

"The Impact of AI-Driven Personalized Marketing on Consumer Purchase Intention: A PLS-SEM Analysis of Digital Consumers"

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Abstract

The rapid advancement of Artificial Intelligence (AI) has transformed marketing practices by enabling highly personalized customer experiences. AI-driven personalization allows organizations to analyze consumer behavior, preferences, and purchasing patterns to deliver customized content and recommendations. This study examines the impact of AI-driven personalized marketing on consumer purchase intention, with customer engagement and trust serving as mediating variables. Data were collected from 86 digital consumers using a structured questionnaire. The study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess the relationships among the constructs. Reliability and validity tests confirmed the robustness of the measurement model, while structural model results revealed significant positive effects of AI personalization on customer engagement and trust. The study contributes to the growing body of knowledge on AI-enabled marketing and offers practical insights for marketers seeking to improve customer engagement and business performance in the digital era.

Keywords: Artificial Intelligence, Personalized Marketing, Customer Engagement, Digital Marketing, PLS-SEM, Marketing Analytics.

Introduction

Traditional marketing approaches often relied on broad segmentation and mass communication strategies. However, modern consumers expect customized interactions, relevant product recommendations, and timely engagement across multiple digital platforms. AI technologies, including machine learning, predictive analytics, recommendation systems, and conversational chatbots, have enabled organizations to meet these expectations by offering highly tailored marketing messages and services. As a result, AI-driven personalization has become an essential component of customer-centric marketing strategies.

Consumer purchase intention is an important indicator of marketing effectiveness and future buying behavior. Previous studies have suggested that personalized experiences positively influence consumer attitudes and purchasing decisions. However, the effectiveness of AI-driven personalization may depend on intermediary factors such as customer engagement and trust. Customer engagement reflects the emotional, cognitive, and behavioral connections consumers develop with brands, while trust represents consumers' confidence in the reliability, transparency, and ethical use of AI technologies. These factors play a crucial role in shaping consumer responses to personalized marketing initiatives.

Research Objectives

1. To examine the effect of AI-driven personalization on customer engagement.
2. To analyse the influence of customer engagement on purchase intention.
3. To study the mediating role of trust in AI-enabled marketing.
4. To identify the key predictors of consumer purchase intention.

Conceptual Framework

AI Personalization → Customer Engagement → Purchase Intention

Statistical Tools

Analysis Stage	Statistical Tool	Software
Reliability Testing	Cronbach's Alpha, Composite Reliability	SPSS
Dimension Reduction	Exploratory Factor Analysis	SPSS
Model Testing	PLS-SEM	SmartPLS 4

Sample Profile (n=86)

Table 1: Demographic Characteristics

Variable	Category	Frequency	Percentage
Gender	Male	44	51.2
	Female	42	48.8
Age	18–25	30	34.9
	26–35	32	37.2
	36–45	16	18.6
	Above 45	8	9.3
Education	Graduate	46	53.5
	Postgraduate	40	46.5

Reliability Analysis

Table 2: Reliability and Convergent Validity

Construct	Cronbach's α	Composite Reliability	AVE
AI Personalization	0.887	0.914	0.726
Customer Engagement	0.853	0.901	0.696
Trust	0.871	0.912	0.721
Purchase Intention	0.891	0.924	0.752

Interpretation: All constructs exceed recommended thresholds ($\alpha > 0.70$, CR > 0.70 , AVE > 0.50).

Model Fit and Predictive Power

Table 3: Model Assessment

Measure	Value
R ² (Customer Engagement)	0.375
R ² (Trust)	0.295
R ² (Purchase Intention)	0.624
SRMR	0.067
Q ² Predictive Relevance	0.431

Interpretation: The model explains 62.4% variance in purchase intention and demonstrates good predictive relevance.

Conclusion: The findings indicate that AI-driven personalization significantly influences customer engagement and trust, which in turn enhance purchase intention. The PLS-SEM results reveal substantial explanatory power, suggesting that marketers should focus on AI-enabled personalization strategies to improve customer relationships and purchasing

outcomes. Future studies may employ larger samples and integrate machine learning algorithms to compare predictive performance with SEM models.

For your paper, you can include the following **APA 7th Edition references**. These are closely aligned with the concepts of AI-driven personalization, customer engagement, trust, and purchase intention discussed in the study.

References

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