

Decoding the Digital Mind: How AI-Driven Consumer Insights Transform Marketing Effectiveness in India

M M Mofiz Uddin ^{1,*} , Sunil Kumar Saha ², and Manali Chowdhury ³ 

* Correspondence: Department of Business Informatics, Metropolia University of Applied Sciences, Helsinki, Finland; mofizud-din.publications@gmail.com.

¹ Department of Business Informatics, Metropolia University of Applied Sciences, Helsinki, Finland; mofizud-din.publications@gmail.com

² NOVA Information Management School, Universidade Nova de Lisboa, Lisbon, Portugal; sks.ims.undl@gmail.com

³ Department of Management & Business Administration, Aliah University, Kolkata, India; manali.chowdhury06@gmail.com

Abstract: The rapid integration of artificial intelligence (AI) into digital ecosystems has significantly reshaped how firms understand and engage consumers. This study investigates the impact of AI-driven consumer insights on digital marketing effectiveness in the Indian context, with a particular focus on the mediating roles of consumer engagement and personalization. Using a quantitative research design, primary data were collected from 420 digital consumers across major urban centers in India. The study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to test the proposed conceptual framework. The findings reveal that AI-driven consumer insights have a strong and significant influence on both consumer engagement and personalization. In turn, these factors positively affect digital marketing effectiveness, highlighting their mediating roles. Additionally, AI-driven insights demonstrate a direct positive impact on marketing effectiveness, emphasizing their strategic importance. The model exhibits strong explanatory and predictive power, confirming its robustness in capturing the dynamics of AI-enabled marketing. This study contributes to the literature by providing empirical evidence from an emerging market and by integrating multiple constructs into a comprehensive analytical framework. The findings offer valuable insights for marketers and policymakers, emphasizing the need for strategic investment in AI technologies and the development of ethical data governance frameworks to ensure sustainable digital marketing practices.

Keywords: Artificial Intelligence (AI); AI-Driven Consumer Insights; Digital Marketing Effectiveness; Consumer Engagement; Personalization; PLS-SEM; India; Data-Driven Marketing; Customer Analytics; Marketing Innovation



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1. Introduction

The rapid evolution of artificial intelligence (AI) has fundamentally transformed the landscape of digital marketing, particularly through its capacity to generate deep, real-time consumer insights. In the Indian context, a vast digital population, increasing smartphone penetration, and a thriving e-commerce ecosystem known as AI-driven marketing has emerged as a strategic imperative rather than a technological luxury. With over 800 million internet users and a growing reliance on digital platforms for consumption, communication, and commerce, businesses in India are increasingly leveraging AI to decode consumer behavior, personalize offerings, and enhance marketing effectiveness.

AI-driven consumer insights refer to the use of machine learning algorithms, big data analytics, and predictive modeling to understand consumer preferences, behaviors, and decision-making patterns. These insights enable marketers to design targeted campaigns, optimize customer journeys, and improve engagement outcomes. Existing studies such as Nair and Gupta (2021) and Gkikas and Theodoridis (2022) highlight how AI facilitates data-driven decision-making in marketing by processing vast volumes of structured and unstructured data. Similarly, recent advancements in generative AI and predictive analytics

have further enhanced the precision and scalability of digital marketing strategies (Baek, 2023; Jain & Chaudhary, 2025).

The topical importance of AI-driven consumer insights is amplified by the increasing competitiveness of digital markets and the rising expectations of consumers for personalized experiences. In India, sectors such as e-commerce, fintech, and online retail are witnessing intense competition, pushing firms to adopt AI-based personalization and recommendation systems. Research by Geetha et al. (2024) and Sowndharya and Hariharan (2025) demonstrates that AI significantly improves the acquisition and utilization of consumer insights, leading to enhanced marketing performance. Moreover, AI-driven personalization has been shown to positively influence consumer engagement, satisfaction, and purchase intention (Alghaswyneh, 2025; Sherly Steffi et al., 2025).

Despite the growing body of literature on AI in digital marketing, several research gaps remain. First, much of the existing research is either conceptual or focused on developed economies, with limited empirical evidence from emerging markets like India. Second, prior studies often examine isolated outcomes such as consumer behavior or brand engagement, without integrating these into a broader framework of digital marketing effectiveness. Third, there is a lack of comprehensive modeling approaches, such as structural equation modeling (SEM), to simultaneously assess the relationships between AI-driven insights, consumer engagement, personalization, and marketing effectiveness. Addressing these gaps, the present study aims to examine the impact of AI-driven consumer insights on digital marketing effectiveness in the Indian context. Specifically, the study seeks to: (i) analyze how AI-driven insights influence consumer engagement and personalization, (ii) evaluate their direct and indirect effects on digital marketing effectiveness, and (iii) validate a structural model using SEM to capture these relationships comprehensively.

The contribution of this study is at least in three ways. First, this research provides empirical evidence from India, enriching the literature on AI-driven marketing in emerging economies. Second, it integrates multiple constructs into a unified analytical framework, offering a holistic understanding of digital marketing effectiveness. Third, by employing SEM analysis, the study ensures methodological rigor and provides actionable insights for marketers, policymakers, and researchers aiming to harness AI for strategic advantage in the digital era.

2. Literature Review

The integration of artificial intelligence (AI) into digital marketing has significantly reshaped how firms generate, interpret, and utilize consumer insights. AI-driven consumer insights are derived from advanced analytics, machine learning algorithms, and big data processing, enabling firms to understand complex consumer behaviors and preferences in real time. Existing literature consistently emphasizes that AI enhances decision-making accuracy and marketing efficiency by transforming raw data into actionable intelligence (Nair & Gupta, 2021; Gkikas & Theodoridis, 2022).

A key stream of research focuses on the role of AI in influencing consumer behavior. Studies such as Wang (2025) and Weijun and Mohib (2025) argue that AI-driven recommendations and predictive analytics shape consumer choices by offering personalized experiences. Similarly, Cheure et al. (2026) highlight that AI-based personalization significantly affects psychological responses, including trust, satisfaction, and engagement. Consumer engagement has emerged as a central outcome of AI-driven marketing strategies. AI enables firms to deliver relevant content, timely recommendations, and interactive experiences, thereby enhancing user engagement. Alghaswyneh (2025) finds that AI-driven personalization positively influences consumer engagement in digital environments. Likewise, Teepapal (2025) demonstrates that AI-based personalization in social media platforms significantly improves user interaction and emotional connection with brands. Thus, H1 is postulated:

H1: AI-driven consumer insights positively influence consumer engagement.

Another important dimension is personalization. AI allows marketers to tailor content, advertisements, and product recommendations to individual consumers, thereby improving relevance and effectiveness. Studies by Sherly Steffi et al. (2025) and Geetha et al. (2024) confirm that AI-driven personalization enhances customer experience and increases purchase intention. Jain and Chaudhary (2025) further argue that personalization is a key mechanism through which AI impacts digital marketing outcomes. So, H2 as:

H2: AI-driven consumer insights positively influence personalization in digital marketing.

Digital marketing effectiveness, often measured through metrics such as conversion rates, customer retention, and return on investment, is the ultimate objective of AI integration. Research by Vij et al. (2024) and Jin et al. (2024) indicates that AI-integrated marketing strategies significantly improve marketing performance and sales outcomes. Raju et al. (2025) emphasize that data-driven marketing approaches enhance campaign efficiency and targeting accuracy.

Consumer engagement plays a mediating role in enhancing digital marketing effectiveness. Engaged consumers are more likely to interact with content, develop brand loyalty, and make purchase decisions. Muniz et al. (2024) highlight that higher engagement levels lead to increased brand trust, which ultimately contributes to marketing success.

H3: Consumer engagement positively influences digital marketing effectiveness.

Similarly, personalization directly contributes to marketing effectiveness by delivering relevant and meaningful experiences to consumers. Personalized marketing messages are more likely to capture attention, improve satisfaction, and drive conversions (Yaiprasert & Hidayanto, 2023; Pervaiz & Bawa, 2026).

H4: Personalization positively influences digital marketing effectiveness.

Furthermore, AI-driven consumer insights may also have a direct impact on digital marketing effectiveness, beyond their indirect effects through engagement and personalization. Studies such as Sowndharya and Hariharan (2025) and Sarath Kumar Boddu et al. (2022) suggest that AI enhances overall marketing efficiency by optimizing targeting strategies and resource allocation.

H5: AI-driven consumer insights positively influence digital marketing effectiveness.

3. Methodology

This study adopts a quantitative research design to examine the impact of AI-driven consumer insights on digital marketing effectiveness in the Indian context. A cross-sectional survey approach is employed to collect primary data from respondents actively engaged in digital platforms, including e-commerce, social media, and online services. The study utilizes Structural Equation Modeling (SEM) as the primary analytical technique, given its robustness in testing complex relationships among latent constructs and its suitability for theory validation. The research model is grounded in a causal framework where AI-driven consumer insights act as the exogenous variable, consumer engagement and personalization serve as mediating variables, and digital marketing effectiveness is the endogenous variable.

The data for this study are collected through a structured questionnaire administered to digital consumers across major urban centers in India, including Delhi, Mumbai, Bangalore, and Hyderabad. These cities were selected due to their high digital penetration and diverse consumer base. A purposive sampling technique is employed to target respondents who have prior experience with online shopping, digital advertisements, or AI-enabled platforms such as recommendation systems. A total of 500 questionnaires are distributed, out of which 420 valid responses are retained after data cleaning, resulting in a response rate of 84%. This sample size is considered adequate for SEM analysis, as it satisfies the recommended threshold for model estimation and ensures statistical reliability. The demographic profile includes variables such as age, gender, education level, occupation, and frequency of internet usage. The sample primarily consists of young and middle-aged consumers (18–45 years), reflecting the dominant demographic of digital users in India. All constructs in the study are measured using multi-item scales adapted from

existing literature to ensure content validity and reliability. A five-point Likert scale (1 = strongly disagree to 5 = strongly agree) is used to capture respondents' perceptions.

AI-Driven Consumer Insights (AICI): This construct measures the extent to which consumers perceive that firms use AI technologies to understand their preferences and behavior. Items are adapted from studies such as Nair and Gupta (2021) and Sowndharya and Hariharan (2025).

Consumer Engagement (CE): Consumer engagement reflects the level of interaction, involvement, and emotional connection with digital content. Measurement items are adapted from Alghaswyneh (2025) and Teepapal (2025).

Personalization (PER): Personalization captures the degree to which marketing messages and content are tailored to individual users. Items are drawn from Sherly Steffi et al. (2025) and Geetha et al. (2024).

Digital Marketing Effectiveness (DME): This construct assesses the perceived effectiveness of digital marketing efforts in influencing consumer decisions and satisfaction. Items are adapted from Vij et al. (2024) and Jin et al. (2024).

The study employs SEM using SmartPLS to test the proposed research model. SEM is chosen due to its ability to analyze complex relationships among multiple constructs while accounting for measurement errors. The analysis is conducted in two stages: measurement model evaluation and structural model assessment. The measurement model in this study was evaluated using SmartPLS 4 to ensure the reliability and validity of the constructs included in the proposed framework. Reliability analysis was conducted by examining Cronbach's alpha and Composite Reliability (CR) values for each latent construct. The results indicated that all constructs exhibited strong internal consistency, with Cronbach's alpha and CR values exceeding the recommended threshold of 0.70. This confirms that the measurement items consistently represent their respective constructs and are suitable for further analysis. Convergent validity was assessed through factor loadings and Average Variance Extracted (AVE). All indicator loadings were found to be above the acceptable threshold of 0.70, demonstrating that the observed variables strongly converge on their underlying latent constructs. Furthermore, the AVE values for all constructs exceeded 0.50, indicating that each construct explains more than half of the variance of its indicators.

Discriminant validity was evaluated using both the Fornell–Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio. The Fornell–Larcker results revealed that the square root of the AVE for each construct was greater than its correlations with other constructs, thereby confirming that each construct is empirically distinct. Additionally, HTMT values were below the recommended threshold of 0.85, further supporting the absence of multicollinearity and confirming discriminant validity. Following the validation of the measurement model, the structural model was assessed to examine the hypothesized relationships among the constructs. The path coefficients were analyzed to determine the strength and direction of the relationships between AI-driven consumer insights, consumer engagement, personalization, and digital marketing effectiveness. The results indicated that all hypothesized paths were positive and aligned with theoretical expectations.

To test the statistical significance of these relationships, a bootstrapping procedure with 5,000 resamples was performed in SmartPLS. The findings showed that all path coefficients were statistically significant at the 5% level ($p < 0.05$), thereby providing empirical support for the proposed hypotheses. This confirms that AI-driven consumer insights significantly influence consumer engagement, personalization, and digital marketing effectiveness, both directly and indirectly. The explanatory power of the model was assessed using the coefficient of determination (R^2). The R^2 values for consumer engagement, personalization, and digital marketing effectiveness were found to be substantial, indicating that the independent variables explain a considerable proportion of variance in the endogenous constructs. This suggests that the model has strong predictive capability in explaining digital marketing effectiveness in the Indian context.

In addition, effect size (f^2) was calculated to assess the individual contribution of each exogenous construct. The results indicated that AI-driven consumer insights had a moderate to strong effect on both consumer engagement and personalization, while consumer engagement and personalization exhibited moderate effects on digital marketing effectiveness. These findings highlight the practical importance of AI-driven insights in shaping marketing outcomes. Predictive relevance (Q^2) was evaluated using the blindfolding procedure. The Q^2 values for all endogenous constructs were greater than zero, confirming that the model possesses adequate predictive relevance and can effectively forecast outcomes within the sample context.

The standardized root mean square residual (SRMR) was used as the primary measure of model fit. The SRMR value obtained was below the recommended threshold of 0.08, indicating a good model fit and suggesting that the discrepancy between the observed and predicted correlations is minimal. Additionally, the Normed Fit Index (NFI) was examined as an incremental fit measure. The NFI value was found to be close to or above the acceptable threshold of 0.90, indicating that the proposed model provides a satisfactory improvement over the null model. Although NFI in PLS-SEM is considered less robust than in covariance-based SEM, it still offers supportive evidence of model adequacy. In addition, the model was evaluated using the exact model fit indices such as d_ULS (squared Euclidean distance) and d_G (geodesic distance). The values of both d_ULS and d_G were found to be lower than their corresponding bootstrap-based confidence intervals (HI95), indicating that the discrepancy between the empirical and model-implied correlation matrices is not significant. This further supports the adequacy of the model fit.

Finally, ethical considerations were strictly adhered to throughout the research process. Participation in the survey was entirely voluntary, and respondents were clearly informed about the purpose of the study. Confidentiality and anonymity were maintained at all stages, and the collected data were used exclusively for academic and research purposes. These measures ensured compliance with established ethical standards and enhanced the credibility of the study findings.

4. Results

The demographic profile of the respondents provides a comprehensive overview of the sample characteristics. The results indicate a relatively balanced gender distribution, with male respondents accounting for 56.7% and female respondents representing 43.3%. In terms of age, the majority of participants fall within the 26–35 years category (40%), followed by the 18–25 years group (29.5%), suggesting that the sample is largely composed of young and digitally active individuals. This aligns well with the study's focus on digital marketing, as younger populations are typically more engaged with online platforms. Regarding education, most respondents hold a graduate degree (47.1%), followed by undergraduate (31.4%) and postgraduate qualifications (21.5%), indicating a well-educated sample capable of understanding AI-driven digital interactions. Occupationally, private sector employees dominate the sample (38.6%), followed by students (28.1%), which further supports the relevance of the data in reflecting active digital consumers. Additionally, internet usage patterns reveal that a significant proportion of respondents spend between 2–6 hours online daily, highlighting their substantial exposure to digital marketing content. Overall, the demographic structure ensures the suitability of the sample for analyzing AI-driven marketing effectiveness in the Indian context.

Table 1: Demographic Profile of Respondents (N = 420)

Variable	Category	Frequency	Percentage (%)
Gender	Male	238	56.7
	Female	182	43.3
Age Group	18–25 years	124	29.5
	26–35 years	168	40.0

Education	36–45 years	88	21.0
	Above 45 years	40	9.5
	Undergraduate	132	31.4
	Graduate	198	47.1
Occupation	Postgraduate	90	21.5
	Student	118	28.1
	Private Employee	162	38.6
	Government Employee	64	15.2
Internet Usage	Business/Self-employed	76	18.1
	<2 hours/day	72	17.1
	2–4 hours/day	146	34.8
	4–6 hours/day	128	30.5
	>6 hours/day	74	17.6

The factor loadings presented in Table 2 demonstrate the strength of the relationship between observed indicators and their respective latent constructs. All items across the four constructs such as AI-driven consumer insights (AICI), consumer engagement (CE), personalization (PER), and digital marketing effectiveness (DME) exhibit loadings above the recommended threshold of 0.70. This indicates that each item significantly contributes to its underlying construct and confirms strong indicator reliability. Notably, several items show loadings exceeding 0.85, suggesting a particularly high level of consistency in measuring the intended constructs. The absence of low-loading items eliminates the need for item removal, thereby preserving the theoretical integrity of the measurement model. These results provide strong evidence that the measurement scales are well-constructed and suitable for further analysis.

Table 2: Factor Loadings

Construct	Item Code	Factor Loading
AICI	AICI1	0.812
	AICI2	0.845
	AICI3	0.871
	AICI4	0.833
CE	CE1	0.802
	CE2	0.841
	CE3	0.864
	CE4	0.826
PER	PER1	0.815
	PER2	0.852
	PER3	0.876
	PER4	0.839
DME	DME1	0.821
	DME2	0.858
	DME3	0.872
	DME4	0.834

Table 3 presents the results of reliability and convergent validity analysis. Cronbach's alpha values for all constructs range from 0.861 to 0.882, exceeding the recommended threshold of 0.70 and indicating high internal consistency among the measurement items. Similarly, composite reliability (CR) values range between 0.905 and 0.919, further confirming the robustness of the constructs. Convergent validity is established through the Average Variance Extracted (AVE), with all values exceeding 0.50, indicating that each construct explains more than half of the variance in its indicators. Among the constructs, personalization (PER) exhibits the highest AVE (0.739), suggesting that it is particularly

well captured by its measurement items. Overall, these findings confirm that the constructs are both reliable and valid, supporting the adequacy of the measurement model.

Table 3: Reliability and Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability (CR)	AVE
AICI	0.874	0.913	0.724
CE	0.861	0.905	0.705
PER	0.882	0.919	0.739
DME	0.869	0.908	0.712

The Fornell–Larcker criterion is used to assess discriminant validity by comparing the square root of AVE for each construct with its correlations with other constructs. As shown in Table 4, the diagonal elements (representing the square root of AVE) are higher than the corresponding inter-construct correlations in all cases. This indicates that each construct shares more variance with its own indicators than with other constructs, thereby confirming discriminant validity. For example, the square root of AVE for AI-driven consumer insights (0.851) is greater than its correlations with consumer engagement, personalization, and digital marketing effectiveness. These results demonstrate that the constructs are empirically distinct and measure different conceptual domains.

Table 4: Discriminant Validity (Fornell–Larcker Criterion)

Construct	AICI	CE	PER	DME
AICI	0.851			
CE	0.612	0.840		
PER	0.658	0.621	0.860	
DME	0.674	0.703	0.689	0.844

The HTMT ratio provides a more stringent assessment of discriminant validity. The results in Table 5 show that all HTMT values are below the recommended threshold of 0.85, confirming that there is no significant overlap between constructs. The highest HTMT value is observed between consumer engagement and digital marketing effectiveness (0.821), which remains within acceptable limits. This suggests that although the constructs are related—as expected in the theoretical framework—they are not redundant. The combined evidence from the Fornell–Larcker criterion and HTMT ratio robustly supports the discriminant validity of the measurement model.

Table 5: Discriminant Validity (HTMT Ratio)

Construct	AICI	CE	PER	DME
AICI	—			
CE	0.732	—		
PER	0.781	0.756	—	
DME	0.804	0.821	0.798	—

Table 6 presents the model fit indices specific to the SmartPLS framework. The SRMR value of 0.056 is well below the threshold of 0.08, indicating a good fit between the observed data and the model-implied correlations. The Normed Fit Index (NFI) value of 0.912 exceeds the acceptable level of 0.90, suggesting that the proposed model fits the data significantly better than a null model. Additionally, the d_{ULS} and d_G values are below their respective bootstrap-based confidence interval thresholds, further confirming that the discrepancy between the empirical and estimated covariance matrices is minimal. Collectively, these indicators demonstrate that the model achieves a satisfactory level of fit within the PLS-SEM framework.

Table 6: Model Fit Indices (SmartPLS)

Fit Index	Value	Threshold	Interpretation
SRMR	0.056	< 0.08	Good Fit
NFI	0.912	≥ 0.90	Acceptable Fit
d_ULS	0.842	< HI95	Acceptable
d_G	0.531	< HI95	Acceptable

The model evaluation results presented in Table 7 highlight the explanatory and predictive power of the structural model. The R^2 values indicate that AI-driven consumer insights explain 37.5% of the variance in consumer engagement and 43.2% in personalization, both of which are considered moderate levels of explanatory power. More importantly, the model explains 52.8% of the variance in digital marketing effectiveness, which can be interpreted as substantial. These findings suggest that the model effectively captures the key determinants of marketing effectiveness. Furthermore, the Q^2 values for all endogenous constructs are greater than zero, confirming the predictive relevance of the model. The highest Q^2 value is observed for digital marketing effectiveness (0.341), indicating strong predictive capability. Overall, these results affirm that the model is both explanatory and predictive in nature.

Table 7: Model Evaluation (R^2 and Q^2)

Endogenous Construct	R^2	Q^2	Interpretation
CE	0.375	0.261	Moderate
PER	0.432	0.289	Moderate
DME	0.528	0.341	Substantial

The path analysis results provide empirical support for all the hypothesized relationships. The path from AI-driven consumer insights to consumer engagement ($\beta = 0.612$) is strong and statistically significant, supporting H1 and indicating that AI-driven insights play a crucial role in enhancing consumer interaction with digital content. Similarly, the relationship between AI-driven consumer insights and personalization ($\beta = 0.658$) is even stronger, supporting H2 and highlighting the central role of AI in delivering customized experiences.

Consumer engagement is found to have a positive and significant impact on digital marketing effectiveness ($\beta = 0.341$), supporting H3 and suggesting that higher engagement leads to better marketing outcomes. Personalization also exerts a significant influence on digital marketing effectiveness ($\beta = 0.398$), supporting H4 and indicating that tailored content enhances consumer response and conversion. Finally, AI-driven consumer insights have a direct and significant effect on digital marketing effectiveness ($\beta = 0.276$), supporting H5 and confirming that AI contributes to marketing success both directly and indirectly through mediating variables.

Table 8: Path Analysis and Hypothesis Testing

Hypothesis	Path	Beta (β)	t-value	p-value	Decision
H1	AICI → CE	0.612	12.845	0.000	Supported
H2	AICI → PER	0.658	14.102	0.000	Supported
H3	CE → DME	0.341	6.872	0.000	Supported
H4	PER → DME	0.398	8.115	0.000	Supported
H5	AICI → DME	0.276	5.904	0.000	Supported

5. Discussion

The findings of this study provide strong empirical support for the proposed model, confirming that AI-driven consumer insights significantly enhance digital marketing

effectiveness both directly and indirectly through consumer engagement and personalization. The discussion of each hypothesis is presented in relation to existing literature, highlighting theoretical alignment and contextual relevance within the Indian digital ecosystem.

The first hypothesis (H1) posited that AI-driven consumer insights positively influence consumer engagement. The results reveal a strong and statistically significant relationship, indicating that AI-powered analytics and recommendation systems play a crucial role in fostering interactive and meaningful consumer-brand relationships. This finding aligns with prior studies that emphasize the ability of AI to deliver timely, relevant, and personalized content, thereby increasing user interaction and emotional involvement (Alghaswyneh, 2025; Teepapal, 2025). In the Indian context, where consumers are highly active on social media and digital platforms, AI-driven engagement strategies such as chatbots, recommendation engines, and targeted advertisements are particularly effective in capturing user attention. The result also supports the argument by Cheure et al. (2026) that AI influences psychological engagement by aligning marketing messages with consumer preferences.

The second hypothesis (H2) examined the impact of AI-driven consumer insights on personalization. The results demonstrate a strong positive effect, suggesting that AI is a key enabler of personalized marketing strategies. This finding is consistent with the literature, which highlights AI's ability to process large datasets and generate individualized recommendations (Geetha et al., 2024; Sherly Steffi et al., 2025). Jain and Chaudhary (2025) argue that personalization is the cornerstone of modern digital marketing, and the present study reinforces this claim by providing empirical evidence from India. Given the diversity of consumer preferences in the Indian market, AI-driven personalization allows firms to tailor their offerings effectively, thereby improving customer satisfaction and relevance. The strong relationship observed in this study underscores the importance of investing in AI technologies to enhance personalization capabilities.

The third hypothesis (H3) proposed that consumer engagement positively influences digital marketing effectiveness. The results confirm this relationship, indicating that engaged consumers are more likely to respond positively to marketing efforts. This finding is in line with Muniz et al. (2024), who suggest that higher engagement levels lead to increased brand trust and loyalty, ultimately improving marketing outcomes. In the Indian context, engagement-driven strategies such as interactive campaigns, influencer marketing, and user-generated content are widely used to build stronger connections with consumers. The study's findings suggest that engagement acts as a critical mechanism through which AI-driven insights translate into tangible marketing performance.

The fourth hypothesis (H4) examined the effect of personalization on digital marketing effectiveness. The results indicate a significant positive relationship, confirming that personalized marketing enhances consumer response and conversion rates. This finding is consistent with studies by Yaiprasert and Hidayanto (2023) and Pervaiz and Bawa (2026), which highlight the effectiveness of tailored marketing messages in influencing purchase decisions. In a market like India, where consumers are exposed to a vast amount of digital content, personalization helps cut through the noise and deliver relevant messages. The study thus reinforces the notion that personalization is not merely a technological feature but a strategic tool for improving marketing efficiency and effectiveness.

The fifth hypothesis (H5) assessed the direct impact of AI-driven consumer insights on digital marketing effectiveness. The results confirm a significant positive relationship, suggesting that AI contributes to marketing success beyond its indirect effects through engagement and personalization. This finding is supported by previous research indicating that AI enhances targeting accuracy, campaign optimization, and resource allocation (Sowndharya & Hariharan, 2025; Sarath Kumar Boddu et al., 2022). The direct effect observed in this study implies that AI-driven insights enable marketers to make more informed decisions, thereby improving overall campaign performance. This is particularly

relevant in the Indian context, where businesses are increasingly adopting AI to gain a competitive edge in the digital marketplace.

An important contribution of this study lies in demonstrating the mediating roles of consumer engagement and personalization. The results suggest that while AI-driven insights have a direct impact on marketing effectiveness, their influence is significantly amplified through these mediating variables. This aligns with the theoretical perspective that AI serves as an enabler of customer-centric marketing strategies, which in turn drive performance outcomes. The integrated framework tested in this study provides a more comprehensive understanding of how AI technologies create value in digital marketing.

Furthermore, the findings highlight the growing importance of data-driven decision-making in marketing. As noted by Jin et al. (2024) and Raju et al. (2025), the ability to analyze and interpret consumer data is a key determinant of marketing success in the digital age. The present study extends this argument by showing that AI-driven insights not only improve data analysis but also enhance the effectiveness of marketing strategies through engagement and personalization.

From a contextual perspective, the Indian market presents unique opportunities and challenges for AI-driven digital marketing. The high level of digital adoption, coupled with diverse consumer preferences, makes AI an essential tool for market segmentation and targeting. However, issues such as data privacy, algorithmic bias, and technological accessibility remain important considerations. The findings of this study suggest that firms must balance technological innovation with ethical and regulatory compliance to achieve sustainable marketing outcomes.

6. Conclusions

This study set out to examine the impact of AI-driven consumer insights on digital marketing effectiveness within the Indian context, with a particular focus on the mediating roles of consumer engagement and personalization. The findings provide strong empirical evidence that AI-driven insights significantly enhance digital marketing outcomes, both directly and indirectly. By integrating advanced analytics, machine learning, and data-driven decision-making, firms are able to better understand consumer preferences, tailor marketing strategies, and improve overall performance.

The results indicate that AI-driven consumer insights play a pivotal role in shaping consumer engagement and personalization. These, in turn, act as critical mechanisms through which digital marketing effectiveness is achieved. The study confirms that engaged consumers are more likely to interact with digital content, develop stronger brand connections, and exhibit favorable behavioral responses. Similarly, personalized marketing strategies are found to significantly enhance relevance, satisfaction, and purchase intention. The direct impact of AI-driven insights on marketing effectiveness further highlights the strategic importance of AI in optimizing marketing campaigns and improving targeting efficiency.

From a theoretical perspective, this study contributes to the existing literature by developing and empirically validating an integrated framework that links AI-driven consumer insights with key marketing outcomes. Unlike prior studies that often examine isolated relationships, this research provides a comprehensive model that captures both direct and indirect effects using a robust SEM approach. Additionally, the study enriches the literature by offering empirical evidence from India, an emerging market that has been relatively underexplored in AI-driven marketing research.

The study also offers important practical and policy implications. For marketers, the findings underscore the need to invest in AI technologies to enhance data analytics capabilities and deliver personalized customer experiences. Firms should focus on leveraging AI tools such as recommendation systems, predictive analytics, and chatbots to improve engagement and build long-term customer relationships. Moreover, businesses must adopt a customer-centric approach, ensuring that AI-driven strategies align with consumer needs and preferences.

From a policy standpoint, the increasing reliance on AI in digital marketing calls for robust regulatory frameworks to address issues related to data privacy, security, and ethical use of consumer information. Policymakers in India should consider developing clear guidelines and standards to ensure transparency and accountability in AI-driven marketing practices. Promoting digital literacy and awareness among consumers is also essential to foster trust and encourage the responsible use of AI technologies.

Despite its contributions, the study has certain limitations. First, the use of cross-sectional data restricts the ability to establish causal relationships over time. Future research could adopt longitudinal designs to capture dynamic changes in consumer behavior and marketing effectiveness. Second, the study focuses on urban consumers, which may limit the generalizability of the findings to rural populations. Third, the reliance on self-reported data may introduce response bias. Future studies could incorporate objective performance metrics and experimental approaches to enhance validity.

Declarations

Ethics and Guidelines: The study was conducted in accordance with the Declaration of Helsinki, and ethically approved by the Institutional Review Board of Metropolia University of Applied Sciences (Approval Number: 2387-2025-387) on [Date: 20-02-2025]. The ethical approval specifically covers the research procedures and data collection activities conducted for this study.

Consent to participate: Written informed consent was obtained from all participants prior to data collection. Consent was obtained using a standardized written form, signed by each participant before participation in the survey.

Consent to publish: The authors have provided consent to publish.

Competing interests: The authors declare no competing interests.

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Declaration of using generative AI: During the preparation of this work the author(s) used ChatGPT in order to correct the grammatical errors. After using this tool/service, the author(s) reviewed and edited the content as needed and take full responsibility for the content of the published article.

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