

Advantages of AI in Marketing

- Improved Efficiency and Productivity: Automates repetitive tasks, allowing strategic focus.
- Better Customer Experience: Personalized experiences enhance satisfaction and retention.
- Faster Decision-making: Real-time analysis improves marketing strategies (IBM, 2024).
- Increased Revenue: Data-driven insights allow more effective campaigns (Asi et al., 2023).

Disadvantages of AI in Marketing

- Data Security and Privacy: Collection and use of customer data raises concerns.
- High Cost: Implementation requires investment in hardware, software, and training.
- Job Displacement: Automation may reduce certain roles; workforce adaptation is necessary (The HR Booth, 2023).
- Lack of Human Touch: AI cannot replicate empathy and creativity fully.

Research Methods

This study follows a descriptive research model focusing on respondents' perceptions of artificial intelligence in marketing and customer trust, without testing causal relationships. This formula is descriptive only, indicating that higher perceptions of AI applications may relate to higher customer trust, without implying a tested causal relationship.

The target population included individuals aged 18 and above who have knowledge or exposure to AI and marketing in the Kurdistan Region. A total of 145 valid responses were collected from respondents using a convenience sampling method, as participants were easily accessible rather than selected randomly. The sample included a variety of social, educational, and age backgrounds, ensuring a diverse representation of opinions.

Questionnaires were distributed both through social media platforms and in-person, ensuring accessibility and higher response rates. The data collection process aimed to gather accurate and reliable responses to better understand perceptions of AI in marketing.

The collected data were analyzed using descriptive statistics in IBM SPSS Statistics version 27, including frequencies, percentages, means, and standard deviations. This approach allowed the study to summarize and interpret respondents' perceptions effectively without requiring regression analysis or hypothesis testing.

Results and Analysis

In this part of our study, we began by reviewing the results and analysing the quantitative data. Data collection was conducted through the distribution of questionnaires. The main objective of the questionnaire was to generate data of high quality that could provide detailed and meaningful insight into our study and show us clear results. In this study, build trust using artificial intelligence in marketing was measured. We distributed the questionnaire to about 151 respondents, and 145 respondents was returned.

Reliability Statistics: Reliability testing was conducted using SPSS Software to evaluate whether the questionnaire items were consistent and trustworthy for the study. Table 1 reports the Cronbach's alpha coefficient, which was estimated to assess the internal consistency of the measurement instrument. The alpha value for all items was 0.631. While higher values (0.8–0.9) are considered ideal, a value of 0.631 can still be considered acceptable for descriptive analysis (Aziz et al., 2023).

Table (1)
Demographic Characteristics of Respondents

Variables	Items	Frequency	Percentage
Gender	male	99	68.3%
	female	46	31.7%
Age	18-24	86	59.3%
	25-34	49	33.8%
	35-44	10	6.9%
	student	66	45.5%
Occupation	jobless	8	5.5%
	volunteer	2	1.4%
	employee	30	20.7%
	businessman	39	26.9%

Source: Survey Data (2025)

Table 1 presents the demographic characteristics of the respondents. The sample includes participants of different genders, age groups, and occupational backgrounds. The results indicate that the majority of respondents are male, and most participants fall within the younger age groups. In terms of occupation, students represent the largest proportion of the sample, followed by businessmen and employees. Overall, the demographic profile reflects a diverse group of respondents with varying backgrounds relevant to the study.

Table (2)
Descriptive Statistics for AI experiences.

	Not at all		Very little		Twosome extent		Completely	
	Fre	%	Fre	%	Fre	%	Fre	%
EXP1		4 2.8		21 14.5		84 57.9		36 24.8
EXP2		2 1.4		12 8.3		65 44.8		66 45.5
EXP3		2 1.4		14 9.7		78 53.8		51 35.2
EXP4		18 12.4		26 17.9		73 50.3		28 19.3
EXP5		1 .7		38 26.2		79 54.5		27 18.6

Source: Survey Data (2025)

According to Table 2, respondents reported varying levels of experience with the use of artificial intelligence in institutions. A small proportion of respondents indicated no prior experience with AI, while others reported limited use. The majority of respondents stated that they had used AI to some extent or had full experience with it, indicating a generally moderate to high level of exposure to AI applications.

Regarding the effectiveness of artificial intelligence in creating business opportunities, most respondents perceived AI as having a positive impact. Only a small percentage believed AI has little or no impact, while the majority agreed that AI plays an important role in creating business opportunities.

In terms of human oversight over AI-driven business decisions, the results show that most respondents believe that human control is important for building trust. A limited number of participants disagreed, whereas the majority expressed moderate to strong agreement on the importance of human supervision in AI-based decision-making.

As shown in Table 2, respondents also reported their level of comfort with AI replacing certain business functions. While some respondents expressed discomfort, the majority indicated that they are comfortable or very comfortable with AI performing specific business tasks.

Finally, descriptive statistics related to confidence in AI-driven marketing strategies indicate that most respondents have moderate to high levels of confidence in the use of AI for marketing purposes, with only a very small proportion reporting low or no confidence.

Table (3)
Descriptive Statistics for advantages AI

	Not at all		Very little		To some extent		Completely	
	Fre	%	Fre	%	Fre	%	Fre	%
ADV1		1 .7		14 9.7		90 62.1		40 27.6
ADV2		6 4.1		24 16.6		89 61.4		26 17.9
ADV3		8 5.5		19 13.1		71 49.0		47 32.4
ADV4		2 1.4		13 9.0		82 56.6		48 33.1
ADV5		2 1.4		22 15.2		85 58.6		36 24.8

Source: Survey Data (2025)

According to Table 3, respondents reported different levels of benefit from the use of artificial intelligence in marketing activities. With regard to data collection and its role in improving the targeting and personalization of content and offers, only a very small proportion of respondents indicated no benefit, while a larger share reported slight benefits. The majority of respondents stated that AI has been useful to some extent or completely in enhancing targeting and personalization in business.

The results also show that artificial intelligence has automated repetitive marketing tasks to varying degrees. A limited number of respondents reported no benefit from automation, whereas most participants indicated that AI has been helpful to some extent or completely in reducing repetitive marketing tasks.

In terms of accurate customer targeting, the findings indicate that most respondents benefited from the use of AI. While a small percentage reported little or no benefit, the majority stated that AI has helped them to some extent or completely in achieving accurate customer targeting.

Regarding the production of innovative marketing materials, the results suggest that artificial intelligence has contributed positively. Only a few respondents indicated no benefit, while most reported that AI has been somewhat or fully useful in producing innovative content.

Finally, the analysis shows that artificial intelligence has improved the efficiency of analyzing customer data. Most respondents reported moderate to high benefits, whereas only a small proportion indicated limited or no improvement in data analysis efficiency.

Table (4)
Descriptive Statistics for disadvantages AI

	Not at all		Very little		Twosome extent		Completely	
	Fre	%	Fre	%	Fre	%	Fre	%
DIS1	5	3.4	21	14.5	55	37.9	64	44.1
DIS2	9	6.2	28	19.3	80	55.2	28	19.3
DIS3	17	11.7	48	33.1	52	35.9	28	19.3
DIS4	21	14.5	37	25.5	45	31.0	42	29.0

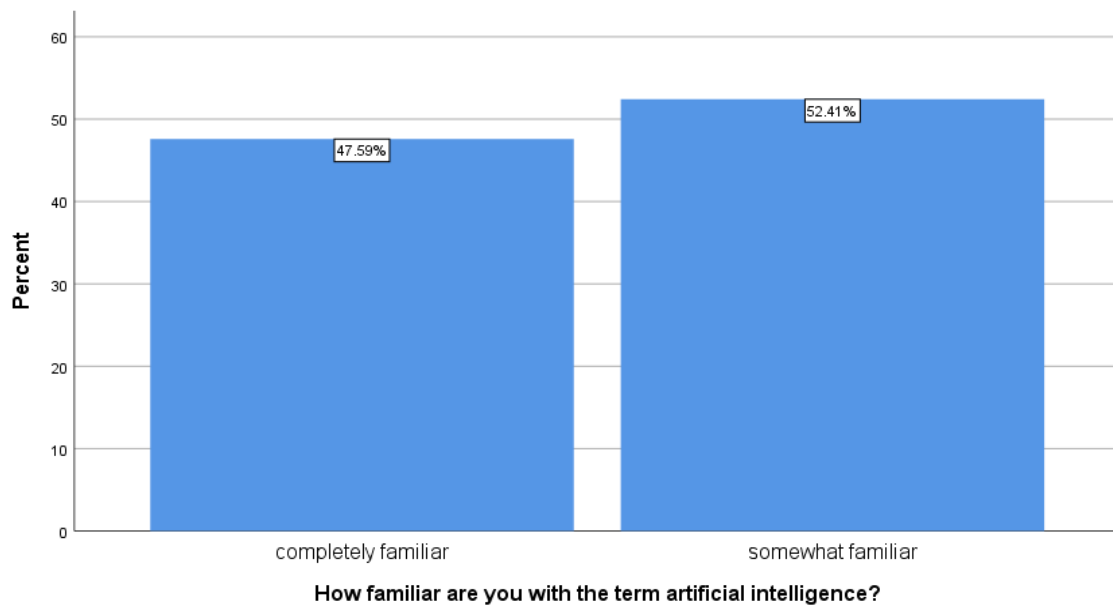
Source: Survey Data (2025)

Table 4 presents respondents' perceptions of the potential disadvantages of artificial intelligence in marketing and business. Regarding the possibility of AI causing job losses and reduced human skills, only a small proportion of respondents believed there would be no loss, while others reported slight to full impact. The majority of respondents indicated that AI may lead to some or complete reduction of human skills in institutions and businesses.

Regarding the technical complexity of AI, responses show that most participants consider AI to be somewhat technically complicated, while smaller proportions reported little or no complexity. The results indicate that technical complexity can influence understanding, trust, and the effective use of AI in marketing.

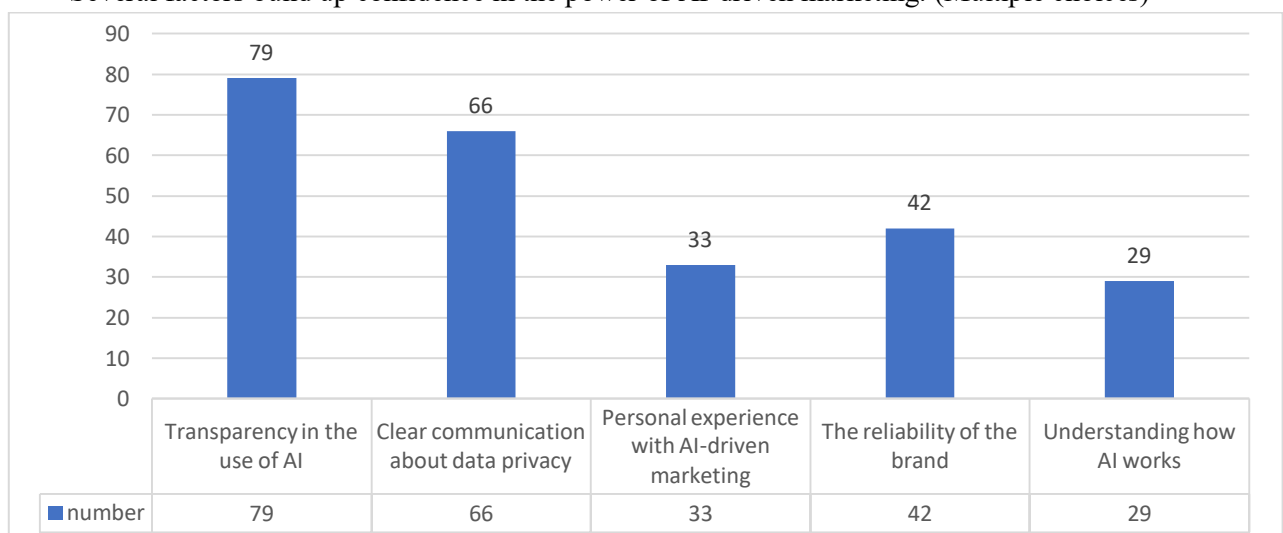
When asked whether the disadvantages of AI in marketing will outweigh the advantages in the future, responses were mixed. Some respondents reported little or no expected harm, while the majority believed that AI could have moderate to significant negative impacts compared with its benefits

Figure (1)
Familiar with term of artificial intelligence .



The figure above shows that the majority of people are somewhat familiar with the term AI (52.41%) while a significant proportion of people are fully familiar with or have used the term (47.59%). This shows that most of the inhabitants of this region are familiar with the term, not unfamiliar to them.

Figure (2)
Several factors build up confidence in the power of AI-driven marketing. (Multiple choices)



Several factors contribute to consumer confidence in AI-driven marketing. According to the survey results, 20% of respondents reported that a lack of knowledge and the technical complexity of AI is a barrier to its adoption in the Kurdistan markets. Personal experience with AI-driven tools was also important, with 22% of respondents indicating it significantly affects their confidence in AI applications.

Transparency in AI use emerged as a major factor, with 54% of respondents emphasizing that clear explanation of AI tools and processes helps build trust. Additionally, data privacy is a critical concern, as 45% of respondents reported that protection of personal and business data is essential for trusting AI applications.

Finally, brand trust influences confidence in AI-driven marketing. Only 28% of respondents reported trust in AI brands and business owners. This suggests that businesses need to maintain reliable practices and clear communication to foster trust in AI solutions within the Kurdistan markets.

Figure (3)
Key steps to trust AI in marketing.

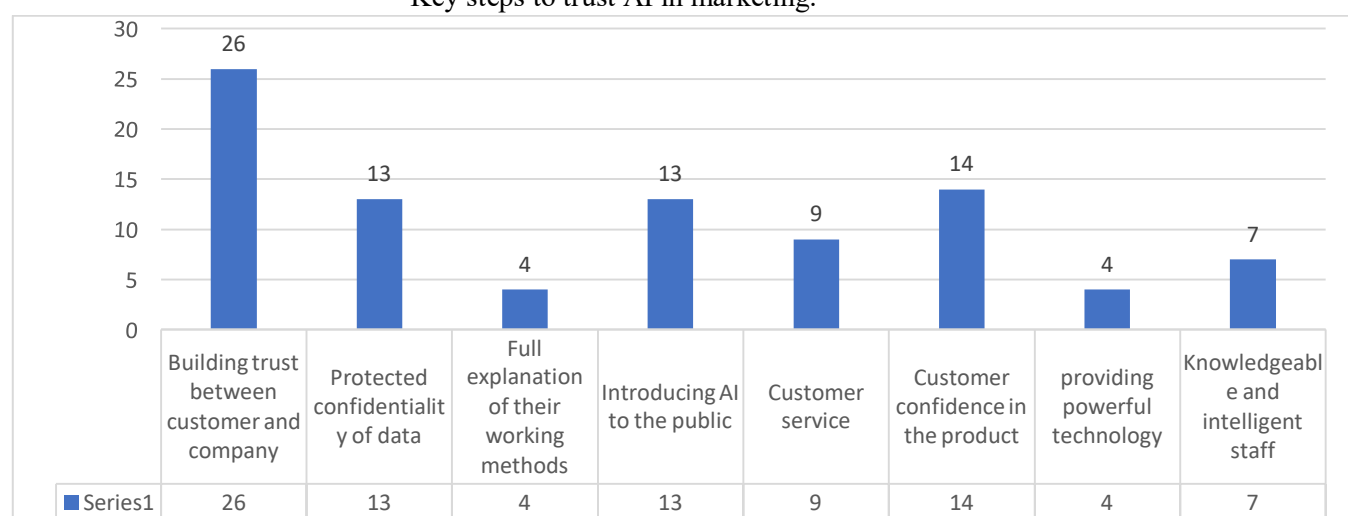


Figure (3) presents the results of factor analysis, showing the most important steps companies can take to build trust in AI-driven marketing. The figure illustrates the relative importance of each factor according to respondents.

The results indicate that explaining how a company operates is a key factor, with 17.9% of respondents emphasizing that transparency in business processes helps build consumer trust. Data protection and confidentiality are also important, with 8.9% of respondents highlighting AI's potential to enhance security through predictive analytics and proactive measures against cyber threats.

Customer trust in the product itself was reported by 9.6% of respondents as a factor in building confidence, while 6.2% emphasized the use of AI to improve customer service. These results suggest that trust is influenced not only by technology but also by responsiveness, communication, and engagement with customers.

Other steps identified include raising awareness and educating the public about AI strategies, for example, in universities, schools, and professional centers, which 8.9% of respondents indicated as important. Training staff to use AI effectively was also highlighted as a factor, contributing to an estimated 4% increase in organizational trust. Empowered employees can apply AI more effectively, improving performance, efficiency, and innovation.

Finally, only 2.7% of respondents indicated that overly technical explanations of AI marketing techniques contribute to trust. This suggests that simplifying explanations and focusing on practical benefits may be more effective in building consumer confidence. Overall, the results emphasize that transparency, education, and effective use of AI technology are key steps for companies in Kurdistan to build trust and strengthen long-term customer relationships.

Conclusion

This study examined the role of artificial intelligence (AI) in marketing and its relationship with customer trust in the Kurdistan Region of Iraq. Based on the descriptive analysis of survey data, the findings show that AI applications are generally perceived positively in marketing activities. Respondents indicated that the use of AI in areas such as personalized marketing, customer service, and decision support can enhance transparency, efficiency, and responsiveness, which contributes to higher levels of customer trust.

The results have practical implications for businesses and marketers, suggesting that adopting AI-based marketing tools can help strengthen relationships with customers and improve marketing performance. For organizations in the Kurdistan Region, AI can be considered a strategic tool to support customer confidence and competitiveness. From an academic perspective, this study contributes to the literature on AI in marketing by providing empirical evidence from a developing regional context.

Despite these contributions, the study has limitations. The use of convenience sampling and self-reported data may limit the generalizability of the findings, and the analysis is descriptive rather than explanatory. Future research could use larger and more diverse samples, apply alternative research methods, or focus on specific AI technologies in marketing to provide deeper insights.

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