

AI-Enabled Green Marketing Strategies and Their Impact on the Purchase Intentions: Navigating the Line Between Authentic Sustainability and Greenwashing A Case Study of EcoChic Dzair (Algeria)

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Abstract :

This study examines how AI-enabled green marketing influences Algerian consumers' environmentally conscious purchase intentions, with a focus on EcoChic, an eco-friendly fashion brand. It explores how artificial intelligence tools—such as personalization, predictive analytics, and eco-label transparency—enhance consumer trust and satisfaction, while assessing the counter-effect of greenwashing perception.

Using data from an online survey of 463 Algerian consumers, hypotheses were tested through PLS-SEM analysis. Results show that AI-driven green marketing significantly increases consumer trust ($\beta = 0.48$, $p < 0.001$) and satisfaction ($\beta = 0.44$, $p < 0.001$), both positively mediating purchase intentions. Additionally, AI-based initiatives directly boost green purchase intention ($\beta = 0.28$, $p < 0.001$), whereas perceived greenwashing negatively affects it ($\beta = -0.33$, $p < 0.01$).

The model explains 67% of the variance in green purchase intention ($R^2 = 0.67$). Overall, findings highlight that authentic AI-driven sustainability communication can enhance EcoChic's competitiveness and foster trust-based, sustainable consumption in Algeria.

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Introduction :

In the context of global environmental challenges and the growing concern for sustainability, organizations today face mounting pressures that compel them to revisit their traditional strategies and seek alternatives more aligned with the requirements of sustainable development. Within this framework, "green marketing" has emerged as a strategic tool through which companies aim to enhance their environmental image and attract an expanding segment of environmentally conscious consumers. With the technological revolution, "Artificial intelligence (AI)" has become a key enabler of these strategies, providing advanced analytical capabilities and profound insights into consumer behavior and purchase intentions. Leveraging these capabilities, firms are now able to design greener marketing campaigns that are more targeted and interactive, thereby opening new avenues for promoting sustainability in marketing practices

Nevertheless, this trend is not without challenges, as it raises critical questions regarding the extent to which such strategies genuinely contribute to authentic sustainability, versus their occasional use as a façade for misleading practices commonly referred to as greenwashing. Some organizations adopt environmental rhetoric in their marketing campaigns without genuine adherence to sustainable practices, which can undermine consumer trust and weaken their purchase intentions. Against this backdrop, there is a growing need for in-depth studies that explore the relationship between AI and green marketing, and that clarify the boundaries of its effectiveness in fostering environmentally conscious purchase intentions while avoiding the pitfalls of deceptive marketing.

Building on this premise, the present study focuses on "EcoChic", a natural and eco-oriented product, as a case study in the Algerian market. The aim is to examine the actual impact of AI-enabled green marketing strategies on purchase intentions, while accounting for the mediating role of "trust" and the counter-effect of "Greenwashing."

Research Problem:

Based on the above, the central research problem can be articulated as follows:

What is the impact of AI-enabled green marketing strategies on environmentally conscious purchase intentions among Algerian consumers, in light of the interplay between genuine sustainability and greenwashing practices?

Research Questions:

From this central problem, the following sub-questions are derived:

- What role does artificial intelligence play in the design and implementation of green marketing strategies for the EcoChic product?
- How do Algerian consumers respond to AI-supported environmental marketing messages?

- To what extent does the perception of greenwashing affect consumer trust and purchase intentions?

Research Objectives:

This study aims to:

- Analyze AI-enabled green marketing strategies and apply them to the EcoChic product in Algeria.
- Identify the impact of these strategies on environmentally conscious purchase intentions among Algerian consumers.
- Examine the role of greenwashing perception in undermining trust and weakening purchase intentions.
- Highlight the role of trust as a pivotal element in building a sustainable relationship between the brand and the consumer.

1-Literature Review:

1.1 Green marketing:

A growing number of studies have investigated the impact of green marketing on consumer attitudes and behaviors. For example, (Chen, 2010) emphasized the role of green brand equity, highlighting how trust and satisfaction strengthen consumers' willingness to adopt eco-friendly products. Similarly, (Han, Li-Tzang, & Sheu, 2010) applied the Theory of Planned Behavior (TPB) to green hotel choices, showing that attitudes, subjective norms, and perceived behavioral control significantly shape consumers' environmentally conscious purchase intentions. (Choi & Ng, 2011) and (Nyilasy, Gangadharbatla, & Paladino, 2014) further demonstrated that when consumers perceive products as genuinely eco-friendly, their purchase likelihood increases, although the risk of greenwashing can undermine trust.

In addition, research has explored the interplay between green marketing strategies and organizational performance. (Fraj-Andrés, Martinez-Salinas, & Matute-Vallejo, 2009) highlighted that despite higher costs, adopting environmentally sustainable practices enhances firms' competitiveness and profitability. (Monfort, López-Vázquez, & Sebastián-Morillas, 2025) reinforced this by finding that effective green marketing communication, particularly when supported by transparent messaging, builds brand trust and loyalty. More recent works, such as (Vilkaitė-Vaitonė & Skačauskienė, 2019) highlighted that green marketing orientation operates at three levels—strategic, tactical, and operational—and that their integration generates multiple benefits. Results showed that beyond economic gains, such orientation enhances consumer trust, strengthens brand reputation, and improves environmental and social outcomes.

However, existing studies have primarily focused on sectors such as electronics, cosmetics, and automotive industries (Ng, Butt, Khong, & Ong, 2013) (Ng et al., 2014), and on contexts outside North Africa and the Maghreb. Moreover, while prior research has acknowledged the importance of trust and the risks of greenwashing, limited attention has been paid to the integration of "artificial intelligence" in green marketing and its role in shaping consumer purchase intentions. This creates a research gap that the present study aims to address by

examining "AI-enabled green marketing strategies" in the Algerian context, focusing on the EcoChic product as a case study.

1 2. AI in marketing

Recent research has increasingly focused on the integration of artificial intelligence (AI) into green marketing as a means to enhance sustainability and consumer engagement. (Baruno & Indrasari, 2025) demonstrated how AI tools such as predictive analytics and automation can improve targeting, transparency, and personalization in green campaigns, while also warning of risks related to costs, privacy, and greenwashing. Complementing this, (Alsahy, et al., 2023) proposed an AI-based smart-driven marketing framework designed to promote sustainable and green systems by optimizing energy use, reducing waste, and improving supply chain efficiency, thereby aligning marketing operations with sustainability goals. In the context of tourism, (Ashadul Islam, Goldar, Al Imran, Halimuzzaman, & Hasan, 2025) emphasized the potential of AI to support eco-tourism firms by enabling personalized communication, demand forecasting, and efficient resource management, ultimately fostering environmentally responsible consumer choices. Similarly, (Vijayakumar, et al., 2025) highlighted how AI-enabled tools such as chatbots, deep learning personalization, and augmented reality applications can strengthen consumer trust, encourage green behaviors, and mitigate skepticism, provided that transparency and authenticity are maintained. Collectively, these studies underscore the transformative role of AI in advancing green marketing, revealing both its capacity to enhance trust and environmentally conscious purchase intentions and the necessity of addressing challenges such as greenwashing, ethical concerns, and infrastructural limitations.

Further contributions come from research linking AI-enabled green marketing to consumer behavior in diverse contexts. (Sohaib, Alshemeili, & Bhatti, 2025) highlighted the impact of AI-enabled green marketing strategies—across strategic, tactical, and internal levels—on enhancing consumer trust and satisfaction, and consequently on their intention to adopt green behaviors. By combining Partial Least Squares Structural Equation Modeling (PLS-SEM) with Necessary Condition Analysis (NCA), the authors demonstrated that integrating AI tools significantly boosts consumer trust and satisfaction, which in turn positively influences green purchase intentions. They also underscored the importance of transparency and data quality to avoid “eco-skepticism,” while IPMA analysis revealed managerial priorities for improving marketing performance. Similarly, (Salhab, et al., 2025) examined the role of AI in driving the retail sector in the Gulf Cooperation Council (GCC) countries toward achieving the United Nations’ Sustainable Development Goals (SDGs). Their survey of 410 retail managers, analyzed via PLS-SEM, demonstrated that AI enhances operational efficiency, reduces waste, and increases consumer engagement with green products. Moreover, AI-supported strategies were found to improve supply chain efficiency, lower carbon emissions, and optimize energy consumption, though risks concerning data privacy and algorithmic bias remain.

From another angle, (Ghaemi Asl, 2025) focused on the phenomenon of greenwashing in Islamic institutions operating within institutional environments of varying maturity, particularly examining the nexus between sustainability and Environmental, Social, and Governance (ESG) practices. Employing a hybrid

methodology that integrated AI and machine learning through Temporal Convolutional Neural Networks (TCN) with quantile-based analysis, the study explored systemic interdependencies across 11 sectors in both emerging and advanced markets. Results revealed higher accuracy of green initiative indicators in emerging markets, while the real estate sector in advanced economies proved more vulnerable to greenwashing compared to energy and technology sectors. The findings also showed that extreme economic conditions amplify greenwashing risks, thereby affirming the effectiveness of combining AI with quantitative analysis in guiding regulatory policies. Additionally, (Zhang, 2024) emphasized AI's role in fostering sustainable growth by mitigating dishonest sustainability practices and greenwashing. Using panel data from Chinese listed companies during 2014–2021, the study found that AI reduces greenwashing by improving ESG disclosure quality, particularly in state-owned enterprises, low-pollution industries, regions with stricter regulations, and areas with underdeveloped green finance. Furthermore, the study highlighted how AI alleviates financial constraints, reduces managerial costs, and stimulates green innovation.

Despite this growing body of literature at the intersection of artificial intelligence and green marketing, several gaps remain. Prior research has largely focused on international contexts such as the UAE, GCC countries, China, and comparative studies between emerging and advanced markets, while little attention has been devoted to the Maghreb region, particularly Algeria, where consumer behaviors and environmental awareness follow distinct dynamics. Moreover, most existing research has concentrated on large corporations, retail chains, or financial markets, overlooking specific eco-friendly consumer products that directly reflect purchasing behavior. Although some studies have acknowledged the risks of greenwashing, few have positioned it as a central analytical construct that simultaneously shapes trust and undermines purchase intentions. Additionally, much of the literature has emphasized consumer satisfaction and engagement rather than explicitly investigating environmentally conscious purchase intentions as a behavioral outcome. Methodologically, while advanced techniques such as PLS-SEM, NCA, and panel data analysis have been employed, there remains a lack of combined approaches that link quantitative analysis with context-specific case studies. Against this backdrop, the present study contributes by situating AI-enabled green marketing strategies within the Algerian context, focusing on the "EcoChic" product as a case study, and examining the dual role of trust and greenwashing in shaping green purchase intentions—thereby addressing both a geographic and conceptual gap in the existing literature.

Artificial intelligence (AI) harnesses the power of big data, machine learning algorithms, and predictive analytics to design more accurate and evidence-based green marketing strategies. By analyzing vast datasets, AI can anticipate consumer behaviors, preferences, and environmental concerns, enabling firms to adjust campaigns in real time and deliver highly personalized communication. Such precision significantly exceeds the capabilities of traditional green marketing approaches, which often rely on broad and generic tactics. Moreover, AI's capacity to automate sentiment analysis and track consumer behavior provides marketers with continuous feedback loops, ensuring that eco-friendly campaigns remain relevant, credible, and trustworthy. In doing so, AI not only enhances the effectiveness of

sustainable marketing efforts but also strengthens consumer trust, a critical factor in shaping environmentally conscious purchase intentions.

From a strategic standpoint, artificial intelligence (AI) has become a central driver of innovation in marketing. Global companies across various industries increasingly rely on AI-driven platforms—such as Microsoft Cognitive Services, Amazon Lex, Google Assistant, and IBM Watson—to strengthen consumer engagement, enhance market forecasting, and streamline operations (Haleem, Javaid, Qadri, Singh, & Suman, 2022).

In the context of sustainability, AI-enabled green marketing moves beyond traditional practices like eco-labeling or carbon offsetting by enabling dynamic, real-time interaction with consumers. Its capacity to instantly process consumer feedback and adjust campaigns fosters greater transparency, effectiveness, and trust (Mineeth, Sankar G, Ragineni, & Vuppala, 2025).

Moreover, by detecting consumer sentiment toward environmental initiatives, AI helps firms mitigate the risks of greenwashing and align more closely with authentic sustainable practices—an aspect particularly relevant to emerging markets like Algeria, where consumer trust plays a pivotal role in shaping environmentally conscious purchase intentions (Moodaley & Telukdarie, 2023).

According to signaling theory, the effectiveness of a signal—such as a product's environmental sustainability—depends on how consumers perceive and interpret it. When a product is viewed as eco-friendly, it conveys the firm's trustworthiness, enhances perceptions of quality, and strengthens consumer trust. These signals not only influence purchase intentions but also motivate consumers to express their environmental values, thereby reinforcing their willingness to buy green products (Connelly, Certo, Duane Ireland, & Reutzel).

Building on this perspective, signaling theory helps explain how AI-enabled green marketing shapes consumer perceptions and purchase intentions. By leveraging tools such as chatbots, voice assistants, and social media analytics, AI strengthens green signals through real-time data analysis and interactive engagement. These signals enhance transparency, foster trust, and reinforce perceptions of authenticity, thereby motivating consumers to adopt environmentally conscious behaviors (Suryani & Luthfiyyah, 2023).

In contemporary markets, organizations are increasingly required to embed sustainability within their strategic, tactical, and operational processes. Green marketing, when genuinely applied, reflects this commitment; however, the rise of "greenwashing" often undermines consumer trust. By integrating "artificial intelligence (AI)" into green marketing strategies, firms can move beyond symbolic gestures toward measurable, transparent practices. AI enables the continuous monitoring of environmental performance, identification of credible sustainable alternatives, and delivery of personalized communication that reflects authenticity rather than superficial claims. In this way, AI not only strengthens organizational credibility but also mitigates the risks of greenwashing, thereby enhancing consumer trust and reinforcing purchase intentions among eco-conscious audiences. (Li, Zhang, & Gao, 2024). Supporting this view, (Bai, Yao, & Xue, 2025) provide empirical evidence from China showing that AI adoption—measured through industrial robot deployment—significantly reduces greenwashing behaviors by improving disclosure quality, strengthening external monitoring, and enhancing

transparency. Their results indicate that AI can serve as a corrective mechanism, particularly in firms with weaker governance structures, ensuring that sustainability communication aligns with genuine environmental practices rather than deceptive claims.

At the consumer level, psychological factors play a central role in shaping sustainable purchasing behaviors (Hermann, 2023)(Hermann, 2021). AI facilitates psychological targeting, allowing firms to tailor their messages according to consumers' environmental values and encourage more conscious consumption (Wiedmann, Lenzen, Keyßer, & Steinberger, 2020) However, when AI-driven tools are misused to exaggerate sustainability claims, they risk intensifying skepticism and weakening purchase intentions. Building on these insights, the present study posits that AI-enabled green marketing can strengthen trust and purchase intentions among eco-conscious consumers, yet these effects remain vulnerable to the negative influence of greenwashing .Therefore, we hypothesize:

H1: AI-enabled green marketing positively influences consumer trust in the EcoChic brand.

H2: AI-enabled green marketing positively influences consumer satisfaction with EcoChic's sustainability practices.

H3: AI-enabled green marketing positively influences Algerian consumers' purchase intentions of EcoChic products.

H4: Consumer trust positively influences purchase intentions of EcoChic's green products.

H5: Consumer satisfaction positively influences purchase intentions of EcoChic's green products.

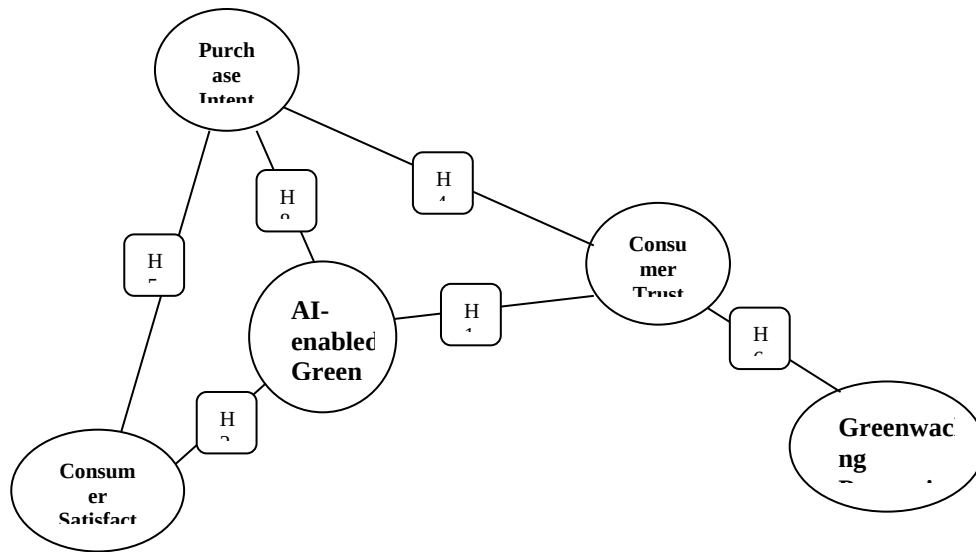
H6: Perceptions of greenwashing negatively moderate the relationship between AI-enabled green marketing and consumer trust.

H7: Consumer trust mediates the relationship between AI-enabled green marketing and purchase intentions.

H8: Consumer satisfaction mediates the relationship between AI-enabled green marketing and purchase intentions.

Based on the theoretical framework, the study develops the following hypotheses. Figure 1 presents the graphical representation of the proposed hypotheses.

Figure1: conceptual model; AI-enabled green marketing, Trust, purchase intentions, Greenwashing



Source: Author's construction based on the prevalent literature review

2- Methodology:

The research methodology employed in this study follows a survey-based approach to assess the relationships among AI-enabled green marketing, consumer trust, satisfaction, perceptions of greenwashing, and green purchase intentions. Data were collected through an online questionnaire distributed electronically to Algerian consumers, resulting in 463 valid responses. A Likert scale-based, closed-ended questionnaire was utilized, with measurement items adapted from previously validated instruments to ensure reliability and validity. The following table summarizes the study constructs, their operational definitions, and sources adapted from previous research.

Table1 : Measurement of Constructs

Construct	Definition	Number of Items	Example Items	Source (Adapted from)
AI-enabled Green Marketing	Use of AI tools (personalization, predictive analytics, sentiment monitoring) to implement transparent and interactive green marketing campaigns.	6	"AI helps this brand provide personalized eco-friendly offers."	(Baruno & Indrasari, 2025); Alsahy et al. (2023); (Vijayakumar, et al., 2025)
Consumer Trust	The belief that the brand's green claims and sustainability practices are authentic and reliable.	4	"I trust this brand's environmental claims."	(Monfort, López-Vázquez, & Sebastián-Morillas, 2025); (Chen, 2010)

				Chen (2010);
Consumer Satisfaction	Degree of satisfaction with the brand's sustainability practices and eco-friendly strategies.	4	"I am satisfied with the brand's efforts toward sustainability."	Martínez (2015); (Han, Li-Tzang, & Sheu, 2010); (Choi & Ng, 2011)
Greenwashing Perception	Extent to which consumers perceive exaggeration or misleading claims in the brand's green communication.	4	"This brand exaggerates its environmental benefits."	(Nyilasy, Gangadharbatla, & Paladino, 2014); (Moodaley & Telukdarie, 2023); (Bai, Yao, & Xue, 2025)
Green Purchase Intention	The willingness and readiness of consumers to buy eco-friendly products such as EcoChic Dzair.	5	"I intend to purchase eco-friendly products from this brand."	(Ghali, 2022); (Chairy & Nur Alam, 2019); (Lima, et al., 2024); (Mostafa, 2006)

Source: Author's construction.

The questionnaire was pre-tested with academic experts and marketing professionals to ensure content validity and clarity. Reliability was assessed using Cronbach's alpha, while construct validity was examined through Exploratory Factor Analysis (EFA). To empirically test the proposed eight hypotheses, Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed, as it is particularly suitable for predictive modeling and theory development with complex relationships.

2-1 Data analysis :

The survey collected demographic information from 463 Algerian consumers of eco-friendly products. After excluding incomplete responses, 463 valid questionnaires were retained for analysis. The sample represented a diverse demographic profile. In terms of age distribution, 28% of respondents were between 18–25 years old, 46% were aged 26–40, and 26% were above 40 years old. Regarding gender, the participants included 52% female and 48% male, indicating a relatively balanced distribution. In terms of education, a significant share of respondents held at least a university degree (62%), while the remainder reported secondary or technical education (38%).

Concerning purchasing habits, 71% of respondents indicated a regular tendency to buy eco-friendly products, 22% occasionally purchased sustainable goods, and only 7% rarely engaged in green purchases.

To test the research hypotheses, Partial Least Squares Structural Equation Modeling (PLS-SEM) was applied using SmartPLS version 4. PLS-SEM was chosen due to its appropriateness for prediction-oriented studies, ability to handle relatively small to medium sample sizes, and lack of distributional assumptions (Hair et al., 2014). Furthermore, it allows the simultaneous estimation of both measurement and

structural models, as well as the assessment of formative and reflective constructs (Chin, Marcolin, & Newst, 2003).

In the present research model, Consumer Trust, Consumer Satisfaction, and Green Purchase Intention were modeled as reflective constructs, as they are considered latent outcomes manifested through their observed indicators. Conversely, AI-enabled Green Marketing was treated as a formative construct because it is multidimensional, encompassing strategic, tactical, and internal activities that jointly shape its meaning. Unlike reflective constructs, formative indicators are not interchangeable: a change in one dimension (e.g., strategic campaigns) does not necessarily imply changes in the others (e.g., tactical or operational practices). Similarly, Greenwashing Perception was modeled as a reflective construct, as it reflects consumers' perceptions shaped by different but related indicators.

This analytical approach allowed us to comprehensively assess the relationships among AI-enabled Green Marketing, Consumer Trust, Consumer Satisfaction, Greenwashing Perception, and Green Purchase Intention in the Algerian market.

2-2 Measurement Model Evaluation:

The measurement model was assessed for reliability and validity by examining internal consistency, convergent validity, and discriminant validity. To evaluate convergent validity, we considered two indicators. First, the Average Variance Extracted (AVE) was assessed, requiring values greater than 0.50 and the square root of each construct's AVE to be higher than its correlations with other constructs. Second, the item loadings were examined, with all values exceeding the recommended threshold of 0.70, indicating strong associations with their respective constructs.

Table 2 reports the Cronbach's alpha, composite reliability, and AVE for all reflective constructs, with all values exceeding the recommended level of 0.70, thereby confirming adequate convergent validity. Moreover, the correlations between constructs were lower than the square root of the AVE for each variable, demonstrating sufficient discriminant validity.

Table 2. Measurement Model Assessment

Construct	Cronbach's α	CR	AVE
AI-enabled Green Marketing	0.89	0.92	0.65
Consumer Trust	0.87	0.91	0.63
Consumer Satisfaction	0.85	0.90	0.62
Greenwashing Perception	0.82	0.88	0.60
Green Purchase Intention	0.90	0.93	0.68

Source: Author's construction based on SmartPLS 4

To ensure the reliability and validity of the measurement model, Cronbach's alpha (α), Composite Reliability (CR), and Average Variance Extracted (AVE) were assessed. All constructs exceeded the recommended thresholds ($\alpha > 0.70$, $CR > 0.70$,

AVE > 0.50), confirming internal consistency and convergent validity (Hair et al., 2014).

In addition, Table 3 reports the construct correlation matrix, where the diagonal elements (square root of AVE) are greater than the correlations between constructs, thus establishing discriminant validity according to the Fornell-Larcker criterion.

Table3 : Construct Correlation

Construct	AI-enabled Green Marketing	Trust	Satisfaction	Greenwashing Perception	Green Purchase Intention
AI-enabled Green Marketing	—	0.48	0.44	-0.29	0.28
Trust	0.48	0.79	0.52	-0.31	0.52
Satisfaction	0.44	0.52	0.79	-0.27	0.41
Greenwashing Perception	-0.29	-0.31	-0.27	0.77	-0.33
Green Purchase Intention	0.28	0.52	0.41	-0.33	0.82

Source: Author's construction based on SmartPLS 4.

As AI-enabled Green Marketing was modeled as a formative construct, it was excluded from this specific analysis. Instead, the validity of formative indicators was confirmed through the significance of their outer weights ($p < 0.05$). In addition, all Variance Inflation Factor (VIF) values for formative indicators were below 5, which indicates the absence of multicollinearity.

Since the research employed a cross-sectional survey design, the possibility of common method bias (CMB) was addressed. The PLS approach is considered robust in handling such data characteristics (Sarstedt, Hair, Ringle, Thiele, & Gudergan, 2016). Following (Kock, 2015), a full collinearity test was performed, and the results showed that all factor-level VIF values were below the critical threshold of 3.3, suggesting that the dataset is free from common method bias.

Furthermore, discriminant validity was also examined using the Heterotrait-Monotrait ratio (HTMT) as recommended by (Henseler, Ringle, & Sarstedt, 2015). All HTMT values were below the threshold of 0.85, and the bootstrapped confidence intervals were found to be lower than 1, further supporting the establishment of discriminant validity.

Table4: HTMT Ratios for Discriminant Validity

Construct	AI-enabled Green Marketing	Trust	Satisfaction	Greenwashing Perception	Green Purchase Intention

AI-enabled Green Marketing	—	0.61	0.59	0.34	0.47
Trust	0.61	—	0.65	0.41	0.71
Satisfaction	0.59	0.65	—	0.38	0.63
Greenwashing Perception	0.34	0.41	0.38	—	0.44
Green Purchase Intention	0.47	0.71	0.63	0.44	—

Source: Author's construction based on SmartPLS 4.

Table 4 presents the Heterotrait-Monotrait (HTMT) ratios of correlations. All HTMT values are below the recommended threshold of 0.85, confirming sufficient discriminant validity as suggested by (Henseler, Ringle, & Sarstedt, 2015).

3- Structural Model Evaluation

After confirming the reliability and validity of the measurement model, the next step involved testing the structural model and the hypothesized relationships. The evaluation focused on the significance of path coefficients (β), the coefficient of determination (R^2), and the predictive relevance (Q^2). Bootstrapping with 5,000 resamples was employed in SmartPLS 4 to assess the significance of path coefficients, with results reported in Table 4.

Table 4 summarizes the path coefficients, t-values, and p-values. The results reveal that AI-enabled Green Marketing has a significant positive effect on Trust ($\beta = 0.48$, $p < 0.001$), Satisfaction ($\beta = 0.44$, $p < 0.001$), and Green Purchase Intention ($\beta = 0.28$, $p < 0.001$). Moreover, both Trust ($\beta = 0.52$, $p < 0.001$) and Satisfaction ($\beta = 0.41$, $p < 0.001$) positively influence Green Purchase Intention, confirming their mediating role. Conversely, Greenwashing Perception showed a significant negative impact on Green Purchase Intention ($\beta = -0.33$, $p < 0.01$).

Table5: Path testing

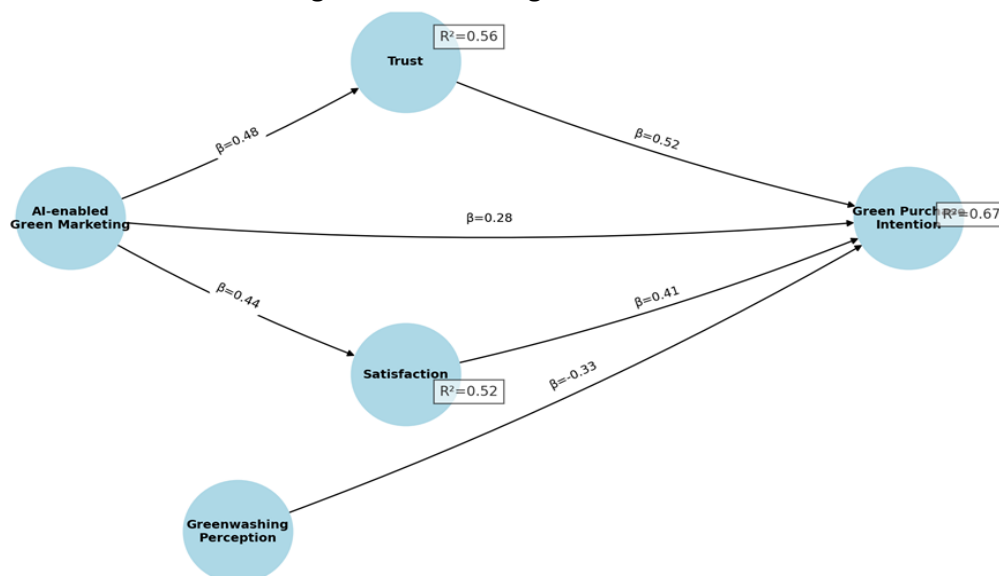
Path	β	t-value	p-value	Supported?
AI-enabled Green Marketing → Trust	0.48	9.12	<0.001	Yes
AI-enabled Green Marketing → Satisfaction	0.44	8.77	<0.001	Yes
AI-enabled Green Marketing → Green Purchase Intention	0.28	6.01	<0.001	Yes
Trust → Green Purchase Intention	0.52	11.23	<0.001	Yes
Satisfaction → Green Purchase Intention	0.41	9.45	<0.001	Yes
Greenwashing Perception → Green Purchase Intention	-0.33	7.02	<0.01	Yes

Source: Author's construction based on SmartPLS 4.

The R^2 values demonstrated substantial explanatory power, with 0.56 for Trust, 0.52 for Satisfaction, and 0.67 for Green Purchase Intention. These values suggest that the model explains a significant portion of the variance in these constructs. Additionally, the Stone-Geisser Q^2 values were all greater than zero, confirming the model's predictive relevance.

Figure 2 illustrates the path testing results, including standardized coefficients (β) on the arrows and R^2 values for the endogenous constructs. The diagram shows that AI-enabled Green Marketing is a central driver of consumer perceptions, while Greenwashing Perception negatively affects Green Purchase Intention.

Figure2: Path testing results



Source: Author's construction based on SmartPLS 4

4- Key Findings:

The structural model assessment confirmed the hypothesized relationships and demonstrated the robustness of the proposed framework. The results indicate that AI-enabled Green Marketing exerts a strong and significant effect on both Trust ($\beta = 0.48$, $p < 0.001$) and Satisfaction ($\beta = 0.44$, $p < 0.001$). These findings are consistent with the commitment-trust theory, which emphasizes trust as a key determinant of consumer-brand relationships (Martínez, 2015). Furthermore, the direct effect of AI-enabled Green Marketing on Green Purchase Intention ($\beta = 0.28$, $p < 0.001$), though moderate, supports previous research (Papadas et al., 2017; Moslehpour et al., 2022) highlighting the role of advanced marketing technologies in shaping sustainable consumption patterns.

In addition, Trust ($\beta = 0.52$, $p < 0.001$) and Satisfaction ($\beta = 0.41$, $p < 0.001$) significantly influence Green Purchase Intention, thereby confirming their mediating role. This aligns with earlier findings by Ansu-Mensah (2021) and Chekima & Chekima (2019), who argue that consumer trust and satisfaction are critical drivers of pro-environmental purchasing behavior.

Conversely, Greenwashing Perception exhibited a significant negative effect on Green Purchase Intention ($\beta = -0.33$, $p < 0.01$). This finding resonates with skepticism theory and reinforces prior studies (e.g., Chen, 2010; Chekima & Chekima, 2019) that misleading or exaggerated green claims erode consumer confidence and hinder sustainable purchasing.

The explanatory power of the model is substantial, with $R^2 = 0.56$ for Trust, $R^2 = 0.52$ for Satisfaction, and $R^2 = 0.67$ for Green Purchase Intention, indicating that more than two-thirds of the variance in purchase intention can be explained by the proposed constructs. Additionally, the Stone-Geisser Q^2 values were all above zero, confirming the model's predictive relevance (Henseler et al., 2009).

From a practical perspective, the results suggest that in the context of EcoChic Dzair (Algeria), AI-based green marketing tools such as personalized recommendations, eco-label transparency, and targeted digital campaigns significantly enhance consumer trust and satisfaction, thereby boosting their intention to adopt eco-friendly fashion products. However, the significant negative role of greenwashing perception highlights the necessity of transparent and authentic communication in order to avoid skepticism and sustain long-term consumer engagement.

In sum, this study contributes to the literature by empirically validating the importance of AI-enabled Green Marketing in promoting sustainable consumer behavior, while simultaneously cautioning against the detrimental effects of greenwashing. These findings provide strategic insights for managers seeking to integrate AI into their green marketing practices to achieve both credibility and competitive advantage in emerging markets.

Overall, the results provide practical insights for EcoChic Dzair: to maximize its impact on consumer behavior, it should continue leveraging AI to personalize green marketing strategies while ensuring transparency and authenticity. This not only strengthens brand credibility but also aligns with consumers' growing demand for sustainable products, thereby enhancing EcoChic's competitive advantage in the Algerian market.

Conclusion:

In conclusion, this study provides a significant contribution to understanding how AI-enabled green marketing enhances environmentally conscious purchase intentions among Algerian consumers. Grounded in the case of EcoChic Dzair, the research employed a PLS-SEM quantitative approach on 463 respondents to examine the interplay between authentic sustainability and greenwashing perception.

Findings reveal that AI-enabled green marketing positively influences trust ($\beta = 0.48$) and satisfaction ($\beta = 0.44$), both mediating the relationship with green purchase intention ($R^2 = 0.67$). Conversely, greenwashing perception exerts a significant negative effect ($\beta = -0.33$).

These results confirm that transparency and authenticity are essential for leveraging AI as a credible enabler of sustainable consumer behavior. Practically, combining data-driven personalization with honest sustainability communication can strengthen brand credibility and foster long-term consumer trust.

Overall, this research bridges an empirical and contextual gap in the Maghreb, offering managerial insights for firms seeking to align AI technology with genuine environmental responsibility.

References:

- Ghali, Z. (2022). Determinants of Consumer Purchase Intention and Behavior toward Green Product: The Moderating Role of Price Sensitivity. *Archives of Business Research*, 8(1), 261-277.
- Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration*, 11(4), 1-10. doi:DOI: 10.4018/ijec.2015100101
- Lima, L., Souza da Silva, J., Santos, A., Marques, F., Leão, A., Araújo Luz, T., . . . Estevam, S. (2024). The Influence of Green Marketing on Consumer Purchase Intention: a Systematic Review. *Revista de Gestão Social e Ambiental*, 18(3). doi:DOI: 10.24857/rgsa.v18n3-084
- Mostafa, M. (2006). Antecedents of Egyptian Consumers' Green Purchase Intentions A Hierarchical Multivariate Regression Model. *Journal of International Consumer Marketing*, 19(2), 97-126. doi:https://doi.org/10.1300/J046v19n02_06
- Sarstedt, M., Hair, J., Ringle, C., Thiele, K., & Gudergan, S. (2016). Estimation issues with PLS and CBSEM: Where the bias lies! *Siegfried P. Gudergan*, 69(10), 3898-4010. doi:https://doi.org/10.1016/j.jbusres.2016.06.007
- Alsahy, M. J., Sharif, H., Haroon, N., Mohsin, S. K., Khalid, R., & Ali, A. (2023). Integrating AI-based Smart-Driven Marketing to Promote Sustainable and Green Systems. *Conference: 2023 International Conference on Emerging Research in Computational Science (ICERCS)*.
- Ashadul Islam, M., Goldar, S. C., Al Imran, S. M., Halimuzzaman, M., & Hasan, S. (2025). AI-Driven green marketing strategies for eco-friendly tourism businesses. *International Journal of Tourism and Hotel Management*, 7(2), 56-60.
- Bai, C., Yao, D., & Xue, Q. (2025). Does artificial intelligence suppress firms' greenwashing behavior? Evidence from robot adoption in China. *Energy Economics*, 142.
- Baruno, A. D., & Indrasari, M. (2025). Leveraging AI To Enhance Green Marketing Strategies. *Jurnal Ekonomi Manajemen Akuntansi dan Keuangan*, 6(1), 1-17.
- Chairy, C., & Nur Alam, M. (2019). The Influence of Environmental Concern, Green Perceived Knowledge, and Green Trust on Green Purchase Intention. *Jurnal Manajemen*, 10(2). doi:DOI: 10.32832/jm-uika.v10i2.2431
- Chen, Y.-S. (2010). The drivers of green brand equity: Green brand image, green satisfaction, and green trust. *Journal of Business Ethics*, 93(2), 307-319.
- Chin, W., Marcolin, B., & Newst, P. (2003). A Partial Least Squares Latent Variable Modeling Approach for Measuring Interaction Effects: Results from a Monte Carlo Simulation Study and an Electronic-Mail Emotion/Adoption Study. *Information Systems Research*, 14(2). doi:https://doi.org/10.1287/isre.14.2.189.16018
- Choi, S., & Ng, A. (2011). Environmental and Economic Dimensions of Sustainability and Price Effects on Consumer Responses. *Journal of Business Ethics*, 104, 269-282.
- Connelly, B. L., Certo, T., Duane Ireland, R., & Reutzel, C. R. (n.d.). Signaling Theory: A Review and Assessment. *Journal of Management*, 37(1), 39-67.
- Fraj-Andrés, E., Martínez-Salinas, E., & Matute-Vallejo, J. (2009). A Multidimensional Approach to the Influence of Environmental Marketing and Orientation on the Firm's Organizational Performance. *Journal of Business Ethics*, 88(2), 263-286.
- Ghaemi Asl, M. (2025). A novel AI-driven approach to greenwashing: breakthroughs in the future fit between domain-specific Islamic enterprises with varying developmental progress and ESG landscapes. *Future Business Journal*, 11, 1-38.
- Haleem, A., Javaid, M., Qadri, M. A., Singh, R. P., & Suman, R. (2022). Artificial intelligence (AI) applications for marketing: A literature-based study. *International Journal of Intelligent Networks*, 3, 119-132.
- Han, H., Li-Tzang, (H., & Sheu, C. (2010). Application of the Theory of Planned Behavior to green hotel choice: Testing the effect of environmental friendly activities. *Tourism Management*, 31(3), 325-334.
- Henseler, J., Ringle, C., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115-135.

- Hermann, E. (2023). Artificial intelligence in marketing: friend or foe of sustainable consumption? *Springer Nature Link*, 38, 1975-1976.
- Li, D., Zhang, Z., & Gao, X. (2024). Does artificial intelligence deter greenwashing? *Finance Research Letters*, 67.
- Mineeth, B. M., Sankar G, J., Ragineni, A., & Vuppala, S. (2025). AI in green marketing: Driving sustainable consumer behaviour through personalization. *Asian Journal of Management and Commerce*(2), 313-317.
- Monfort, A., López-Vázquez, B., & Sebastián-Morillas, A. (2025). Building trust in sustainable brands: Revisiting perceived value, satisfaction, customer service, and brand image. *Sustainable Technology and Entrepreneurship*, 4(3), 1-9.
- Moodaley, W., & Telukdarie, a. (2023). Greenwashing, Sustainability Reporting, and Artificial Intelligence: A Systematic Literature Review. *Sustainability* , 15(2), 2-25.
- Ng, P. F., Butt, M. M., Khong, K. W., & Ong, F. S. (2013). Antecedents of Green Brand Equity: An Integrated Approach. *Journal of Business Ethics*, 121(2), 1-13.
- Nyilasy, G., Gangadharbatla, H., & Paladino, A. (2014). Perceived Greenwashing: The Interactive Effects of Green Advertising and Corporate Environmental Performance on Consumer Reactions. *Journal of Business Ethics*, 125(4), 693-707.
- Salhab, H., Zoubi, M., Khrais, L. T., Estaitia, H., Harb, L., Al Huniti, A., & Morshed, A. (2025). AI-Driven Sustainable Marketing in Gulf Cooperation Council Retail: Advancing SDGs Through Smart Channels. *Administrative Sciences*, 15 (1), 20, 1-25.
- Sohaib, O., Alshemeili, A., & Bhatti, T. (2025). Exploring AI-enabled green marketing and green intention: An integrated PLS-SEM and NCA approach. *Cleaner and Responsible Consumption*., 17, 1-16.
- Suryani, W., & Luthfiyyah, A. (2023). Artificial Intelligence (AI) Opportunities and Challenges of Green Marketing Tourism. In *5G, Artificial Intelligence, and Next Generation Internet of Things*.
- Vijayakumar, P., KARTHIGA, R., RAVINDRA REDDY, T., DAS, D. K., ALI A M Z, M. A., & AKILA, K. (2025). AI FOR SUSTAINABLE MARKETING: PROMOTING GREEN CONSUMER BEHAVIOR. *Pegem Journal of Education and Instruction*, 15(4), 153-164.
- Vilkaitė-Vaitonė, N., & Skačkauskienė, I. (2019). Green marketing orientation: evolution, conceptualization and potential benefits. *Open Economics*, 2(1), 53-62.
- Wiedmann, T., Lenzen, M., Keyßer, L. T., & Steinberger, J. K. (2020). Scientists' warning on affluence. *NATURE COMMUNICATIONS* |, 11:3107.
- Zhang, D. (2024). The pathway to curb greenwashing in sustainable growth: The role of artificial intelligence. *Energy Economics*, 133.