CONSUMER TRUST IN THE AGE OF AI: THE IMPACT OF GREEN MARKETING PERSONALIZATION ON PURCHASE BEHAVIOUR IN JIZZAX REGION, UZBEKISTAN

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ABSTRACT: The rapid integration of artificial intelligence (AI) into marketing systems has fundamentally transformed how firms communicate sustainability values through personalized green marketing strategies. Despite growing adoption, empirical evidence on how AI-driven personalization influences consumer trust and purchase behaviour in emerging economies — where greenwashing concerns are particularly pronounced — remains limited. This study investigates the effect of AI-driven green marketing personalization on consumer trust and purchase behaviour in the Jizzax region of Uzbekistan. A quantitative research design was employed, with primary data collected from 200 consumers via a structured questionnaire. Partial Least Squares Structural Equation Modeling (PLS-SEM) was applied to analyze the relationships among perceived personalization, transparency of green claims, consumer trust, and purchase intention. The findings demonstrate that AI-driven personalization exerts a statistically significant positive effect on purchase intention, though this relationship is predominantly indirect. Consumer trust operates as a significant mediator, notably amplifying the personalization–purchase behaviour relationship under conditions of high transparency ($p < 0.05$). Conversely, personalization perceived as intrusive or lacking transparency elevates consumer skepticism, eroding trust and suppressing purchase intention. This study contributes to the emerging literature on AI-enabled marketing by providing context-specific empirical evidence from a developing economy undergoing active digital marketing transformation. The findings underscore the critical role of transparency and ethical communication in cultivating consumer trust within AI-driven green marketing environments. Practical implications are offered for marketers and policymakers seeking to advance sustainable consumption through the responsible deployment of AI technologies.

Keywords: Artificial Intelligence (AI), Green Marketing, Consumer Trust, Purchase Behaviour, Personalization, Greenwashing, Sustainable Consumption, PLS-SEM, Jizzax Region, Uzbekistan

INTRODUCTION

Environmental degradation and climate change have elevated sustainability from a peripheral concern to a central imperative in both corporate strategy and public policy. Businesses across sectors are increasingly embedding environmental responsibility into their core value propositions, a phenomenon broadly captured under the umbrella of green marketing (Peattie & Crane, 2005). This transition is driven not solely by regulatory mandates but by a measurable shift in consumer consciousness, whereby purchasing decisions are increasingly evaluated through the lens of ecological consequence (Kotler, Kartajaya, & Setiawan, 2019). Yet communicating sustainability effectively remains a persistent challenge, as consumers vary considerably in their receptiveness to environmental messaging and their capacity to assess its credibility.

Parallel to this development, artificial intelligence (AI) has begun to fundamentally alter the architecture of consumer–firm interaction. AI-driven personalization enables marketers to craft sustainability messages calibrated to individual preferences, behavioral histories, and contextual signals, offering a level of communicative precision previously unavailable (Huang & Rust, 2021). In theory, such precision should enhance the relevance and persuasiveness of green marketing appeals. In practice,

however, algorithmic targeting introduces a layer of ambiguity: consumers receiving highly tailored environmental messages may question whether such communications reflect authentic corporate commitment or constitute a calculated attempt to exploit pro-environmental sentiment.

This ambiguity makes consumer trust a decisive variable. Trust functions as a cognitive filter through which consumers evaluate the legitimacy of marketing claims, particularly under conditions of information asymmetry (Morgan & Hunt, 1994). In green marketing specifically, trust is further complicated by the well-documented phenomenon of greenwashing — the strategic misrepresentation of environmental performance — which has systematically undermined consumer confidence in corporate sustainability narratives (Delmas & Burbano, 2011). When AI-generated personalization is superimposed onto already-skeptical consumer attitudes, the risk of perceived manipulation intensifies, especially where transparency in algorithmic processes is absent.

Despite growing scholarly interest in each of these domains independently, their empirical intersection remains underexplored. This gap is particularly consequential in emerging economies, where digital marketing infrastructure is expanding rapidly yet regulatory oversight of sustainability claims remains nascent. Consumer responses to AI-driven green marketing in such settings cannot be reliably extrapolated from findings in developed markets, given substantive differences in institutional trust, technological familiarity, and environmental literacy.

This study addresses that gap by examining how AI-driven green marketing personalization shapes consumer trust and purchase behaviour in the Jizzax region of Uzbekistan — a context representative of the broader Central Asian digital transition. Specifically, the research investigates the mediating role of consumer trust and the moderating effect of transparency on these relationships, employing PLS-SEM on data drawn from 200 consumers. The findings advance the theoretical understanding of AI-mediated sustainability communication while offering actionable guidance for marketers and regulators committed to ethical and effective green marketing practices.

Research Gap

While the individual domains of green marketing, AI-driven personalization, and consumer trust have attracted considerable scholarly attention, their simultaneous empirical examination remains limited. Studies such as Huang and Rust (2021) have explored AI applications in marketing broadly, and Delmas and Burbano (2011) have documented trust erosion through greenwashing, yet no study has examined how algorithmic personalization modulates trust formation specifically within green marketing communication. This gap is further pronounced in emerging economy contexts: existing empirical work is concentrated in North American and Western European settings (e.g., Kotler et al., 2019), where institutional trust, digital literacy, and environmental awareness differ markedly from markets such as Uzbekistan. Critically, the conditions under which transparency mitigates skepticism in AI-personalized green marketing — and whether consumer trust mediates behavioral outcomes in such settings — remain empirically unresolved.

Research Questions

RQ1: How does AI-driven green marketing personalization influence consumer purchase behaviour in an emerging economy context?

RQ2: Does consumer trust mediate the relationship between AI-driven personalization and purchase behaviour?

RQ3: How does the perceived transparency of green claims moderate the effect of personalization on consumer trust?

RQ4: To what extent does perceived intrusiveness of AI-driven personalization increase consumer skepticism and reduce purchase intention?

Objectives of the Study

To examine the direct effect of AI-driven green marketing personalization on consumer purchase behaviour in the Jizzax region of Uzbekistan.

To analyze the mediating role of consumer trust in the relationship between AI-driven personalization and purchase behavior.

To evaluate the moderating influence of perceived transparency on the personalization–trust relationship.

To assess the extent to which perceived intrusiveness of personalization generates consumer skepticism and attenuates purchase intention.

Significance of the Study

This study makes three distinct contributions. Theoretically, it advances the literature on AI-enabled marketing by empirically modeling the simultaneous roles of trust as a mediator and transparency as a moderator within a green marketing context — a configuration not previously tested. Contextually, by situating the study in Uzbekistan's Jizzax region, it addresses a recognized geographic gap in sustainability marketing research, providing evidence from a Central Asian emerging economy where digital infrastructure expansion outpaces regulatory development — a condition that shapes consumer skepticism in ways distinct from developed market findings. Practically, the findings offer specific, evidence-based direction for marketers designing AI-driven sustainability campaigns and for policymakers formulating disclosure standards governing

1. LITERATURE REVIEW

The increasing prominence of sustainability in business strategy has positioned green marketing as a critical mechanism through which firms communicate environmental value to consumers. While earlier work framed green marketing as the integration of ecological considerations into marketing practices (Peattie & Crane, 2005), recent research highlights its role in shaping consumer behaviour under conditions of heightened environmental awareness and skepticism. Despite this evolution, empirical evidence continues to reveal a persistent attitude–behaviour gap, where positive environmental attitudes do not consistently translate into sustainable purchasing decisions (Testa et al., 2021). More recent studies argue that this gap is largely driven by declining trust in corporate sustainability claims, particularly in markets where greenwashing is perceived to be widespread (Nguyen et al., 2024; Zhang & Liu, 2025). These findings suggest that the effectiveness of green marketing is contingent not only on message content but also on the credibility with which it is delivered.

The rapid advancement of artificial intelligence (AI) has introduced new possibilities for enhancing the effectiveness of green marketing through personalization. AI-driven personalization enables firms to tailor sustainability messages based on individual consumer data, thereby increasing relevance and engagement (Huang & Rust, 2021). Contemporary research indicates that such personalization can significantly improve consumer response by aligning marketing stimuli with individual preferences and values (Kumar et al., 2023; Li et al., 2024). However, emerging evidence points to a dual effect. While personalization enhances perceived usefulness, it can simultaneously trigger privacy concerns and perceptions of manipulation, particularly when consumers are unaware of how their data are utilized (Bleier et al., 2020; Chen & Zhang, 2025). This paradox suggests that personalization operates as both a value-creating and risk-inducing mechanism, making its net effect on consumer behaviour context-dependent.

Consumer trust serves as a central mechanism through which these competing effects are reconciled. Rooted in the commitment–trust theory (Morgan & Hunt, 1994), trust reduces perceived uncertainty and facilitates decision-making in complex environments. In green marketing contexts, trust becomes even more critical due to the intangible nature of environmental claims. Empirical studies demonstrate that greenwashing significantly undermines trust, leading to reduced purchase intention and long-term brand disengagement (Delmas & Burbano, 2011; Nyilasy et al., 2014). Recent contributions further emphasize that transparency plays a decisive role in restoring trust, particularly in digitally mediated environments where algorithmic processes are not directly observable (Parguel et al., 2011; Wang et al., 2024). In this regard, transparency can mitigate the negative effects of perceived intrusiveness by clarifying the intent and authenticity of personalized messages.

To integrate these relationships, this study adopts the Stimulus–Organism–Response (SOR) framework (Mehrabian & Russell, 1974), which has gained renewed relevance in digital marketing research (Liu et al., 2024). Within this framework, AI-driven personalization and transparency of green

claims are conceptualized as stimuli, shaping internal cognitive evaluations (organism) such as consumer trust and skepticism. These internal states subsequently influence responses, namely purchase behaviour. Recent applications of the SOR model in AI-enabled environments confirm its suitability for capturing the psychological mechanisms underlying consumer reactions to personalized digital stimuli (Zhang et al., 2024). However, its application to green marketing contexts remains limited, particularly in examining the simultaneous roles of trust as a mediator and transparency as a moderator.

Contextual variation further complicates these dynamics. The majority of existing studies are concentrated in developed economies, where high levels of institutional trust and digital literacy influence consumer responses to AI-driven marketing (Martin & Murphy, 2017). In contrast, emerging economies exhibit distinct characteristics, including evolving regulatory frameworks, varying levels of technological familiarity, and heightened sensitivity to credibility issues (Sharma et al., 2020; Rahman et al., 2024). These differences are particularly relevant in regions such as the Jizzax region of Uzbekistan, where rapid digital transformation is not yet matched by equally robust governance of sustainability claims. As a result, consumer trust may play a more pronounced role in shaping behavioural outcomes compared to developed market contexts.

Despite growing scholarly attention to AI in marketing, green consumer behaviour, and trust mechanisms, their integrated examination remains limited. Specifically, no prior study has simultaneously modeled AI-driven personalization as a stimulus, consumer trust as a mediator, and transparency as a moderating condition within a green marketing framework using a structural modeling approach in an emerging economy context. Addressing this gap, the present study develops and empirically tests a model in which personalization influences purchase behaviour both directly and indirectly through trust, while transparency conditions the strength of these relationships. By doing so, it contributes to a more comprehensive understanding of how AI-mediated sustainability communication shapes consumer behaviour in digitally evolving markets.

2. RESEARCH METHODOLOGY

Research Design

This study adopts a **quantitative, cross-sectional research design** to examine the relationships between AI-driven green marketing personalization, consumer trust, transparency, skepticism, and purchase behaviour. A quantitative approach is appropriate given the study's objective of testing hypothesized relationships using statistical modeling techniques. The research is grounded in the **Stimulus–Organism–Response (SOR) framework**, where personalization and transparency represent stimuli, trust and skepticism function as organism variables, and purchase behaviour constitutes the response.

Study Context and Sampling

The empirical investigation was conducted in the Jizzax region of Uzbekistan, a setting characterized by increasing digital adoption and evolving consumer awareness of sustainability issues. The target population comprised consumers who are exposed to digital marketing and have experience with online purchasing.

A **non-probability convenience sampling technique** was employed due to accessibility considerations and the exploratory nature of the study within an emerging market context. A total **of 200 valid responses** were collected, which meets the minimum sample size requirements for Partial Least Squares Structural Equation Modeling (PLS-SEM), particularly for models with moderate complexity.

Data Collection Procedure

Primary data were collected by a **structured questionnaire** administered both online and in person. Respondents were informed about the purpose of the study and assured of anonymity and confidentiality to reduce response bias. The questionnaire was designed in a clear and concise format to ensure respondent comprehension and completion accuracy.

Measurement of Variables

All constructs in the study were measured using **multi-item scales** adapted from established literature to ensure content validity. Responses were recorded using a **five-point Likert scale** ranging from 1 (strongly disagree) to 5 (strongly agree).

AI-driven Personalization: Measured based on perceived relevance and customization of marketing messages (adapted from Kumar et al., 2023; Bleier et al., 2020)

Consumer Trust: Assessed using items reflecting credibility and confidence in green marketing claims (Morgan & Hunt, 1994)

Transparency: Measured through clarity and openness of environmental information (Parguel et al., 2011)

Perceived Intrusiveness: Captured through respondents' perception of privacy invasion and discomfort (Aguirre et al., 2015)

Consumer Skepticism: Evaluated based on doubt toward marketing claims (Nyilasy et al., 2014)

Purchase Behaviour (Intention): Measured through likelihood of purchasing eco-friendly products (Testa et al., 2021)

Data Analysis Technique

The collected data were analyzed using **Partial Least Squares Structural Equation Modeling (PLS-SEM)** via Smart PLS software. PLS-SEM was selected due to its suitability for:

Complex models involving mediation and moderation
Prediction-oriented research
Relatively small sample sizes
Non-normal data distribution

The analysis followed **a two-step approach:**

Measurement Model Assessment

Reliability: Cronbach's Alpha and Composite Reliability (CR)
Convergent Validity: Average Variance Extracted (AVE)
Discriminant Validity: Fornell–Larcker criterion and HTMT ratio

Structural Model Assessment

Path coefficients (β values)
Significance testing using bootstrapping (t-values, p-values)
Coefficient of determination (R^2)
Effect size (f^2)
Predictive relevance (Q^2)

Ethical Considerations

Ethical standards were strictly maintained throughout the research process. Participation was voluntary, and respondents provided informed consent prior to completing the questionnaire. No personal identifying information was collected, ensuring anonymity and confidentiality. The data were used solely for academic purposes.

3. DATA ANALYSIS AND RESULTS

This section presents the empirical results obtained from the analysis of the survey data (N = 200). The analysis was conducted using **Partial Least Squares Structural Equation Modeling (PLS-SEM)**, following a two-step approach: (1) assessment of the measurement model and (2) evaluation of the structural model.

Descriptive Statistics

The sample consisted of 200 respondents from the Jizzax region of Uzbekistan. The demographic profile indicated a balanced representation in terms of gender and age groups, with the majority of respondents having prior exposure to online shopping and digital marketing platforms. This supports the relevance of the sample for examining AI-driven personalization.

Measurement Model Assessment

Reliability Analysis

The reliability of constructs was assessed using **Cronbach's Alpha (CA) and Composite Reliability (CR).**

Table 1: Reliability Analysis

Construct	Cronbach's Alpha	Composite Reliability
Personalization	0.87	0.91
Trust	0.89	0.92
Transparency	0.85	0.90
Intrusiveness	0.83	0.88
Skepticism	0.86	0.90
Purchase Behaviour	0.88	0.92

All values exceed the recommended threshold of 0.70, indicating **strong internal consistency**.

Convergent Validity

Convergent validity was evaluated using **Average Variance Extracted (AVE)**.

Table 2: Average Variance Extracted

Construct	AVE
Personalization	0.68
Trust	0.71
Transparency	0.65
Intrusiveness	0.63
Skepticism	0.67
Purchase Behaviour	0.70

All AVE values are above 0.50, confirming **adequate convergent validity**.

Discriminant Validity

Discriminant validity was assessed using the **Fornell–Larcker criterion** and **HTMT ratio**.

The square root of AVE for each construct was greater than its correlations with other constructs.

HTMT values were below the threshold of 0.85.

These results confirm **satisfactory discriminant validity**.

Structural Model Assessment

Path Coefficients and Hypothesis Testing

Bootstrapping (5000 resamples) was used to test the significance of relationships.

Table 3: Hypothesis Testing

Hypothesis	Relationship	β	t-value	p-value	Result
H1	Personalization → Purchase Behaviour	0.21	2.85	<0.01	Supported
H2	Personalization → Trust	0.48	7.12	<0.001	Supported
H3	Trust → Purchase	0.42	6.45	<0.001	Supported

Hypothesis	Relationship	β	t-value	p-value	Result
	Behaviour				
H4	Transparency × Personalization → Trust	0.19	2.67	<0.01	Supported
H5	Intrusiveness → Skepticism	0.53	8.01	<0.001	Supported
H6	Skepticism → Purchase Behaviour	-0.31	4.22	<0.001	Supported

All hypothesized relationships are **statistically significant**.

Mediation Analysis

The mediating role of **consumer trust** was tested using indirect effects:

Personalization → Trust → Purchase Behaviour

Indirect effect: $\beta = 0.20$, $p < 0.01$

This indicates **partial mediation**, meaning personalization influences behaviour both directly and indirectly through trust.

Moderation Analysis

Transparency was tested as a moderating variable:

The interaction term (Personalization × Transparency) was significant ($\beta = 0.19$, $p < 0.01$)

This confirms that:

Higher transparency strengthens the positive effect of personalization on trust

Coefficient of Determination (R^2)

Table 4: Coefficient of Determination

Endogenous Variable	R^2
Trust	0.46
Skepticism	0.28
Purchase Behaviour	0.52

Interpretation:

The model explains **52% of variance in purchase behaviour**, indicating **moderate to strong predictive power**

Effect Size (f^2)

Personalization → Trust = 0.32 (medium effect)

Trust → Behaviour = 0.28 (medium effect)

Skepticism → Behaviour = 0.21 (small to medium effect)

Predictive Relevance (Q^2)

Q^2 values for all endogenous constructs were above zero

Confirms **predictive relevance of the model**

4. CONCLUSION AND IMPLICATIONS

Conclusion

This study empirically examined the effect of AI-driven green marketing personalization on consumer trust and purchase behaviour in the Jizzax region of Uzbekistan using a PLS-SEM approach grounded in the Stimulus–Organism–Response (SOR) framework. The findings confirm that AI-driven personalization has a statistically significant positive effect on purchase behaviour; however, this effect is largely indirect and operates through consumer trust.

Specifically, consumer trust emerged as a strong and significant mediating variable, confirming that personalized green marketing messages influence behavioural intention primarily by strengthening perceived credibility and reducing uncertainty. At the same time, transparency was found to significantly moderate the personalization–trust relationship, indicating that personalization is effective only when consumers perceive environmental claims as clear and verifiable.

Conversely, perceived intrusiveness of AI-driven personalization was found to significantly increase consumer skepticism, which in turn negatively affects purchase behaviour. This confirms that AI-based marketing systems generate a dual effect: while they enhance relevance and engagement, they simultaneously risk undermining consumer confidence when perceived as opaque or intrusive.

Overall, the study validates that AI-driven green marketing effectiveness is not technology-driven alone but is fundamentally trust-dependent and transparency-sensitive, particularly in emerging economy contexts where institutional trust is comparatively fragile.

Theoretical Implications

This study contributes to marketing and sustainability literature in three key ways. First, it extends the SOR framework by empirically integrating AI-driven personalization and transparency as stimuli influencing both trust and skepticism simultaneously. Second, it provides robust evidence for the **mediating role of consumer trust** in AI-enabled green marketing environments, addressing a gap in prior research that has largely treated personalization and trust independently. Third, it advances emerging economy literature by demonstrating that in contexts such as Uzbekistan, the behavioral impact of AI-driven marketing is significantly conditioned by perceived transparency and institutional skepticism, thereby limiting the direct effectiveness of technological personalization.

Practical Implications

The findings offer clear implications for practitioners and policymakers.

For marketers, the results indicate that investment in AI-driven personalization should be accompanied by strong transparency mechanisms. Personalized green marketing strategies must explicitly communicate data usage practices and sustainability claims to avoid triggering consumer skepticism. Over-personalization without transparency risks reducing rather than enhancing purchase intention.

For policymakers, the study highlights the need for regulatory frameworks that enforce **clear disclosure standards for AI-based marketing and environmental claims**, particularly to prevent greenwashing in digitally mediated environments.

For firms operating in emerging markets, the findings suggest that building consumer trust should be prioritized over maximizing personalization intensity. Ethical communication and credibility-building mechanisms are essential for sustaining long-term consumer engagement in green markets.

Final Statement

In conclusion, the study demonstrates that AI-driven green marketing is most effective when personalization is balanced with transparency and trust-building mechanisms. Without these conditions, technological advancement alone is insufficient to drive sustainable consumer behaviour.

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