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Mapping Research Trends On Artificial Intelligence And Green Marketing Strategies In Shaping Sustainable Consumer Behavior: A Systematic Literature Review

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Abstract: *The convergence of Artificial Intelligence (AI) and green marketing has become a pivotal topic in shaping sustainable consumer behavior amid global digital transformation and environmental challenges. However, previous studies remain fragmented, focusing separately on technological efficiency or environmental ethics without providing an integrated understanding of their intersection. This study aims to map and analyze global research trends on the integration of AI and green marketing strategies in influencing sustainable consumer behavior. Using a Systematic Literature Review (SLR) approach guided by the PRISMA protocol, this research systematically identified, screened, and synthesized peer-reviewed articles published between 2015 and 2025 across leading academic databases such as Scopus and Google Scholar. The analysis reveals an evolutionary trajectory of research from conceptual frameworks and ethical foundations toward data-driven personalization, transparency, and algorithmic accountability. Findings show that AI is increasingly recognized not only as a technological enabler but also as a strategic and ethical catalyst capable of enhancing consumer awareness, credibility, and engagement in sustainability-oriented marketing ecosystems. This synthesis highlights a paradigm shift where intelligent systems contribute to behavioral transformation by aligning digital innovation with ecological responsibility. The study concludes that integrating AI and green marketing provides a new framework for ethical, data-informed, and sustainability-driven marketing practices that support both environmental goals and consumer well-being.*
Keywords: *Artificial Intelligence, Green Marketing, Sustainable Consumer Behavior, Digital Transformation, Ethical Marketing.*

INTRODUCTION

The rapid development of digital technology has brought about a fundamental transformation in nearly all aspects of human life, including how companies interact with consumers and design their marketing strategies. In the era of the Fourth Industrial Revolution, Artificial Intelligence (AI) has emerged as a key catalyst in the global digital transformation of businesses. AI is no longer merely a technical tool; it has become a strategic component that reshapes paradigms of decision-making, product design, and communication between brands and consumers (Bachmann et al., 2022). Through machine learning algorithms and big data analytics,

AI enables marketers to better understand consumer behavior, predict purchasing trends, and create personalized experiences on an unprecedented scale. In the context of sustainability, AI's potential extends even further supporting energy efficiency, green supply chain management, and the optimization of environmentally conscious communication strategies (Mubarak et al., 2021).

The increasing awareness of environmental issues has given rise to a new business paradigm known as green marketing. This concept emphasizes the integration of sustainability values into corporate marketing strategies through eco-friendly products, resource efficiency, and environmental communication that nurtures consumer ecological awareness (Madan & Ashok, 2024). As climate challenges intensify and environmentally conscious consumers demand greater accountability, businesses are compelled to combine AI-driven insights with green marketing principles to shape more sustainable consumption behavior. This integration offers an innovative approach where technology facilitates informed consumer decisions while reinforcing sustainability messages through dynamically tailored content. However, despite growing scholarly attention, the extent to which AI and green marketing strategies have been jointly explored and how this integration influences sustainable consumer behavior remains fragmented and insufficiently mapped.

Recent phenomena reveal a shift toward environmentally conscious consumer behavior, yet a persistent gap remains between intention and action. Consumers often express concern for environmental issues but continue to choose unsustainable products due to factors such as price, convenience, or lack of credible information (Guetz & Bidmon, 2022). Businesses have responded with green marketing campaigns, but many fail to achieve meaningful impact because their messages are generic, poorly targeted, or even perceived as greenwashing. Within this context, AI offers a promising solution by analyzing individual preferences, personalizing sustainability messages, and enhancing both credibility and relevance in green communication. Nevertheless, research exploring the synergy between AI and green marketing in influencing sustainable consumer behavior remains fragmented, dispersed across disciplines, and tends to focus more on technological aspects than behavioral transformation.

Globally the AI marketing technology market is projected to reach over USD 107 billion by 2028 (Jones & Brown, 2025), with an annual growth rate exceeding 28%. Only a small fraction of these investments focus on AI for sustainability or green marketing integration. (Mubarok, Sari,

Wibowo, 2025) survey revealed that 73% of global consumers are willing to change consumption habits to reduce environmental impact, yet only 33% of large corporations have adopted digitally integrated green marketing strategies. We Are Social reported a significant rise in environmentally oriented digital consumption, with 52% of social media users stating they are influenced by sustainability campaigns online. Public trust in corporate green claims remains low only 41% (Hamzaj, 2025). This data indicates that while AI has vast potential to support green marketing strategies, its practical use in shaping sustainable consumer behavior remains limited and academically underexplored. Thus, a systematic mapping of global research trends, dominant themes, and directions at the intersection of AI, green marketing, and sustainability-driven consumer behavior is urgently needed.

Several prior studies have examined the relationship between artificial intelligence and sustainability in marketing contexts. (Abrokwah-Larbi & Awuku-Larbi, 2024) investigated the influence of AI-based personalization on green purchase intention, finding that algorithm-driven personalization strengthens emotional connections between consumers and eco-friendly products. (Raghav et al., 2023) highlighted the role of AI in fostering green innovation and operational efficiency within circular economy frameworks, though they emphasized persistent challenges regarding ethical transparency. (Liao et al., 2020) conducted a bibliometric review and found that research on AI and green marketing has surged since 2020, coinciding with the global rise of sustainability awareness. However, most of these studies focus on technological innovation and corporate efficiency rather than on how AI and green marketing jointly shape individual sustainable consumption behavior. This gap underscores the need for a more comprehensive and integrative systematic review.

Several research gaps underpin this study. A conceptual gap exists because no comprehensive theoretical framework yet explains the synergistic relationship between Artificial Intelligence (AI), green marketing, and sustainable consumer behavior. Most prior research remains fragmented AI studies emphasize efficiency and behavioral prediction, while green marketing research focuses on ecological awareness and ethical values. A methodological gap also appears, as few studies have systematically synthesized cross-disciplinary findings, leading to limited understanding of how AI and green marketing intersect globally. Furthermore, a practical gap persists due to the limited application of AI-driven green marketing strategies in developing

countries such as Indonesia. The novelty of this study lies in its systematic effort to map and synthesize global research on the integration of AI and green marketing in shaping sustainable consumer behavior, providing both theoretical insights and practical implications for developing adaptive, ethical, and sustainability-oriented marketing strategies.

2. Literature Review

2.1. Artificial Intelligence

Artificial Intelligence (AI) has emerged as one of the most transformative forces in the contemporary digital economy, reshaping decision-making, value creation, and consumer interaction across industries. In the marketing domain, AI enables firms to move beyond traditional data analytics toward intelligent systems capable of learning, adapting, and autonomously optimizing marketing decisions in real time (Ayanwale & Ndlovu, 2024). Through machine learning, natural language processing, and predictive analytics, AI enhances customer relationship management, facilitates hyper-personalization, and improves operational efficiency by interpreting vast unstructured datasets that were previously inaccessible to human cognition (Daly et al., 2025). Moreover, recent studies highlight AI's role in strengthening sustainability-oriented business models by enabling energy optimization, circular production, and eco-conscious consumer engagement through precision targeting and behavioral insights (Emmanuel Adeyemi Abaku et al., 2024). Despite its immense potential, AI adoption raises ethical and transparency concerns particularly related to algorithmic bias, data privacy, and the humanization of decision systems which require governance frameworks to ensure that AI-driven marketing contributes to both corporate performance and societal well-being. Thus, AI in marketing represents not merely a technological tool but a strategic paradigm that integrates automation, intelligence, and ethics to drive sustainable value creation in the digital era.

2.2. Green Marketing

Green marketing has evolved into a strategic imperative for businesses seeking to align profitability with environmental responsibility in the era of sustainability-driven consumerism. Rooted in ecological consciousness and corporate social responsibility, green marketing emphasizes the design, promotion, and distribution of products and services that minimize

environmental harm while enhancing perceived green value among consumers (Rossolini et al., 2021). Contemporary studies reveal that effective green marketing extends beyond eco-labeling or superficial green claims it requires authentic integration of environmental ethics into the firm's value proposition, supported by transparent communication and sustainable supply chain practices (Rizqiningsih & Widodo, 2021). The rise of digital platforms has further transformed green marketing dynamics by enabling data-driven segmentation, personalized sustainability narratives, and interactive consumer engagement that fosters trust and behavioral change (Nekmahmud & Fekete-Farkas, 2020). Scholars caution that "greenwashing" remains a critical threat undermining consumer confidence, highlighting the need for regulatory oversight and the alignment of marketing discourse with verifiable environmental performance (Gil-Gomez et al., 2020). Ultimately, green marketing in the contemporary context represents not only a competitive differentiator but also a moral and strategic framework through which firms contribute to the transition toward a low-carbon, resource-efficient, and ethically conscious global economy.

2.3. Sustainable Consumer Behavior

Sustainable consumer behavior represents a multidimensional construct encompassing individuals' decision-making processes that consciously balance personal needs with long-term environmental, social, and economic sustainability (Jacobson & Harrison, 2022). It extends beyond the mere act of purchasing eco-friendly products, encompassing attitudes, values, and lifestyle choices that reduce ecological footprints while promoting ethical consumption patterns (Tanveer et al., 2021). Scholars argue that such behavior is shaped by the interplay between internal factors such as environmental concern, moral norms, and perceived consumer effectiveness and external enablers, including policy incentives, social influence, and digital communication (Chen et al., 2020). In contemporary markets, technological advancements and data-driven marketing have amplified consumers' exposure to sustainability narratives, influencing both cognitive and affective pathways toward green purchasing intentions (Wijekoon & Sabri, 2021). Nevertheless, a persistent "attitude–behavior gap" continues to challenge the translation of environmental concern into consistent pro-sustainability actions, suggesting that structural barriers and psychological trade-offs still constrain sustainable consumption. Consequently, understanding sustainable consumer behavior demands an integrative approach that

bridges behavioral science, marketing ethics, and technological innovation to foster enduring shifts toward responsible and regenerative consumption.

METHOD

This study employs a Systematic Literature Review (SLR) approach designed to provide a structured, transparent, and replicable synthesis of previous research on the intersection of Artificial Intelligence (AI), green marketing, and sustainable consumer behavior. The SLR method was chosen because it allows for a comprehensive understanding of existing knowledge, identification of conceptual patterns, and recognition of research gaps within a specific domain (J. W. Creswell & Creswell, 2023). The review process follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol, which includes four key stages: identification, screening, eligibility, and inclusion (Haddaway et al., 2022). In the identification phase, academic articles were systematically collected from major scientific databases such as Scopus and Google Scholar using a combination of keywords “Artificial Intelligence,” “Green Marketing,” “Sustainable Consumer Behavior,” “Digital Marketing Sustainability,” and “Environmental Awareness.” Boolean operators (AND, OR) were applied to refine searches and ensure comprehensive coverage. The inclusion criteria were limited to peer-reviewed journal articles published between 2015 and 2025, written in English, and directly addressing the relationship between AI applications in marketing and sustainability-oriented consumer behavior (J. W. Creswell & Creswell, 2018).

The screening and eligibility phases involved a thorough evaluation of abstracts, titles, and full texts to exclude duplicates, conference papers, and studies lacking empirical or theoretical relevance to the research objectives. The final dataset was then subjected to qualitative synthesis, focusing on thematic categorization to identify recurring patterns, conceptual linkages, and emerging research directions. Each article was analyzed in terms of its research focus, methodology, theoretical foundation, and key findings to ensure methodological rigor and analytical depth (J. Creswell, 2017). Through this systematic process, the study not only consolidates fragmented insights but also highlights underexplored areas where AI and green marketing converge in shaping sustainable consumer behavior. Ultimately, the SLR method

enables the development of a coherent academic map that contributes to theoretical advancement and practical guidance for future research and managerial strategies in sustainable digital marketing.

RESULT AND DISCUSSION

In the evolving landscape of global sustainability and digital transformation the convergence of Artificial Intelligence (AI) and green marketing represents one of the most profound paradigm shifts in contemporary marketing thought. This intersection embodies the meeting point between technological rationality and ecological consciousness, where algorithms not only predict consumer choices but also help reimagine how businesses cultivate responsibility, authenticity, and long-term value. As societies transition toward greener economies and data-driven cultures, AI has emerged as both a catalyst and a compass guiding marketers to integrate precision analytics with moral imperatives of sustainability. Within this dynamic interplay, sustainable consumer behavior becomes more than a behavioral outcome; it reflects a systemic evolution of ethics, innovation, and digital engagement. The academic discourse surrounding this nexus has matured through years of theoretical experimentation and empirical refinement, tracing a journey from early conceptual frameworks to sophisticated explorations of personalization, transparency, and environmental stewardship.

The literature established the conceptual foundation of green marketing and opened the door for the application of Artificial Intelligence (AI) in marketing. (Kumar, 2016) a study frequently cited during this period emphasized that green marketing must integrate environmental ethics into the value proposition rather than merely focusing on labeling. (Khan et al., 2018) demonstrated that the authenticity of environmental commitment and the consistency of sustainable supply chains significantly influence consumer trust. (Ogallo, 2018) (whose ideas began gaining traction prior to 2018) mapped the role of AI in data-driven marketing decision-making, while (Williamson, 2018) highlighted the interplay of internal and external factors that drive sustainable consumption. The combination of these perspectives formed an initial bridge: AI as an *information enabler* and green marketing as a *value framework*, although few studies at the time examined both simultaneously in relation to consumer behavior.

Entering the acceleration phase, research began to shift toward machine learning–based personalization as a means to close the gap between attitude and behavior. (Chindasombatcharoen et al., 2024) underscored the psychological barriers that often hinder green decision-making insights that were later addressed by personalization-oriented studies. (Mele et al., 2021) mapped behavioral intervention strategies such as nudging, framing, and information simplification, which align with positioning AI as an architect of choice. In parallel, studies on AI applications in digital marketing revealed that adaptive recommendations and micro-segmentation enhance the relevance of green messages at the point of decision (as reflected in early discussions by (Herawati et al., 2023), and subsequent practical implementations in digital marketing research). (Seele & Schultz, 2022) whose work resurfaced prominently in later citations warned of the risks of greenwashing, prompting researchers to explore mechanisms for claim validation and information accuracy when AI is employed to amplify marketing messages. Consequently, the literature's focus began to shift from "AI for efficiency" toward "AI for responsible persuasive effectiveness."

(Hauman & Shah, 2022) emphasized the role of Artificial Intelligence (AI) in driving green innovation and operational efficiency, while simultaneously highlighting critical challenges related to transparency, bias, and accountability. (Lee et al., 2022) demonstrated that perceived green value increases when sustainability messages are supported by verified environmental performance and consistent brand communication across multiple channels. In the context of digital engagement, recent studies have shown that interactive participation such as comments, user-generated content (UGC), and brand communities strengthens pro-environmental social norms, allowing AI-driven personalization to operate not only through cognitive pathways (information relevance) but also through affective–social mechanisms (sense of belonging and green identity). At this stage, good practice standards demand explainability and privacy-by-design to ensure that personalization enhances rather than erodes consumer trust a key prerequisite for the adoption of sustainable behavior.

Recent literature has shifted toward the use of Generative AI (GenAI) to create adaptive sustainability narratives and provide decision-support systems for consumers, while simultaneously tightening claim verification and supply chain traceability. Bag et al. (2021) highlighted AI's contribution to resource optimization and the circular economy, which was later expanded by recent studies (Onyeaka et al., 2023) toward the use of predictive and textual models

to filter green misinformation and disinformation circulating on digital media. At the same time, (Ahmed et al., 2025) demonstrated the effectiveness of digital segmentation and data-driven storytelling in fostering green purchase intention, while contextual research in developing countries emphasized gaps in digital infrastructure, data literacy, and purchasing power as moderators of AI's impact on consumer behavior. The emerging direction places strong emphasis on data reliability, algorithmic auditing, and cultural alignment as prerequisites for ensuring that AI-enabled green marketing truly transforms consumer behavior rather than merely enhancing campaign impressions.

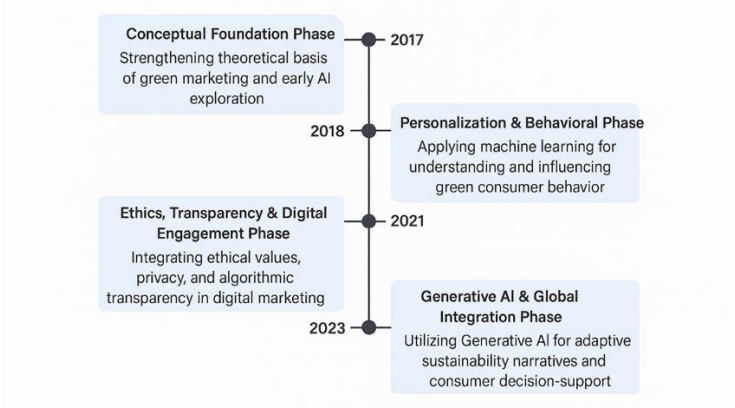

Figure 2. *Evolution of AI and Green Marketing in Shaping Sustainable Consumer Behavior (2015-2025)*

Period / Year	Research Focus and Direction	Dominant Research Characteristics	Key Conceptual Contributions
2015–2017 (Conceptual Foundation Phase)	Strengthening the theoretical basis of green marketing and exploring the early application of AI in marketing.	Conceptual and descriptive approaches; focus on ethical values and consumer trust toward green products.	Green marketing defined as a value-driven strategy; AI recognized as a data-supporting analytical tool.
2018–2020 (Personalization & Behavioral Phase)	Application of machine learning to understand and influence green consumer behavior.	Experimental and behavioral survey approaches; focus on personalization and closing the attitude–behavior gap.	AI positioned as a choice architect that ethically and contextually influences green purchasing decisions.
2021–2022 (Ethics, Transparency & Digital	Integration of ethical values, privacy, and algorithmic transparency in	Empirical and interdisciplinary analyses; focus on accountability and	AI functions as a moral enabler and engagement enhancer that strengthens pro-environmental social norms.

Engagement Phase)	digital green marketing.	digital consumer engagement.	
2023–2025 (Generative AI & Global Integration Phase)	Utilization of Generative AI for adaptive sustainability narratives and consumer decision-support systems.	Systemic and cross-regional approaches; focus on green claim verification, data reliability, and developing-country contexts.	AI and green marketing reach a synergistic phase where data reliability, algorithmic auditability, and cultural alignment form the foundation for global sustainable behavior.

Table 1. *The Evolution of The Relationship between Artificial Intelligence (AI) and Green Marketing in Shaping Sustainable Consumer Behavior (2015-2025)*
Researcher Processed Data (2025)

Overall the evolution of the relationship between Artificial Intelligence (AI) and green marketing strategies in shaping sustainable consumer behavior reflects a continuous intellectual and technological progression from conceptual exploration to strategic integration. Initially, the two domains developed in parallel AI advancing as a tool for data-driven decision-making and automation, while green marketing emerged as a response to ethical and environmental imperatives within consumer markets. Over time, their intersection has become increasingly synergistic: AI began to enhance the credibility, personalization, and effectiveness of sustainability-oriented marketing campaigns, transforming static environmental messages into dynamic, data-informed narratives that resonate with individual consumer values. As the discourse matured, scholars moved beyond efficiency and personalization to emphasize transparency, trust, and accountability, positioning AI not only as a technological enabler but as a moral agent within sustainable marketing ecosystems. The latest wave of research introduces Generative AI and advanced analytics to craft adaptive sustainability storytelling, ensure claim verification, and strengthen behavioral alignment with ecological goals. Collectively, this progression illustrates how AI and green marketing have co-evolved from distinct conceptual origins to a deeply interconnected framework that defines the future of ethical, data-driven, and sustainability-oriented consumer engagement.

Evolution and Thematic Dynamics of Research Trends (2015–2025)

The evolution of research trends at the intersection of Artificial Intelligence (AI) and green marketing from 2015 to 2025 demonstrates a dynamic intellectual progression from conceptual formulation to ethical consolidation marking a transformation in both technological and behavioral

paradigms. During the foundational phase (2015–2017), the discourse on green marketing primarily revolved around the integration of environmental ethics and corporate responsibility into marketing strategies. Early studies viewed AI merely as an auxiliary instrument for improving decision-making and operational efficiency, without a direct linkage to sustainability-driven behavior. This period was characterized by theoretical convergence: while green marketing scholars such as Peattie and Crane emphasized the need to embed moral and ecological values into brand identity, AI research focused on data analytics and automation within marketing functions. The coexistence of these streams established the conceptual basis for understanding how technology could support value-based marketing ecosystems. These developments laid the groundwork for subsequent studies exploring AI as a *cognitive infrastructure* capable of reshaping consumer awareness and ethical reasoning in sustainability contexts.

Transitioning into the acceleration phase (2018–2020), the research emphasis shifted toward machine learning–driven personalization and its potential to close the enduring *attitude–behavior gap* in sustainable consumption. During this period, scholars began to analyze how predictive algorithms could enhance the effectiveness of sustainability campaigns by tailoring messages to consumers' psychological profiles and moral predispositions. The discourse expanded from the ethical framing of green marketing to its algorithmic optimization, where AI systems acted as "choice architects," influencing how individuals perceive, evaluate, and act upon eco-conscious options. This thematic redirection signaled the beginning of an empirical turn: marketing research started to incorporate behavioral experimentation and consumer analytics as tools to measure the efficacy of green communication. The convergence of AI and green marketing during this time was no longer theoretical it became applied and measurable, giving rise to new discussions on how personalization and data-driven targeting can promote long-term pro-environmental behavior.

In the ethical and transparency phase (2021–2022), the conversation matured as researchers began interrogating not only the capability of AI to shape behavior but also its accountability within sustainable marketing systems. (Dwivedi, 2023) argued that AI's contribution to sustainability must be balanced by mechanisms ensuring transparency, explainability, and bias mitigation, especially as consumer trust became central to sustainable engagement. Parallel studies explored how digital engagement platforms, such as social media and online communities, could reinforce *pro-environmental social norms* by integrating user-generated content (UGC) and

interactive storytelling into green marketing strategies. This phase marked a philosophical shift from "what AI can do" to "how AI should do it," emphasizing ethical governance and consumer autonomy. Thematic dynamics thus expanded beyond functional efficiency to include digital ethics and algorithmic integrity, aligning the research trajectory with the broader global movement toward responsible AI and sustainable digital transformation.

The most recent integration and generative phase (2023–2025) reflects the consolidation of AI and green marketing into a holistic sustainability paradigm that combines technological intelligence, ethical governance, and consumer empowerment. (Umar et al., 2022) highlight how AI contributes to resource optimization and circular economy development, which in turn strengthens the strategic positioning of green marketing within sustainable value chains. This phase is distinguished by the emergence of Generative AI (GenAI) applications that enable adaptive sustainability narratives, predictive modeling for environmental impact, and real-time verification of green claims. The thematic discourse now emphasizes *traceability, data reliability,* and *cultural adaptability* as essential enablers of global sustainable consumer behavior. In essence, the evolution of research trends from 2015 to 2025 demonstrates a progressive deepening of inquiry from conceptual to ethical to systemic integration where AI and green marketing converge as dual forces shaping not only the marketplace but also the moral fabric of modern consumption.

Strategic Implications and Future Research Directions

The strategic implications derived from the synthesis of research on Artificial Intelligence (AI) and green marketing reveal a profound transformation in how sustainability is conceptualized and operationalized within marketing ecosystems. AI is no longer viewed merely as a technical instrument to automate marketing processes; it has evolved into a strategic framework that redefines how organizations design, communicate, and sustain their environmental commitments. From a managerial perspective, this convergence introduces a paradigm in which data-driven intelligence serves as both the engine and the ethical compass of sustainable value creation. Marketers can utilize AI to analyze behavioral data, detect consumption patterns, and predict sustainability-oriented preferences, thus crafting messages that resonate emotionally and morally with consumers. This integration positions sustainability not as a peripheral corporate responsibility but as a central driver of long-term brand equity and competitive differentiation.

Consequently, organizations are encouraged to cultivate digital ecosystems that balance technological advancement with ecological responsibility, aligning corporate strategies with broader global sustainability goals.

The findings of this review also underscore the need for organizations to establish a coherent link between technological innovation, ethical responsibility, and consumer trust. The increasing sophistication of AI-driven marketing requires firms to implement transparency, accountability, and fairness across all stages of digital engagement. Strategic decision-makers must prioritize algorithmic governance structures that prevent manipulation, bias, and the dilution of environmental authenticity. Building sustainable consumer behavior thus depends on the company's ability to maintain credibility and foster a reciprocal relationship between brands and consumers. Moreover, by embedding sustainability values into algorithmic systems, companies can ensure that personalization strategies do not merely stimulate short-term consumption but rather encourage reflective, informed, and value-consistent purchasing decisions. Such strategic alignment transforms the role of AI from a persuasive tool into a participatory medium that empowers consumers to make environmentally responsible choices, reinforcing the moral legitimacy of corporate sustainability initiatives.

In terms of theoretical advancement, the study suggests that the integration of AI and green marketing opens opportunities for developing new conceptual frameworks that bridge behavioral science, technology, and sustainability management. Future research should move toward the creation of multidimensional models that explain how digital intelligence influences ethical cognition and ecological decision-making among consumers. This entails not only analyzing behavioral outcomes but also understanding the underlying psychological and cultural mechanisms that shape how individuals interpret and internalize sustainability messages mediated by AI. Researchers may also explore the mediating roles of digital literacy, socio-economic context, and technological accessibility in determining the success of AI-driven sustainable marketing initiatives. By expanding the theoretical horizon, such frameworks could provide a foundation for future interdisciplinary studies that integrate marketing ethics, environmental psychology, and data science under the umbrella of sustainable innovation.

From a global perspective, the future direction of research lies in operationalizing the concept of sustainable intelligence a paradigm where AI systems are designed to promote

environmental stewardship, social inclusivity, and ethical governance simultaneously. The rapid emergence of generative and predictive AI technologies presents both opportunities and risks that demand balanced regulatory and organizational responses. Scholars and practitioners must collaborate to establish metrics that measure not only marketing effectiveness but also ecological and social impact. This calls for longitudinal and experimental approaches that examine how AI-mediated marketing interventions influence long-term behavioral change and collective environmental awareness. In this context, the next generation of sustainability research should not be confined to analyzing isolated marketing strategies but should instead adopt a holistic systems-thinking perspective. The future of marketing lies in harmonizing intelligence with conscience where technological innovation functions as a mechanism for ethical persuasion, sustainable consumption, and planetary well-being.

The main contribution of this research lies in its ability to provide a comprehensive intellectual mapping and new strategic direction for the development of sustainability-oriented marketing practices powered by Artificial Intelligence (AI). Through a systematic mapping of global research trends over the past decade, this study reveals that the integration of AI and green marketing serves not merely as a tool for promotional efficiency but as a mechanism for cultivating ecological awareness and more reflective consumer behavior. Practically, this research offers valuable insights for companies particularly in developing countries by demonstrating how ethically designed personalization algorithms can guide consumers toward environmentally responsible purchasing decisions. An illustrative analogy can be drawn from a European study on the use of Virtual Reality (VR) in shopping experiences, where the technology unintentionally encouraged overconsumption; in contrast, this study offers the opposite trajectory showing how intelligent systems can be programmed to limit impulsive consumption and reinforce sustainability values in purchase decisions. Thus, the findings of this study make both conceptual and practical contributions: conceptually, it extends theories of sustainable consumer behavior by incorporating the dimension of algorithmic intelligence; and practically, it opens new pathways for businesses to develop digital marketing models that are not only economically efficient but also ecologically and ethically responsible.

Discussion

Comparison with the state-of-the-art plays a pivotal role in clarifying the intellectual positioning and measurable contribution of this study within the broader scientific discourse. Most previous studies on Artificial Intelligence (AI) and green marketing have predominantly emphasized technological efficiency, digital engagement, and short-term consumer response metrics. In contrast, this research advances the discussion by reframing AI not only as an operational enhancer but as a strategic and ethical catalyst that shapes the moral and behavioral dimensions of sustainable consumption. By integrating sustainability values into algorithmic systems, this study extends beyond existing literature, which often treats AI and green marketing as separate or parallel constructs. The synthesis presented here contributes a novel interpretative lens that positions AI-driven personalization as an agent of behavioral transformation, rather than mere market optimization. In doing so, it provides a systematic mapping of intellectual evolution from the conceptual emergence of green marketing to the current convergence of generative intelligence and sustainability ethics—an analytical trajectory that, until now, has been largely underexplored in the literature.

If compared with contemporary *state-of-the-art* works in sustainability and digital transformation, this research offers a multidimensional advancement methodologically, theoretically, and practically. Methodologically, it bridges fragmented insights by employing a systematic approach that traces a decade-long evolution of academic thought, revealing hidden thematic interconnections often overlooked by narrower empirical studies. Theoretically, it contributes by synthesizing the fragmented paradigms of digital marketing, ethical AI, and sustainable behavior into a unified conceptual structure that redefines how technology and morality intersect in consumer decision-making. Practically, the study offers a scalable framework that companies can adopt to design AI-based sustainable marketing ecosystems capable of fostering long-term behavioral change rather than transient engagement. Through this contribution, the research not only situates itself within the frontier of *state-of-the-art* sustainability scholarship but also proposes a forward-looking blueprint for how AI can be mobilized to achieve ethical, ecological, and economic equilibrium in the next generation of global marketing strategies.

CONCLUSION

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This study presents a comprehensive synthesis of global research trends examining the integration of Artificial Intelligence (AI) and green marketing strategies in shaping sustainable consumer behavior between 2015 and 2025. The findings reveal a clear intellectual progression from conceptual discussions on environmental ethics and consumer trust toward the development of AI-driven personalization, behavioral analytics, and ethical transparency. The research demonstrates that AI has evolved beyond a purely technological function, emerging as a strategic and moral catalyst capable of influencing consumer decision-making and corporate responsibility simultaneously. This integration not only enhances marketing effectiveness but also promotes environmental awareness and behavioral change by embedding ethical considerations into intelligent systems. The synthesis confirms that AI-supported green marketing fosters cognitive, affective, and social engagement in sustainability, aligning directly with the study's objectives of identifying how digital innovation can drive ethical consumption and long-term ecological value. The contribution of this research lies in providing both a theoretical framework and a practical foundation for designing sustainable marketing ecosystems that merge data intelligence with environmental accountability, positioning AI as an enabler of responsible and future-oriented consumer behavior.

The implications of these findings extend to both academia and practice. Theoretically, the research advances the discourse on sustainable digital marketing by integrating the domains of technological intelligence, ethical governance, and consumer psychology into a unified conceptual framework. Practically, it offers guidance for businesses and policymakers to develop AI-based marketing strategies that emphasize transparency, fairness, and cultural adaptability ensuring that technology supports rather than manipulates sustainability narratives. Despite its contributions, this study acknowledges certain limitations, such as the potential exclusion of non-indexed regional literature and the absence of empirical validation across cultural or industrial contexts. Future research should therefore pursue quantitative modeling, longitudinal assessment, and cross-sectoral comparisons to evaluate the real-world impact of AI-enabled green marketing on consumer behavior. Ultimately, this study underscores that the convergence of AI and green marketing marks a paradigm shift in global sustainability efforts transforming marketing from a persuasive function into a moral platform that aligns innovation, ethics, and ecological stewardship.

REFERENCE

Abrokwah-Larbi, K., & Awuku-Larbi, Y. (2024). The impact of artificial intelligence in marketing on the performance of business organizations: Evidence from SMEs in an emerging economy. *Journal of Entrepreneurship in Emerging Economies*, *16*(4), 1090–1117. https://doi.org/10.1108/JEEE-07-2022-0207

Ahmed, A., Fadzilah, A. H. H., & Chan, T. J. (2025). Impact of Green Media on Purchase Intention: The Moderating Role of Artificial Intelligence in Sustainable Marketing. *Paper Asia*, *41*(4), 344–359. https://doi.org/10.59953/paperasia.v41i4b.559

Ayanwale, M. A., & Ndlovu, M. (2024). Investigating factors of students' behavioral intentions to adopt chatbot technologies in higher education: Perspective from expanded diffusion theory of innovation. *Computers in Human Behavior Reports*, *14*(February), 100396. https://doi.org/10.1016/j.chbr.2024.100396

Bachmann, N., Tripathi, S., Brunner, M., & Jodlbauer, H. (2022). The Contribution of Data-Driven Technologies in Achieving the Sustainable Development Goals. *Sustainability (Switzerland)*, *14*(5). https://doi.org/10.3390/su14052497

Chen, H. S., Liang, C. H., Liao, S. Y., & Kuo, H. Y. (2020). Consumer attitudes and purchase intentions toward food delivery platform services. *Sustainability (Switzerland)*, *12*(23), 1–18. https://doi.org/10.3390/su122310177

Chindasombatcharoen, N., Tsolakis, N., Kumar, M., & O'Sullivan, E. (2024). Navigating psychological barriers in agricultural innovation adoption: A multi-stakeholder perspective. *Journal of Cleaner Production*, *475*(April), 143695. https://doi.org/10.1016/j.jclepro.2024.143695

Creswell, J. (2017). *Qualitative Inqury Research Design Choosing Among Five Approaches*.

Creswell, J. W., & Creswell, J. D. (2018). Mixed Methods Procedures. In *Research Defign: Qualitative, Quantitative, and Mixed M ethods Approaches*.

Creswell, J. W., & Creswell, J. D. (2023). Research Design: Qualitative, Quantitative, and A Mixed-Method Approach. In *SAGE Publication*. https://doi.org/10.4324/9780429469237-3

Daly, S. J., Hearn, G., & Papageorgiou, K. (2025). Sensemaking with AI: How trust influences Human-AI collaboration in health and creative industries. *Social Sciences and Humanities Open*, *11*(October 2024), 101346. https://doi.org/10.1016/j.ssaho.2025.101346

Dwivedi, Y. K. (2023). Metaverse marketing: How the metaverse will shape the future of consumer research and practice. *Psychology and Marketing*, *40*(4), 750–776. https://doi.org/10.1002/mar.21767

Emmanuel Adeyemi Abaku, Tolulope Esther Edunjobi, & Agnes Clare Odimarha. (2024). Theoretical approaches to AI in supply chain optimization: Pathways to efficiency and resilience. *International Journal of Science and Technology Research Archive*, *6*(1), 092–107. https://doi.org/10.53771/ijstra.2024.6.1.0033

Gil-Gomez, H., Guerola-Navarro, V., Oltra-Badenes, R., & Lozano-Quilis, J. A. (2020). Customer relationship management: Digital transformation and sustainable business model innovation. *Economic Research-Ekonomska Istrazivanja* , *33*(1), 2733–2750. https://doi.org/10.1080/1331677X.2019.1676283

Guetz, B., & Bidmon, S. (2022). The Impact of Social Influence on the Intention to Use Physician Rating Websites: Moderated Mediation Analysis Using a Mixed Methods Approach. *Journal of Internet Research*, *24*(11), 1–26. https://doi.org/10.2196/37505

Haddaway, N. R., Page, M. J., Pritchard, C. C., & McGuinness, L. A. (2022). PRISMA2020: An R package and Shiny app for producing PRISMA 2020-compliant flow diagrams, with interactivity for optimised digital transparency and Open Synthesis. *Campbell Systematic Reviews*, *18*(2), e1230. https://doi.org/10.1002/cl2.1230

Hamzaj, Y. A. (2025). Generative AI acceptance among future educators: Personality and behavioral insights. *Education and Information Technologies*. https://doi.org/10.1007/s10639-025-13678-3

Hauman, H., & Shah, M. (2022). The evolution of carbon markets and their role in climate mitigation and sustainable development. *The Oxford Institute for Energy Studies*, *132*.

Herawati, A., Sarwani, S., Lestari, D. S., Listyawati, L., & Raharja, A. (2023). Sequential Explanatory Approach: Digital Marketing Implementation Acceleration Programme That Supports the Marketing Performance of Msme Actors | Sekwencyjne Podejście

Eksplanacyjne: Program Przyspieszenia Wdrażania Marketingu Cyfrowego, Który Wspiera Wyn. *Economic and Regional Studies Studia Ekonomiczne I Regionalne*, *16*(4), 567–597.

Jacobson, J., & Harrison, B. (2022). Sustainable fashion social media influencers and content creation calibration. *International Journal of Advertising*, *41*(1), 150–177. https://doi.org/10.1080/02650487.2021.2000125

Jones, S. P.-, & Brown, A. D. (2025). Desired and Feared Identities and Their Role in Occupational Identity Regulation. *Journal of Management Studies*, *1*(1), 1–38. https://doi.org/10.1111/joms.13242

Khan, M., Hussain, M., Papastathopoulos, A., & Manikas, I. (2018). Trust, information sharing and uncertainty: An empirical investigation into their impact on sustainability in service supply chains in the United Arab Emirates. *Sustainable Development*, *26*(6), 870–878. https://doi.org/10.1002/sd.1856

Kumar, P. (2016). State of green marketing research over 25 years (1990-2014): Literature survey and classification. *Marketing Intelligence and Planning*, *34*(1), 137–158. https://doi.org/10.1108/MIP-03-2015-0061

Lee, M. T., Raschke, R. L., & Krishen, A. S. (2022). Signaling green! Firm ESG signals in an interconnected environment that promote brand valuation. *Journal of Business Research*, *138*, 1–11. https://doi.org/10.1016/j.jbusres.2021.08.061

Liao, Y. K., Wu, W. Y., & Pham, T. T. (2020). Examining the moderating effects of green marketing and green psychological benefits on customers' green attitude, value and purchase intention. *Sustainability (Switzerland)*, *12*(18). https://doi.org/10.3390/SU12187461

Madan, R., & Ashok, M. (2024). Making Sense of AI Benefits: A Mixed - method Study in Canadian Public Administration. *Information Systems Frontiers*, *21*(2). https://doi.org/10.1007/s10796-024-10475-0

Mele, C., Russo Spena, T., Kaartemo, V., & Marzullo, M. L. (2021). Smart nudging: How cognitive technologies enable choice architectures for value co-creation. *Journal of Business Research*, *129*(September 2020), 949–960. https://doi.org/10.1016/j.jbusres.2020.09.004

Mubarak, A. S., Esmaili, P., Ameen, Z. S., Abdulkadir, R. A., Gaya, M. S., Ozsoz, M., Saini, G., & Abba, S. I. (2021). Metro-environmental data approach for the prediction of chemical

oxygen demand in new nicosia wastewater treatment plant. *Desalination and Water Treatment*, *221*, 31–40. https://doi.org/10.5004/dwt.2021.27049

Mubarok, Sari, Wibowo, M. (2025). Comparative Study of Artificial Intelligence (AI) Utilization in Digital Marketing Strategies Between Developed and Developing Countries: A Systematic Literature Review. *Ilomata International Journal of Management*, *6*(1), 156–173. https://doi.org/10.61194/ijjm.v6i1.1534

Nekmahmud, M., & Fekete-Farkas, M. (2020). Why not green marketing? Determinates of consumers' intention to green purchase decision in a new developing nation. *Sustainability (Switzerland)*, *12*(19), 1–31. https://doi.org/10.3390/su12197880

Ogallo, G. (2018). *IoT – Enhancing Data-driven Decision-making in Higher Education. Case Study of Ohio University*. *May*, 178.

Onyeaka, H., Tamasiga, P., Nwauzoma, U. M., Miri, T., Juliet, U. C., Nwaiwu, O., & Akinsemolu, A. A. (2023). Using Artificial Intelligence to Tackle Food Waste and Enhance the Circular Economy: Maximising Resource Efficiency and Minimising Environmental Impact: A Review. *Sustainability (Switzerland)*, *15*(13). https://doi.org/10.3390/su151310482

Raghav, Y. Y., Tipu, R. K., Bhakhar, R., Gupta, T., & Sharma, K. (2023). The future of digital marketing: Leveraging artificial intelligence for competitive strategies and tactics. *ResearchGate*, *32*(4), 249–274. https://doi.org/10.4018/978-1-6684-9324-3.ch011

Rizqiningsih, D. U., & Widodo, A. (2021). Pengaruh Green Marketing dan Service Quality terhadap Loyalitas Pelanggan dengan Customer Satisfaction sebagai Variabel Intervening (Studi Kasus di Starbucks Coffee Kota Surabaya). *Jurnal Samudra Ekonomi Dan Bisnis*, *12*(2), 242–256. https://doi.org/10.33059/jseb.v12i2.3351

Rossolini, M., Pedrazzoli, A., & Ronconi, A. (2021). Greening crowdfunding campaigns: An investigation of message framing and effective communication strategies for funding success. *International Journal of Bank Marketing*, *39*(7), 1395–1419. https://doi.org/10.1108/IJBM-01-2021-0039

Seele, P., & Schultz, M. D. (2022). From Greenwashing to Machinewashing: A Model and Future Directions Derived from Reasoning by Analogy. *Journal of Business Ethics*, *178*(4), 1063–1089. https://doi.org/10.1007/s10551-022-05054-9

Tanveer, A., Zeng, S., Irfan, M., & Peng, R. (2021). Do perceived risk, perception of self-efficacy, and openness to technology matter for solar pv adoption? An application of the extended theory of planned behavior. *Energies*, *14*(16). https://doi.org/10.3390/en14165008

Umar, M., Khan, S. A. R., Zia-ul-haq, H. M., Yusliza, M. Y., & Farooq, K. (2022). The role of emerging technologies in implementing green practices to achieve sustainable operations. *TQM Journal*, *34*(2), 232–249. https://doi.org/10.1108/TQM-06-2021-0172

Wijekoon, R., & Sabri, M. F. (2021). Determinants that influence green product purchase intention and behavior: A literature review and guiding framework. *Sustainability (Switzerland)*, *13*(11), 1–40. https://doi.org/10.3390/su13116219

Williamson, B. (2018). Silicon startup schools: Technocracy, algorithmic imaginaries and venture philanthropy in corporate education reform. *Critical Studies in Education*, *59*(2), 218–236. https://doi.org/10.1080/17508487.2016.1186710