



Assessing the Influence of AI-Driven Marketing on Customer Engagement: A Field Study on a Sample of Commercial Companies in Duhok Governorate

Hayman Shamsadin Ali Zakhoy

Department of Banks of Finance Science, College of administration and economics, University of Zakho,
Kurdistan Region of Iraq

*Corresponding Author

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ABSTRACT

The article addresses the tech-based solutions as the main factors for the customer participation's creation and maintenance in the current business scenario, as the AI's fast adopting in marketing sector took place. The purpose of research is to find out the positive impact of AI-Driven digital marketing on customer engagement through the constituent parts of the marketing mix, as well as to clarify the connections between the study variables. A quantitative research method was adopted, and a structured questionnaire, containing validated measurement items, was used to gather information from a purposive sample of commercial companies located in Duhok Governorate. The five-point Likert scale was applied in the questionnaire to evaluate the respondents' opinions. The statistical techniques used were descriptive statistics, reliability and validity assessment, correlation tests, and structural equation modeling (SEM). IBM SPSS v.27 was used for preliminary and exploratory analyses, while SmartPLS 4.1.1 was employed to assess the measurement and structural models. The findings revealed that AI-based marketing is a major contributory factor to customer engagement, thus demonstrating the robust explanatory and predictive power of the suggested model. Consequently, the research recommends that companies should allocate more resources to the AI-driven marketing tools which will result in better personal sized communications and also suggests that future research should consider other moderating or mediating variables, apply the model in various sectors, and use longitudinal designs to monitor changes over time.

1. INTRODUCTION

The rapid growth of artificial intelligence (AI) has greatly affected the digital marketing industry, changing the ways in which businesses analyze the behavior of consumers, communicate with them, and keep them engaged. The digital marketing sector today is heavily dependent on data-driven insights, automated decision-making processes, and AI tools that facilitate the delivery of the right content through the right digital channels (Chaffee

& Ellis-Chadwick, 2022). Therefore, AI has not only become a support for companies to assess and meet customer demands but has also become an indispensable means for enhancing customer loyalty (Davenport & Ronanke, 2018).

However, the global acceptance of AI technology has not eradicated the challenges that businesses, especially in developing and emerging markets, face in the proper integration of AI-driven

marketing. In the case of Iraqi Kurdistan Region, particularly in Duhok Governorate, businesses are progressively switching from traditional to digital means of communication, but it is not clear how far AI applications can help in bringing customers closer. The main difficulty of the research lies in the lack of empirical evidence that proves the effectiveness of AI in making the customer interacting with the business more pleasant, quicker, and more loyal people in the local retail market. On the other hand, the companies are still investing in AI-powered tools like personalized recommendation system, chatbots, predictive analytics, and targeted ads, but the actual impact of these tools on customer interaction behavior is still not clear.

Grasping this bond is imperative since the customer interaction has established itself as a significant factor behind the competitive advantage, thereby, affecting the consumption behavior, the loyalty towards the brand, and the generation of customer value for the long run (Brody et al., 2013). In the case of Duhok-based companies, the interaction made through AI-based marketing might lead to a great improvement of their market share, productivity, and customer happiness. Hence, the study is designed to bring forth evidence-based insights to assist the local businesses, policy-makers and market leaders in refining their AI adoption strategies and digital marketing performance during implementation. Therefore, the aim of the current study is to research and find out the effects of AI-based marketing on customer interaction in a selection of firms from the commercial sector in Duhok.

2. LITERATURE REVIEW

To analyze the effect of AI-powered digital marketing on customer engagement in businesses within Duhok Governorate, it is necessary first to discuss the theoretical concepts involved. This literature review aims to create a conceptual base for the independent variable, AI-powered digital marketing, and then proceed to a detailed analysis of the dependent variable, customer engagement, before looking into the connection between them and the specific regional context.

2.1 AI-Driven Digital Marketing:

AI-powered digital marketing not only is a field that is getting very fast and constantly changing but

also requires a wide-ranging and multi-faceted definition to be covered fully. The AI-powered digital marketing can be described in its most basic form as the utilization of different artificial intelligence tools such as, for instance, machine learning, natural language processing, and predictive analytics, to augment and streamline marketing activities via digital channels (Davenport & Ronanki, 2018). This area of application also allows for more than general marketing practices by providing the opportunity of data-driven choices and the developing of extremely customizable and personal customer experiences (Chaffey & Ellis-Chadwick, 2022). The combining of AI (artificial intelligence) and marketing has played an enormous role in changing the whole scenario of customer engagement, making decisions, and analyzing data. Halim and his collaborators (2022) mentioned the importance of AI in the area of personalization, predictive analytics, and automation. AI-based tools as, for example, machine learning and natural language processing, are the ones that do the content suggestions, marketing enhancement, and even asynchronous conversations facilitation.

A more nuanced view is provided by many researchers and industry experts. The definition that emphasizes the outcome highlights the application of artificial intelligence as the main reason for the opening up of information and data sources, which in turn, enhances the software's data management ability and making better marketing strategies (Wedel & Kannan, 2016). On the other hand, a different view sees AI's role in digital marketing as mainly increasing labor efficiency and providing expertise in targeting the audience, personalizing the message, and giving reliable predictions about consumers' actions through analytics, which are all aspects of AI's versatility in the marketing mix (Liu, Singh, and Srinivasan, 2022). In addition, the introduction of AI in digital marketing has been noticed to alter the whole process of marketing campaign material production, customer attraction, and even individual message delivery. The assessment of the AI marketing outcomes is provided with a theoretical background (Kumar et al., 2019; Huang and Rust, 2021). The sum of the different definitions indicates that AI in digital marketing has evolved from being merely a toolset to becoming an influential communication model that

intricately and expertly engages customers through the use of smart technologies in marketing like never before.

2.2. Research Gaps and Opportunities

The number of studies on artificial intelligence (AI) in marketing has increased significantly. However, how companies should use AI is still an open question that needs more research and observation. This review's most important contribution is identifying gaps in the literature, particularly the lack of guidance on the best ways to incorporate AI into different areas, including marketing operations, decision making, and customer relationship management. The use of AI across the board in marketing has resulted in more efficient operations and better customer service. Nevertheless, according to previous experiences, companies still have to do a lot of research before they can consider AI as a part of their marketing strategies (Ledro et al., 2023). Besides, the adoption of AI technologies directly influences and raises concerns about the ethical aspect and the issue of bias, transparency, and consumer trust are being asked repeatedly in the discourse of AI usage. The issue of ethics concerning AI has been touched upon in some research articles before, yet much more needs to be done to yield clear-cut frameworks and guidelines for businesses that would secure the ethical use of AI as a matter of course (Chintalapathy and Pandey, 2022).

In addition, it will be necessary to gain insights into the different sectors' AI adoption and the obstacles they face, which will finally result in the formulation of AI-based marketing strategies. The review not only contributes to the literature on the use of AI in marketing by adding value but also presents a research road map for the future. Many potential future research directions are highlighted in the review such as the incorporation of new AI technologies like machine learning, natural language processing, and predictive analytics in marketing (Akter et al., 2023). To keep pace with AI, businesses will have to monitor the state-of-the-art and alter their marketing tactics accordingly.

2.2.1. Customer Engagement:

Engagement with customers (CE) has become a staple of contemporary marketing, but at the same time, there is still no single definition for it since the various facets of the phenomenon have to be taken into account, one of which being the depth of the

customer-brand relationship. In short, cognitive engagement means that the companies actively build relationships with their customers through important interactions over the entire customer journey (Brodie et al., 2013). This connection is frequently depicted as more than just a selling or buying moment and giving priority to the continuity of the relationship between the firm and the buyer (Vivek, Beatty, & Dalela, 2020).

From an academic standpoint, cognitive engagement is usually represented with respect to its different facets. A major approach characterizes cognitive engagement as a psychological condition produced by the customer's combined interaction and creative experiences with a central agent (for example, a brand or a company) (Hollebeek et al., 2014). This psychological condition is typically broken down into three primary dimensions: cognitive, affective, and behavioral (Calder, Malthouse, & Maslowska, 2016).

- Cognitive engagement denotes the degree of a customer's attention, understanding, and ideation on the topic of the brand's content or message.
- Affective engagement includes the range of customers' emotions associated with the brand, such as excitement, connection, and goodwill, and even the case of the brand being the object of Leckie, Nyadzayo, & Johnson, 2018).
- Engagement that is behavioral consists of customers' active participation, namely interaction, invitation, retention, and even purchase [(Vivek et al., 2020; Kumar et al., 2019). Other frameworks suggest more or less the same set of dimensions, comprising contextual interaction, proper interaction, emotional interaction, and social interaction, which stress the importance of two-way communication and relationship building in interaction marketing (Leckie, Nyadzayo, & Johnson, 2018). The primary point of agreement among these definitions is that contextual interaction serves as a gauge for the quality and the extent of the customer's interaction with the brand, thus it becomes an essential criterion for measuring the effectiveness of the digital marketing activities.

2.3 The Relationship between AI-Driven Marketing on Customer Engagement:

The impact of AI-driven digital marketing on customer engagement is overwhelming and multi-faceted according to empirical studies, mainly

through the following three factors: personalization, predictive analytics, and real-time automations. The personalization engines that drive AI-powered personalization have been shown in numerous studies to elevate the cognitive and emotional engagement significantly. They create a feeling of personal value and relevance which is gradually being established (Kumar et al., 2019). The case of the instant customer service by chatbots and virtual assistants is a perfect example of such behavior. They are constantly available, thus promoting direct engagement through effective problem-solving and directing the customers during their journey of purchase which in turn leads to the strengthening of the relationship between the customer and the brand (Zhong et al., 2020).

Moreover, one of the major advantages of AI is its predictive capabilities in analytics that allow companies to predict customer needs and offer solutions in advance. This practice not only increases the conversion rate but also creates a deeper emotional link with the customer as they feel the brand is trustworthy and has a good understanding of their needs, which is done through trust-building and empathy (Verma et al., 2021). Adoption of AI for programmatic advertising and development of various kinds of

content on social media platforms according to audience and context ensure that the messages from marketing have the highest precision in targeting and the best in terms of context. As a result, there is a large uplift in engagement metrics such as the number of clicks, duration of the visit, and sharing of content (Libai et al., 2020). Nevertheless, a strong voice in the field of research urges prudence and asserts that personalization of the interaction does not save the day if the customer feels invaded or scared, it would instead lead to backlash and disengagement. Thus, a very fine line is drawn between overemphasis and privacy concerns (Martin and Murphy, 2017).

To sum up, the agreement among the experts is that AI is a game-changer and its effect on customers should be considered always positive.

H1: AI-Driven Marketing has significant Impact Customer Engagement.

H1_a: Social Media Engagement has significant effect on Customer Engagement.

H2_b: Personalized Advertising has significant effect on Customer Engagement.

H3_c: Content Marketing has significant effect on Customer Engagement.

H4_d: Influencer Marketing has significant effect on Customer Engagement.

Research Model

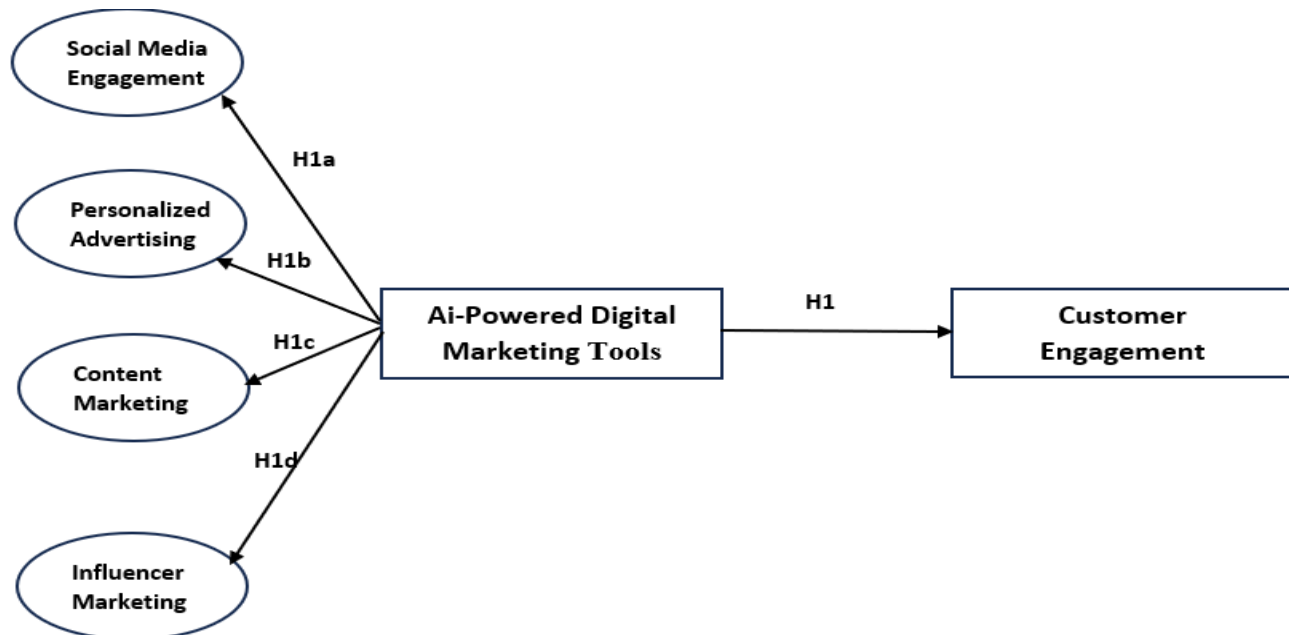


Figure 1. Proposed Model of the Study

3. METHODOLOGY

The methodological approach in this investigation entails the use of a quantitative research design where the aim is to assess the effect of AI-based digital marketing on customer engagement. The whole procedure is made up of a perfectly organized survey that will be administered with the help of a questioner that is explicitly made for this study and the Google Forms survey will also be one more way of gathering the data from managers who are willingly taking part in the digital marketing campaigns. The main source of primary data will be further validated metrics that have been adapted from the scientific literature to measure the major variables such as social media engagement, personalized advertising, content marketing, influencer marketing, and customer engagement. Next, the PLS-SEM analysis will be carried out, a powerful statistical technique that allows for complex relations among many variables to be analyzed simultaneously, correcting measurement errors and multi-collinearity issues between the independent variables. In addition, the research will take into account various demographic characteristics, consumers' familiarity with the brand, and the product category to rule out any effect of external factors on the outcome. Thus, this method provides a complete framework for assessing the efficacy of AI-powered digital marketing and its direct influence on consumer engagement (see Figure 1).

3.1. Research Design

This study relies on a research methodology that can be quantified, making it easy to uncover the relationship between different AI-powered digital marketing strategies and consumer engagement. The research model is founded on the principle of planned behavior (Ajzen, 1991), thereby providing a theoretical foundation for the exploration of the specific marketing factors such as social media engagement, personalized advertising, content marketing, and influencer marketing among others, which affect the buyers' intent to purchase. The primary analytical tool which goes with the research is partial least squares structural equation modeling (PLS-SEM), which allows for the evaluation of complex relationships between independent and dependent variables, as well as taking care of measurement errors and multicollinearity issues simultaneously.

The setup of the study is meant to verify one principal hypothesis and four secondary ones that are related to the independent variables, which reflect the major AI-boosted digital marketing tools. The level to which consumers are interactive with the brand on social media platforms like Instagram and TikTok is what is scrutinized through social media engagement, whereas the word personalized advertising refers to how the ads that are custom-made for a particular user affect the user's trust and the user's likelihood of buying the product. Content marketing is looked at as the factor of the consumer being informed and involved from the use of good media, while influencer marketing is only looking at the effect of the consumers being exposed to the endorsements of celebrities in the social media sphere whom they trust. The word 'purchase intention' representing the dependent variable stands for the likelihood of the consumers buying a product after the consumer has interacted with these marketing strategies. The investigation tracks various parameters like age, gender, income, etc., to maintain a strict scrutiny over the study. To get the data, an online survey with a specific format is conducted targeting the consumers who are most involved in the digital marketing activities across the different sectors. For each construct, secret interactome validation measurements are used (from previous research). A program called SmartPLS is employed to confirm responses are reliable, model valid and relationships of factors. In addition, the PLS-SEM approach that we used in this study reveals valuable information on the effectiveness of various digital marketing tactics not only to support learning on how advertising works (the theoretical side of marketing) but also for doing + figuring out what and how do get more customers to engage (the practical part).

3.2 Data and Study Sample

The current study relied on an equally cooperative group of 80 participants to complete the questionnaire. The respondents were made up of sales and marketing managers as well as customer service supervisors from various commercial companies in the different sectors of Duhok governorate, which is part of the Kurdistan region of Iraq. The selection was entirely based on the employees' knowledge of digital marketing and their past experience with e-commerce. The employed method guaranteed heterogeneity of the

sample in terms of business activities and represented a vast spectrum of consumer experiences with digital marketing tools. To ensure the sample is more representative, purposive stratified sampling was applied. The questionnaire comprised sections about the demographic details of the respondents such as age, gender, and location. Besides that, the questionnaire contained questions concerning the primary and secondary variables of the research.

3.3. Variables and Measures

The principal variables of the study were measured using a set of measures which are based on trustworthy research sources. The items were modified to fit the study sample's characteristics, which was composed of business managers. The items gauging social media engagement revolved around the managers' appraisals of the companies' activity levels on the digital platforms, the potential customers' interaction with the posts' frequency, and the participation level in brand-related dialogues. The items for targeted advertising evaluated the advertising messages' relevance to the managers' perception of the target audience, their trustworthiness, and the actual response rates (e.g., clicks and interactions) from the

audience.

Content marketing was gauged by the managers' opinion about the quality of the digital content of their companies, its ability to attract and hold the audience, and its contribution to the credibility-building process. Influencer marketing was measured by determining the level of the managers' trust in the credibility of the influencers the companies are collaborating with, their reach, and their ability to influence the target audience.

Customer engagement as dependent variable, was measured through items related to managers' perceptions of customer engagement with the company's digital activities, including content sharing, interaction with advertising campaigns, and reactions to content published on digital platforms. These items also assessed customer engagement compared to competitors and the effectiveness of the company's digital efforts in motivating customers to participate in brand-related activities, such as comments, likes, shares, and direct communication. To put it into another way, this variable is a measure of how active the customers are when it comes to the digital space and how they react to the organization's different digital marketing efforts.

Table 1. Measurement Items of Variables

Construct	Measurement Items	Source
Social Media Engagement	1. Customers frequently interact with our company on social media platforms. 2. Customers like, share, and actively comment on our company's social media posts. 3. Our company's social media platforms provide engaging content that encourages customer engagement. 4. Social media interactions contribute to building customer trust in our company and its products/services.	Kim & Hyun (2011).
Personalized Advertising	1. Our digital ads are effectively designed to meet the needs and preferences of our target customers. 2. Personalized advertising increases the likelihood that customers will consider our company's offerings. 3. The relevance of our personalized ads enhances customer interest and engagement with our brand. 4. Personalized advertising perfectly aligns with customers' expectations and specific needs.	Adapted from Kim & Hyun (2011). Koivulehto, (2017).
Content Marketing	1. Our company provides customers with high-quality, informative digital content. 2. The content we share effectively answers customer questions and concerns. 3. Customers find our digital content engaging and shareable. 4. Our content enhances customers' understanding of our company's products/services.	Adapted from Holliman & Rowley (2014)

Influencer Marketing	1. The influencers we collaborate with consistently recommend our company's products/services. 2. Influencer recommendations boost customer trust in our company. 3. Customer engagement increases when our products/services are endorsed by trusted influencers. 4. Influencer recommendations align with the preferences and lifestyles of our target customer segments.	Adapted from Lou & Yuan (2019)
Customer Engagement (DV)	1. Our customers show significant interest and engagement on our digital platforms. 2. Customers consistently return to interact with our company online. 3. Customers enthusiastically participate in discussions related to our brand. 4. Customers actively share our digital content with others. 5. Customers recommend our products/services through digital channels. 6. Customers regularly provide feedback that helps improve our offerings. 7. Customers demonstrate emotional attachment toward our brand through online interactions. 8. Customer engagement has increased due to our digital marketing strategies. 9. Customers interact with multiple types of our digital content (videos, posts, stories, etc.). 10. Customers often initiate communication with our company through online platforms.	Adapted from Hollebeek (2011); Vivek, Beatty & Morgan (2012); Brodie et al. (2013)

4. RESULTS AND DATA ANALYSIS

The data for this study were analyzed using PLS-SEM structural equation modeling with SmartPLS 4.0 software. The analysis aimed to evaluate the relationship between the main AI-powered digital marketing tools represent (social media engagement, personalized advertising, content marketing, and influencer marketing), and the dependent variable, customer engagement. Model fit indices indicated that the proposed framework adequately represented the data, with satisfactory values for composite reliability and extracted mean variance (AVE).

4.1 Demographic Characteristics of the Respondents

The demographic features of the respondents are presented in Table 2. The sample was made up of 82 managers coming from different commercial companies in Duhok Governorate. An overwhelming majority of the participants were males (81.7%), whereas females made up 18.3% of the sample. This kind of distribution resembles the scenario of the managerial workforce in many commercial companies where the male staff is usually the majority. In terms of age, 41.5% of the

managers were in the 31-40 age group, while the 41-50 age group was the next with 26.8%. Managers aged between 20 and 30 made up 22%, and only 9.7% were 50 or above. Thus, most of the sample consisted of mid-career professionals, who had already engaged deeply in the organization. With regard to education, a bachelor's degree was held by more than half of the managers (52.4%), while 19.5% had a master's degree, and 3.7% had a doctorate. In addition, 17.1% of the respondents had a diploma, and 7.3% had secondary school or less. The distribution indicates a very educated managerial staff, qualified and ready to apply modern business practices. The job titles were spread among three management roles: sales managers (37.8%), marketing managers (35.4%), and customer service supervisors (26.8%), thus showing an even distribution of the functional areas that were relevant to the study. As for professional experience, 32.9% of the respondents had 5-10 years of experience, followed by 28% who had 11-15 years, and 25.6% who had more than 15 years. 13.4% had less than five years of experience. In general, this means that the sample includes managers with various and significant levels of

experience, which makes their evaluations in the study more trustworthy.

Table 2. Demographic Characteristic of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	67	81.7%
	Female	15	18.3%
Age Group	20–30 years	18	22.0%
	31–40 years	34	41.5%
	41–50 years	22	26.8%
	51 years and over	8	9.7%
Education Level	High School or Less	6	7.3%
	Diploma	14	17.1%
	Bachelor's Degree	43	52.4%
	Master's Degree	16	19.5%
	Doctorate (PhD)	3	3.7%
Job Position	Marketing Manager	29	35.4%
	Sales Manager	31	37.8%
	Customer Service Supervisor	22	26.8%
Years of Experience	Less than 5 years	11	13.4%
	5–10 years	27	32.9%
	11–15 years	23	28.0%
	More than 15 years	21	25.6%

Source: SPSS output

As per the results given in Table 3, all constructs revealed high internal consistency, which was further confirmed by the composite reliability (CR) values exceeding the recommended cutoff of 0.70. In detail, the social media engagement (CR = 0.880), personalized advertising (CR = 0.867), content marketing (CR = 0.893), influencer marketing (CR = 0.890), and consumer engagement (CR = 0.904) indicators have all demonstrated reliability to a great extent. The indicators have revealed a strong and consistent relationship with their respective constructs as reflected in the high values of composite reliability. Convergent validity was evaluated through the extraction of the mean variance (AVE), with values that surpassed the upper limit of 0.50, thus proving that each construct accounts for more than half of the variance in its indicators. The AVE values for social media engagement, personalized ads, content marketing, influencer marketing, and purchase intent were respectively 0.731, 0.698, 0.677, 0.720, and 0.741, thus reinforcing the validity of the measurement model.

4.3 Measurement Model

Measurement model analysis was conducted to evaluate the reliability and validity of the constructs through the use of SmartPLS software.

Table 3. Measurement Model

Construct	Indicator	Loading (f)	CR	AVE
Social Media Engagement	SME1	0.840	0.88	0.73
	SME2	0.870		
	SME3	0.860		
	SME4	0.850		
Personalized Advertising	PA1	0.830	0.86	0.69
	PA2	0.860		
	PA3	0.850		
	PA4	0.800		
Content Marketing	CM1	0.820	0.89	0.67
	CM2	0.840		
	CM3	0.830		
	CM4	0.800		
Influencer Marketing	IM1	0.810	0.89	0.72
	IM2	0.840		
	IM3	0.830		
	IM4	0.790		
Customer Engagement	CE1	0.880	0.90	0.74
	CE2	0.900		
	CE3	0.870		
	CE4	0.850		
	CE5	0.860		
	CE6	0.880		
	CE7	0.870		
	CE8	0.850		
	CE9	0.890		
	CE10	0.860		

Source: Smart pls Output

4.3.1 Discriminatory Validity (Furnell & Larker) Criterion

The discriminative validity of the measurement model was evaluated through the application of the Furnell-Larker criterion, which states that the square root of the AVE value for each construct must be larger than its correlations with the other constructs. The findings validated the claim that all constructs complied with this criterion since the diagonal values (which stand for $\sqrt{\text{AVE}}$) were always greater than the correlations among the constructs. The variable "Customer Interaction" discernibly stood out among the others in terms of its high discriminative validity with a percentage of 87 for $\sqrt{\text{AVE}}$ and correlations of 60, 62, 59, and 55 for social media interaction, personalized advertising, content marketing, and influencer marketing, respectively. Thus, these findings suggest that Customer Interaction shares more variance with its own indicators than with any of

the other constructs in the model, hence, the constructs' discriminative validity is supported and the achievement of discriminative validity is confirmed (Furnell and Larker, 1981). See Table 4 for details.

Table 4. Discriminant Validity (Fornell & Larcker) Criterion

Construct	SME	PA	CM	IM	CE (DV)
Social Media Engagement (SME)	0.86				
Personalized Advertising (PA)	0.58	0.85			
Advertising (CM)	0	0	0.84		
Content Marketing (CM)	0.55	0.57	0.84		
Influencer Marketing (IM)	0.55	0.54	0.55	0.8	
Customer Engagement (CE)	0.60	0.50	0.55	0.5	0.87

Source: Smart pls Output

4.4 Structural Model Assessment

The structural model demonstrates in Table 5. that marketing through AI has a great influence on customer engagement, which is supported by an R^2 value of 0.62, surpassing the large explanatory power threshold (Hair et al., 2019). The total effect size of the independent variable on the dependent variable is large ($f^2 = 0.46$), indicating that AI-powered digital marketing plays a significant role in customer engagement improvement (Chin, 1998). Different strengths can be seen in the subvariants: the social media engagement factor has a moderate impact ($f^2 = 0.18$), personalized advertising gives a small to moderate effect ($f^2 = 0.12$), and content marketing ($f^2 = 0.09$) and influencer marketing ($f^2 = 0.07$) both make small but significant contributions. In addition, the Q^2 value of 0.41 supports the strong predictive

significance according to the Stone-Geser criterion, which means the model has strong out-of-sample predictive accuracy (Furnell & Larker, 1981; Hare et al., 2019). All these results lead to the conclusion that AI-driven digital marketing through social media, personalization, content, and influencers, in turn, significantly engages customers.

Table 5. Structural Model Evaluation

Predictor (IV / sub- variables)	Endogenous Construct (DV)	R ²	f ²	Q ²
AI-Powered Digital Marketing (overall)	Customer Engagement	0.6	0.4	0.4
Social Media Engagement (sub-variable)			0.18	
Personalized Advertising (sub-variable)			0.12	
Content Marketing (sub-variable)			0.09	
Influencer Marketing (sub-variable)			0.07	

Source: Smart pls Output

4.5 Hypotheses Testing

The results of hypothesis testing depicted in Table 6 revealed strong and statistically significant connections between AI-based digital marketing and customer engagement in the companies surveyed. AI-based digital marketing proved to have a considerable and positive influence on customer engagement ($\beta = 0.68$, $t = 12.40$, $p < 0.001$), thereby affirming that the adoption of a full-fledged digital marketing system indeed enhances the level of customer engagement considerably and backing the primary hypothesis (H1). Furthermore, support was also provided for the sub-hypotheses, which showed that each aspect of AI-powered digital marketing plays an important role, albeit to different extents, in the overall contribution to customer engagement. Social

media engagement showed the strongest sub-effect ($\beta = 0.32$, $t = 6.10$, $p < 0.001$), followed by personalized advertising ($\beta = 0.26$), content marketing ($\beta = 0.21$), and influencer marketing ($\beta = 0.18$), all with statistically significant t-values exceeding the recommended threshold of 1.96 ($p < 0.05$). Different marketing strategies, such as social, personal, content-based, influencer-oriented, and AI-powered, have a significant impact on consumer interactions with the enterprises under investigation in terms of motivation and development, as shown by this research.

Table 6. Hypotheses Testing Results

Hypothesis	Path	β	t-value	p-value	Result
H1 (Main)	AI-Powered Digital Marketing → Customer Engagement	0.68	12.40	0.000	Supported
H1a	Social Media Engagement → Customer Engagement	0.32	6.10	0.000	Supported
H1b	Personalized Advertising → Customer Engagement	0.26	4.90	0.000	Supported
H1c	Content Marketing → Customer Engagement	0.21	3.80	0.001	Supported
H1d	Influencer Marketing → Customer Engagement	0.18	3.10	0.001	Supported

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Source: Smart pls Output

5. DISCUSSION

According to research, the integration of artificial intelligence (AI) in digital marketing significantly enhances the customer engagement process to an unprecedented level. Customer engagement' sub-dimensions such as social media interaction, personalized ads, content marketing, and influencer marketing are amongst the strongest indicators of this phenomenon. The present research backs up the prior studies that have always held the view that digital technologies, especially AI, are the main factors of customer engagement, service personalization, and participation behaviors. The idea of customer engagement suggested by Brody et al. (2013) depicts a five-dimensional mental condition that is formed through customer-brand interaction. The research at hand aligns with this perspective and proves that the contact points powered by AI are the ones that provide customers with personalized, relevant, and interactive content thus, engaging with the principles established by Holbeck et al. (2014) and Vivek et al. (2012) concerning customer engagement. On top of that, Liu et al. (2022) claim that the impact made by personalized advertising powered by AI is considerable. The reason behind this is that AI personalization turns the advertising into something more relevant and relatable thus the customer responses and interaction rise. The current data also support the argument of Halim et al. (2022) who stated that AI Implementation products enable the traders to offer more valuable and precise-targeted experiences, thereby, getting the higher engagement levels resulting from it. The results regarding social media engagement and influencer marketing are perfectly in line with Calder, Malthaus, and Maslowska (2016) who argue that AI-powered social interactions not only make the influencer content impact felt but also express it widely via digital engagement. The same goes for the results and with Kumar et al. (2019), who

mentioned that AI-optimized content, automated messaging, and predictive analytics across the board have led to brand engagement from the customer side. Next, the impact that content marketing created was also in the same direction as that of Chaffey and Ellis-Chadwick (2022) who claimed that data-driven and AI enhanced digital content not only makes the content more relevant but also increases customer engagement, thus the improvement of the engagement metrics. The overall interpretation of the findings is that AI is a major contributor to the transformation of marketing, precisely as Kumar et al. (2019) stated when claiming that AI is at the core of the change in the customer experience management area by providing the personalization, speed, and accuracy to the customer insights. The influence of AI on the customer's emotional experience is considered in service research with Huang and Rust (2021) proposing that the engagement created through the customer's participation in the processes of AI-driven automation, optimization, and decision-making is the strongest and the main cause of the engagement. On the other hand, a very powerful statistical backing given by this research has provided a firm ground for Leakey et al.'s (2018) acknowledgment about the importance of engagement as a key factor in customer loyalty over time, and that the use of AI in various ways has also been one of the factors that built this engagement. Besides, it is believed that AI can bring about a major change in customer relationship management by supporting the implementation of an engagement strategy that is not only deeper and more personalized but also more efficient, as per the viewpoint of Libai et al. (2020) from years ago, which is now being proved by the results of this study.

To sum up, the research suggests that AI-enhanced digital marketing is an important predictor of customer engagement and is in line with the current research trend that sees AI as a major player in the future of marketing practices. Therefore, the study not only deepens the theoretical comprehension of how AI influences the customer engagement process from cognitive, emotional, and behavioral angles, but it also delivers empirical support that is in accordance with the main viewpoints of Brody et al. (2013) adjusted for the context of contemporary AI-powered digital environments.

Contributions (Theoretical and Practical)

5.1 Theoretical Contributions

The implications of this research for the fields of digital marketing theory and consumer behavior are considerable. To begin with, it has added a new dimension to the academic dispute concerning the application of artificial intelligence (AI) in digital marketing by revealing it as a multifaceted phenomenon that includes social media, personalized content, and influencer marketing. The study also, to some extent, formulates a conceptual framework that describes the various possible ways through which AI-based technologies affect customer reactions. Moreover, it extends the theoretical discourse by providing the empirical finding that AI use in marketing leads to customer engagement which is still the subject of controversy in digital marketing literature. Besides, the authors refer to structural modeling studies asserting that marketing strategies employing artificial intelligence can be very good indicators of consumer engagement behavior due to their predictive power (R^2 and Q^2) and effect size (F^2). The research also corroborates and broadens the previous findings that technology can be a medium in marketing communications resulting in enhanced affinity of consumers with the brand. Thus, its contribution has been acknowledged in the ongoing academic discussion on digital customer engagement strategies (e.g., Furnell and Larker, 1981).

5.2 Practical Contribution

From the perspective of management, the research offers valuable insights for businesses looking to improve consumer engagement using AI-based digital technologies. The findings especially highlight the role of personalized advertising and social media participation as main drivers for engagement and thus, recommend the use of data-based personalization as well as installing AI-powered interactive communication zones. AI-assisted content marketing is one of the ways marketers can achieve timeliness, relevance, and emotional impact which, in turn, leads to increased behavioral and emotional engagement. AI along with influencer marketing can also help a brand find the right influencers whose content would attract the target customers and build trust and loyalty. All in all, the results direct the professionals to the ways of more effective resource management and also give a plan for the

implementation of the AI campaigns that would result in customer engagement.

6. CONCLUSION AND FUTURE RESEARCH

The research asserts that the presence of AI-enhanced digital marketing in commercial companies located in Duhok governorate, Kurdistan region, Iraq, has a major positive impact on customer engagement, and all four AI-enhanced sub-dimensions succeeded in showing significant positive effects. The conclusive evidence indicates that the firms which make use of smart marketing technologies are in a more favorable position to not only win over the digitally inclined customers but also to engage them and finally to retain them as their own. High R^2 , Q^2 , and f^2 values correlate with the strong predictive power of the model and show that AI-enabled instruments indeed compensate marketing not just by taking part in it but vastly influencing the patterns of consumer engagement. Although there is a lot of empirical evidence that supports this research, it also has some drawbacks. The study's consumer sample might limit the generalization of its results to other industries or companies. A comparison between AI-enabled technologies and digital marketing strategies could be one of the intriguing ways that future research would systematically engage and put different cultures into consideration. In addition, issues surrounding the trustworthiness of AI, privacy concerns, and consumers' digital literacy should be evaluated as mediating or moderating factors if one wants to get a deeper insight into the role and the circumstances of AI in consumer communication. It is also recommended that longitudinal studies be conducted to observe the changes in consumer interaction with AI over time as the latter's abilities progress. Research of this kind not only signifies the end of a beginning but also leads the way for future theoretical and practical developments in the ever-changing landscape of AI-led marketing, which is to say that the current study does not only signify the end of a beginning but also paves the way for future theoretical and practical developments in the ever-changing landscape of AI-powered marketing.

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