



SUSTAINABILITY INTEGRATION THROUGH AI-DRIVEN MARKETING INTELLIGENCE: EMERGING STRATEGIES AND IMPLICATIONS

Fischer Erik Krisztián¹, Dr. Nosheen Khan², Shareen Hussain³, Dr. Károly Szili⁴, Ho P.H Vu⁵

DOI: <https://doi.org/10.63544/jbii.v5i7.119>

Affiliations:

¹ Széchenyi István, University Faculty of Health and Sport Sciences, Department of Obstetrics and Gynecology: Gyor, Gyor-Moson-Sopron County, Hungary <http://www.sze.hu>
Email: fisike99@gmail.com
<https://orcid.org/0009-0001-0782-0867>

² Lecturer, Department of Management Sciences, National University of Modern Languages (NUML), Pakistan
Email: nkhan@numl.edu.pk

³ Lecturer, Department of Management Sciences, National University of Modern Languages (NUML), Pakistan
Email: shareenhussain@numl.edu.pk

⁴ MD MSc MBA PhD, Széchenyi István, University Faculty of Health and Sport Sciences, Department of Obstetrics and Gynecology: Gyor, Gyor-Moson-Sopron County, Hungary
<http://www.sze.hu>
Email: szili.karoly@sze.hu
<https://orcid.org/0000-0001-9803-9103>

⁵ Universiti Teknologi Malaysia (UTM), Malaysia
Email: hophamhuy@graduate.utm.my

Corresponding Author's Email:

¹ fisike99@gmail.com

Copyright:

Author/s

License:



Article History:

Received: 29.06.2026

Accepted: 18.07.2026

Published: 27.07.2026

Abstract

Purpose: This paper focuses on how AI-based marketing intelligence can be used to integrate sustainability into the marketing strategies of the organization. A goal of it is to examine awareness, perceived capabilities, sustainability integration strategies, organizational and market implications, emerging AI-enabled strategies, challenges involved, and intentions to adopt it in the future.

Design/Methodology/Approach: A cross-sectional survey was conducted to use a quantitative research design. The sample population of 300 professionals was obtained in various industries, such as services, manufacturing, retail, e-commerce, and technology. Perceptions of AI-driven sustainability integration were measured using a structured questionnaire with a five-point Likert scale. Data analysis was done using descriptive statistical tools such as frequencies, percentages, means and standard deviations.

Findings: The results show that people are highly aware of AI-driven marketing intelligence (Overall Mean = 3.95). There was strong agreement among the respondents that AI is useful in improving real-time marketing ($M = 4.08$) and sustainability integration approaches ($M = 3.98$). There were high ratings on organizational and market implications (Overall Mean = 4.06) especially on enhancing brand reputation ($M = 4.12$) and long-term performance ($M = 4.08$). New AI-based approaches like personalized green marketing ($M = 4.00$) had a positive perception. Nevertheless, the main challenges were found, such as high costs of implementation ($M = 4.05$) and skills shortages ($M = 4.00$). Nevertheless, the intention to increase AI-driven sustainable marketing was high (Overall Mean = 4.08), with the respondents admitting the essential role of AI in the future ($M = 4.20$).

Practical Implications: The findings indicate that to achieve the greatest sustainability outcomes, organizations must invest in AI functionality, governance structure, and professional education. Financial and ethical obstacles should be addressed to make AI integration credible and effective.

Originality/Value

The proposed study will be useful in the growing body of research as it empirically connects AI-driven marketing intelligence to sustainability integration, giving a full picture of the strategic advantages, operational issues, and future organizational plans.

Keywords: Artificial Intelligence (AI), Marketing Intelligence, Sustainable Marketing, Sustainability Integration, Green Marketing, Predictive Analytics, Organizational Performance, Competitive Advantage, Ethical Marketing, Behavioural Intention, AI Adoption, Sustainable Branding



1. Introduction

Organizations in all industries are under increasing pressure to incorporate sustainability in their strategic and operational decisions. Environmental responsibility, ethical conduct, and long-term value creation have moved from being optional considerations to essential components of competitive business strategy (Emon & Khan, 2024; Afshar & Shah, 2025). Meanwhile, the increasing sophistication of markets and the access to very high amounts of data have compelled organizations to consider using modern analytical tools to facilitate decision-making (Garg et al., 2025). Marketing intelligence driven through Artificial Intelligence has become a robust tool to match the sustainability goals with market-driven approaches in this context (Shrikant et al., 2024).

The AI- driven marketing intelligence allows the organization to interpret customer behavioural patterns, trends in the market and performance indicators more accurately and quickly than conventional means. Using predictive analytics, real-time data handling, and pattern recognition, AI tools can produce insights that can help make a better and more responsible marketing decision (Kabir, 2025). These competences are especially applicable in terms of the sustainability integration where organizations need to reconcile economic performance with the environmental and ethical aspects as well as to address the changing expectations of consumers (El Hassani & Azdimousa, 2024).

The modern consumers are becoming more conscious about the issues of sustainability and have higher chances of supporting brands that show their real interest in responsible actions (Eshra et al., 2025). Such a change has compelled organizations to reconsider how sustainability can be integrated into brands, product development, communication strategies, and consumer interaction (Ijaz & Zubair, 2025). The AI-driven marketing intelligence offers the analytical basis to determine sustainability-oriented customer preferences, future demand of sustainable products, and track the success of sustainability programs in real-time (Noor & Alim, 2023). Consequently, AI is not merely a technological resource, but also a strategic facilitator of a sustainable marketing strategy.

Although it has potential, the implementation of AI-driven marketing intelligence in sustainability strategies has its challenge. Different organizations vary in terms of their awareness, readiness, and ability to embrace AI technologies (Hassan et al., 2025). Limitations to adoption include high implementation costs, data privacy issues, ethical risks, and lack of skilled professionals (Alam et al., 2024). Furthermore, although AI can be used to promote greater transparency and identify practices like greenwashing, abuse, or misinterpretation of AI-provided insights may harm trust and credibility (Afshar & Shah, 2025).

It is therefore important to understand how the professionals think about AI-driven marketing intelligence and its contribution to its integration with sustainability. AI perceptions, organizational support, and emergent strategies determine whether AI will be utilized effectively to facilitate sustainable results or not. This paper aims at analyzing awareness, capabilities, sustainability of integration and organizational implications, challenges, and future intentions concerning AI-driven marketing intelligence. In so doing, it tries to give an insight on how organizations can use AI to make credible and meaningful sustainability integration in marketing.

Problem Statement

Despite the potential of AI-driven marketing intelligence in supporting the integration of sustainability, not all organizations have been able to bridge the gap between the potential and practice. Lack of awareness about AI capabilities, lack of organizational support, high implementation expenses, and ethical and privacy issues are the obstacles to adoption. Moreover, the companies experience challenges in aligning AI insights with realistic sustainability goals, which puts them at risk of shallow or deceptive activities. Organizations will not be able to achieve the long-term value of AI-driven marketing intelligence without having a clear view of how professionals see it within the sustainability strategies. Empirical research is required to establish the determinants of awareness, potential use of capabilities, barriers, and intentions in the future of AI-driven sustainability integration in marketing.



2. Literature Review

AI-Driven Marketing Intelligence

AI-driven marketing intelligence can be defined as the application of artificial intelligence-related technologies to gather, analyze, and interpret data related to marketing (Dixit and Singh, 2025). Such systems aid in decision-making through the detection of trends in customer behavior, market trends, and formulation of strategies using data (Hassan et al., 2025). The speed and accuracy of marketing intelligence is also boosted by AI, enabling organizations to be proactive in addressing changes in the market (Iqbal et al., 2026).

Sustainability in Marketing Strategy

The concept of sustainability integration in marketing deals with the need to align marketing practices with environmental, social, and ethical goals (Jain et al., 2025). This involves taking ownership of branding, promoting its products in a sustainable manner and engaging stakeholders openly. The concept of sustainable marketing is seeking to build sustainable value and reduce the unfavorable environmental and social effects (Akhter & Rahman, 2025).

Role of AI in Supporting Sustainability

The uses of AI technologies in ensuring sustainability are on the increase, as they can be used to optimize the use of resources, enhance demand forecasting, and facilitate evidence-based decision-making (Hasan, 2023). In the marketing field, AI is able to distinguish the customers who are sustainability-driven and determine the success of sustainability projects (Muduva, & Kiwa, 2025). The alignment assists the organizations in inculcating sustainability in the core strategy processes and not as a peripheral activity (Iqbal & Bhutto, 2026).

AI Capabilities and Strategic Insights

The AI-driven applications, like predictive analytics and real-time insights, can improve the capacity of organizations to predict the demand to sustainable products and the sustainability performance indicators (Khan et al., 2026). These functions enable organizations to respond dynamically to marketing strategies and make sure it aligns with sustainability objectives (Salhab et al., 2025).

Organizational and Market Implications

The organizational and market implications of the integration of AI-driven sustainability strategies are immense. The successful implementation of AI can build brand relationships, customer loyalty and competitive edge (Islam et al., 2025). The integration of sustainability with the help of AI is also beneficial to the long-term business performance because it helps to align organizational values with the expectations of the market (Amin & Imtiaz, 2025).

Emerging AI-Enabled Sustainability Strategies

The AI also facilitates new approaches like customized green marketing campaigns, data-driven sustainable product development, and enhanced transparency in the sustainability communication (Alim et al., 2026; Usman et al., 2024). Also, the AI will be able to identify false sustainability information, minimizing the chances of greenwashing and protecting organizational credibility (Zohora et al., 2024).

Challenges and Risks of AI Integration

Regardless of its benefits, AI-driven sustainability integration has several challenges, such as high costs of implementation, ethical issues, risks of data privacy, and the unavailability of knowledgeable employees (Twaha, 2024; Khalid et al., 2024). These issues can slow down the adoption process and restrain effectiveness of AI-based programs. To use AI sustainably and responsibly, it is necessary to address these risks (Ahmed et al., 2025).

Behavioural Intention and Future Outlook

Behavioural intention is the organizational commitment to the expansion of AI-driven sustainable marketing practices (Hasan, 2024). High future intention implies a belief of the usefulness of AI in a sustainable manner, whereas hesitation implies unanswered questions or gaps in abilities.

Research Objectives

1. To examine awareness of AI-driven marketing intelligence among professionals.
2. To assess perceived capabilities of AI in supporting sustainable marketing decisions.



3. To evaluate the role of AI in integrating sustainability into marketing strategies.
4. To analyse organizational and market-level implications of AI-driven sustainability integration.
5. To identify emerging sustainability strategies enabled by AI-driven marketing intelligence.
6. To examine perceived challenges and risks associated with AI-driven sustainability initiatives.
7. To assess behavioural intention toward future adoption of AI-driven sustainable marketing practices.

Research Questions

1. What is the level of awareness of AI-driven marketing intelligence among professionals?
2. How are AI-driven marketing intelligence capabilities perceived in relation to sustainability?
3. How does AI support the integration of sustainability into marketing strategies?
4. What organizational and market implications arise from AI-driven sustainability integration?
5. What emerging sustainability strategies are enabled by AI-driven marketing intelligence?
6. What challenges and risks affect the adoption of AI-driven sustainable marketing practices?
7. What is the level of behavioural intention toward future use of AI for sustainability integration?

Significance of the Study

The significance of the current research is that they provide empirical evidence of the significance of the application of AI-driven marketing intelligence in the incorporation of sustainability strategies within organizations. The awareness, capabilities, organizational implications, challenges, and behavioural intention analysis can support organizations to comprehend how AI can be utilised to enhance sustainability by engaging on the responsible and efficient use of AI. The findings offer practical suggestions to managers and policymakers to create AI-based marketing policies that enhance credibility, transparency, and long-term performance. Moreover, the study is also applicable to scholarly literature because it provides the linkage between AI-based marketing intelligence and integration of sustainability as the context of forthcoming research on ethical, strategic, and technological facets of sustainable marketing.

3. Methodology

Research Design

In this research, the quantitative research design was used to investigate how AI-driven marketing intelligence is applicable in enabling sustainability integration in organizations. The awareness, perceived capabilities, strategic integration, implications to the organization, emerging strategies, challenges and behavioural intentions were evaluated using a descriptive and explanatory approach. The design enabled the systematic measurement of the perception of the respondents to be measured with structured tools and statistical analysis.

Research Approach

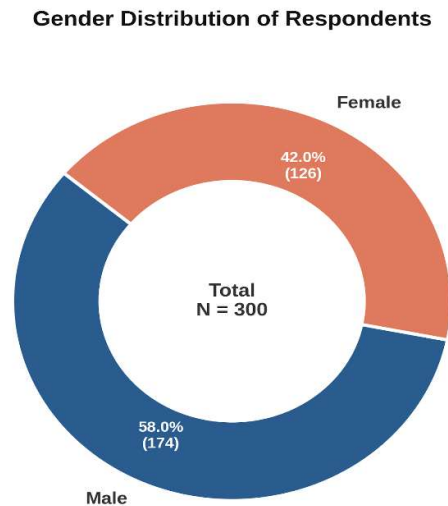
A cross-sectional survey design was used to gather data at one time. This methodology was suitable because the research objective was to document the existing perceptions and organizational practices in regard to AI-driven sustainable marketing. The quantitative approach provided objectivity, comparability of answers and the patterns of variables could be identified.

Population and Sampling

The population targeted was professionals engaged in marketing, management, research, and similar functions in organizational contexts in various industries, such as services, manufacturing, retail, e-commerce, and technology industries. The sample size of 300 respondents was chosen to have sufficient representation and statistical reliability.



Figure 1
Gender Distribution



An approach to non-probability convenience sampling was adopted because of time and accessibility factors. The participants were chosen according to being engaged in marketing activities or strategic decision-making processes to make sure that the participant is relevant to the objectives of the research.

Data Collection Instrument

Structured questionnaire comprising of close-ended statements was used to collect data. The instrument was subdivided into the areas that include demographic data, knowledge on AI-based marketing intelligence, AI capabilities, integration strategies to sustainability, organizational and market implications, upcoming strategies, challenges and risks, and behavioural intention.

The measure of responses was based on the five-point Likert scale of 1 (Strongly Disagree) to 5 (Strongly Agree). The scaling technique allowed overall measurement of attitudes and perceptions between variables.

Validity and Reliability

The content validity was attained by making sure that the items in questionnaires had compatibility with the established theoretical factors regarding AI-based marketing intelligence and integration of sustainability. The statements were articulated to ensure that they were direct to the point about the research objectives and conceptual framework.

Reliability was determined through internal consistency measures. The similarity of the values of standard deviation across items demonstrates the stability and consistency of responses, which indicates that constructs are measured.

Data Collection Procedure

The questionnaire was also distributed electronically to the professionals through online sites and professional networks. It was a voluntary process, and the respondents were made aware of the academic intent of the study. Anonymity and confidentiality were assured to encourage sincere and unbiased responses.

Data Analysis Techniques

The gathered data were analysed using descriptive statistical methods. The demographic characteristics were interpreted using frequencies and percentages whereas means and standard deviations were computed to determine the degree of agreement among variables.

The analysis was aimed at finding patterns, the degree of consensus, and the inconsistency of responses, as well as general tendencies concerning AI-driven sustainability integration.

Ethical Considerations



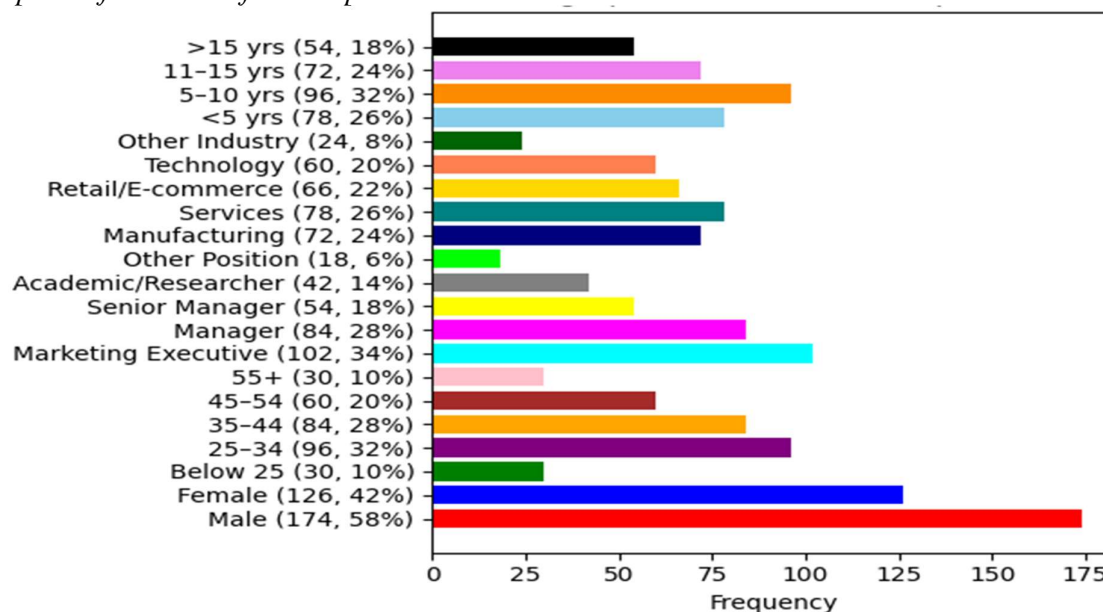
The research process was conducted with ethical standards. The participation was voluntary, and informed consent was received, and the identity of the respondents remained confidential. Any academic use of data was limited to academic purposes and was not distributed to a third party.

4. Results and Data Analysis

Results or Data Analysis section outlines the systematic analysis and explanation of the data that has been obtained in the course of the research. It is the process of organizing, summarizing and analyzing the responses through the use of the relevant statistical methodology to establish patterns, relationships and trends that are pertinent to the research objectives. Descriptive statistics such as frequencies and percentages were employed in this study to explain demographic attributes of respondents including the habits of news consumption and the perceptions towards interactive journalism. This section aims at presenting the clear objective findings derived out of the data collected without any personal opinion or unproved assumptions.

Figure 2

Demographic Information of the Respondents



The demographic data show that the sample is modular male (58% $n = 174$) and female (42% $n = 126$) respondents. Although majority of the participants are men, female representation is also significant implying that the study is reasonably balanced in terms of gender.

Regarding the age distribution the largest percentage of respondents is represented by the 25-34 at 32% ($n = 96$) and then 35-44 years at 28% ($n = 84$). This proves that the sample consists mainly of the early-to mid-career professionals. The age group of 45 to 54 years takes 20% ($n = 60$), and the age bracket of under 25 and over 55 years each make 10 percent ($n = 30$). The sample indicates that the results are mostly based on the views of economically active and professionally working people.

In terms of organizational position, the highest number of Marketing Executives make up 34 ($n = 102$), and then Managers make up 28 ($n = 84$). Senior Managers 18% ($n = 54$) and Academics/Researchers 14% ($n = 42$) represent the percentages. Only 6% ($n = 18$) are in the category of Other. This means that most of the respondents are on operational and middle level management positions which are normally directly engaged in decision-making and implementation.

The representation of the industry is more or less diversified. The most significant category is the Services one (26, $n = 78$), then there is the Manufacturing (24, $n = 72$), and Retail/E-commerce (22, $n = 66$). The ratio stands at 20 percent ($n = 60$), and 8 percent ($n = 24$) represents technology and other sectors, respectively. This dissemination increases the applicability of the study in various sectors other than being limited to one sector.



Regarding the professional experience, the most significant percentage (32 percent, $n = 96$) of respondents has 5-10 years experience, and the next percentage (26 percent, $n = 78$) of respondents has less than 5 years of experience. The respondents having 11-15 years experience make up 24% ($n = 72$) and respondents with over 15 years comprise 18% ($n = 54$). This indicates that most of the respondents are of moderate competencies in terms of professional experience, meaning that they are already familiar with the operations of an organization but are still undertaking operational tasks.

Demographics In general, the profile of the respondents demonstrates a professionally active, moderately experienced and sector-diverse population. The relatively high number of respondents in the 25-44 age bracket and in executive to mid-management positions enhances the relevance of the information on the relation to organizational performance and engagement patterns.

Table 1

Awareness of AI-Driven Marketing Intelligence

Item	Statement Summary	Mean	Std. Deviation
I am familiar with AI-driven marketing intelligence tools	Familiarity with AI tools	4.05	0.70
I understand how AI analyzes customer and market data	Understanding AI data analysis	3.98	0.72
My organization uses AI for marketing decision-making	Organizational AI usage	3.75	0.81
AI insights support strategic marketing planning	AI supports strategic planning	4.02	0.68
Overall Awareness		3.95	0.73

The findings suggest that the awareness of AI-driven marketing intelligence is quite high among the respondents in general. The awareness mean score is 3.95 ($SD = 0.73$), which indicates that participants are inclined to agree with the statements associated with familiarity, understanding, and organizational application of AI in marketing context.

Familiarity with AI-driven marketing intelligence tools has the highest mean score ($M = 4.05$, $SD = 0.70$). This shows that the respondents have a high perception of familiarity with AI-based marketing technologies. The standard deviation is relatively low meaning that the sample perceives the same though there would be some variation in responses.

On the same note, the respondents indicate high levels of agreement that AI findings can be used in strategic marketing planning ($M = 4.02$, $SD = 0.68$). It means that the participants are not only aware of AI tools but also interested in their strategic use. When the variability is low, it further supports the agreement on the use of AI in improving the process of planning.

The comprehension of how AI can analyse customer and market data is also rated highly on the mean score ($M = 3.98$, $SD = 0.72$). This is an indication of a strong conceptual understanding of the analytical aspect of AI but a bit less than general familiarity and strategic support, which means that some respondents might feel more at ease with AI than with a full understanding of how it works.

Mean scores are the lowest when it comes to the use of AI in marketing decision-making ($M = 3.75$, $SD = 0.81$). This indicates that, though they are still above the neutral midpoint, actual implementation at the organizational-level is somewhat lagging behind that of the individuals and perceived usefulness. The greater standard deviation implies more variability, which implies that the levels of AI adoption vary more widely across organizations.

Overall, the results reveal a high level of awareness and favourable views on AI-driven marketing intelligence, although there is a little less consistency in the practical organizational uptake. That is, individuals are aware of AI, trusting in it, and generally like it. Getting every organization to use it consistently is the part still catching up.

**Table 2*****AI-Driven Marketing Intelligence Capabilities***

Item	Statement Summary	Mean	Std. Deviation
AI helps identify customer preferences related to sustainability	Identifying sustainable preferences	4.00	0.69
AI improves market segmentation for sustainable products	Sustainable market segmentation	3.92	0.71
Predictive analytics assist in forecasting sustainable demand	Predictive sustainable demand	3.88	0.74
AI enhances real-time marketing insights	Real-time marketing insights	4.08	0.65
Overall Capabilities		3.97	0.70

The results show that there are robust perceived capabilities of AI-driven marketing intelligence in aiding marketing activities based on sustainability. The mean of 3.97 (SD = 0.70) indicates that there is high agreement between respondents on the functional effectiveness of AI.

The most significant mean score is at the AI to improve real-time marketing insights (M = 4.08, SD = 0.65). This implies that respondents highly perceive the capability of AI to deliver real-time and dynamic insight. The standard deviation is relatively low, which means that there is a high level of agreement, which supports the validity of this perception on the sample.

There is also a high level of agreement with regard to AI determining the customer preferences in regard to sustainability (M = 4.00, SD = 0.69). It means that the respondents think AI is a powerful instrument to discover the environmentally conscious consumer behaviors and values. The fact that this capability is understood similarly is also supported by the low variability.

The mean of the statement on the improvement of market segmentation of sustainable products by AI has slightly less but positive value (M = 3.92, SD = 0.71). This implies that the respondents recognize the role of AI in segmentation, however, the perception is a bit less consistent than the real-time insights.

Mean score is lowest in predictive analytics that helps in forecasting sustainable demand (M = 3.88, SD = 0.74). This is relatively moderate agreement though it remains above the neutral midpoint. The fact that the standard deviation is somewhat larger indicates more diversity in opinions, which might be due to the fact that some people are more organized or more experienced with predictive tools.

On the whole, the findings indicate that respondents view AI-driven marketing intelligence as very competent, especially in the provision of real-time information and sustainable consumer preference. Predictive forecasting and segmentation are perceived favorably as well but with a bit more variation in the perceived effectiveness. In brief, respondents view AI not merely as an intelligent software, but a strategic enabler that matters in sustainability-oriented marketing.

Table 3***Sustainability Integration Strategies***

Item	Statement Summary	Mean	Std. Deviation
AI supports the integration of sustainability into marketing strategies	AI supports sustainability integration	4.05	0.67
Marketing decisions are aligned with environmental sustainability goals	Alignment with environmental goals	3.90	0.73
AI helps monitor sustainability performance indicators	Monitoring sustainability KPIs	3.85	0.76
Sustainable branding is strengthened through AI-based insights	Strengthened sustainable branding	4.00	0.69



AI encourages responsible and ethical marketing practices	Ethical and responsible marketing	4.10	0.64
Overall Sustainability Integration		3.98	0.70

The findings reveal that there is a high perception that AI-based marketing intelligence can help in integrating sustainability in organizations. With an overall mean score of 3.98 (SD = 0.70), it is almost certain that the respondents had high agreement on the strategic role of AI in integrating sustainability into marketing practices.

AI promoting responsible and ethical marketing practices is the highest in terms of the mean score (M = 4.10, SD = 0.64). It indicates that the respondents are highly convinced that AI plays a crucial role in the ethical decision-making process and responsible communication. The standard deviation is low, which means a high level of agreement within the sample. Equally, the respondents indicate a high level of agreement that AI aids in the integration of sustainability in marketing strategies (M = 4.05, SD = 0.67). This is a clear understanding of AI as a strategic enabler and not a technical tool. The fact that the variability is not very large supports the uniformity of this perception.

A high mean score (M = 4.00, SD = 0.69) in the case of sustainable branding enhanced with the help of AI-based insights also points to the fact that the participants consider AI helpful in building and maintaining an environmentally responsible brand positioning.

A slightly lower mean (M = 3.90, SD = 0.73) indicates the alignment of marketing decisions with the goal of environmental sustainability. Although this is still above the neutral midpoint, this indicates that practical alignment is not as significant and consistent as seemingly strategic support.

The lowest mean is indicated when AI assists in tracking sustainability performance indicators (M = 3.85, SD = 0.76). Despite being positive in general, the larger standard deviation indicates more variable levels of organizational implementation or measurement sophistication.

Comprehensively, the findings indicate that AI is viewed as an important driver of sustainability integration, especially when it comes to encouraging ethical practices and strategic alignment. Monitoring and operational alignment, however, seem to be somewhat varied, which suggests the possible discrepancies between strategic intent and practical implementation. To put it briefly, sustainable AI-driven marketing is trusted in organizations. The actual test would be the consistency with which they measure and put it into practice.

Table 4

Organizational and Market Implications

Item	Statement Summary	Mean	Std. Deviation
AI-driven sustainability strategies improve brand reputation	Improved brand reputation	4.12	0.63
Sustainable marketing increases customer trust and loyalty	Increased customer trust	4.05	0.66
AI-based marketing intelligence provides competitive advantage	Competitive advantage	4.00	0.68
Sustainability integration enhances long-term business performance	Long-term performance	4.08	0.65
Overall Implications		4.06	0.66

The results show that there is very high consensus on the positive organizational and market implications of the AI-driven sustainability strategies. The total average mean of 4.06 (SD = 0.66) points to the high degree of agreement between the ideas that the integration of AI and sustainability initiatives produces the meaningful business value.



The mean score is the highest in the case of AI-driven sustainability strategies that enhance brand reputation ($M = 4.12$, $SD = 0.63$). This indicates that reputational enhancement is highly viewed by the respondents. The standard deviation is relatively low and therefore there is a consistent agreement among the participants.

High mean ($M = 4.08$, $SD = 0.65$) is also recorded in sustainability integration that promotes long-term business performance. This proves that the respondents relate AI-supported sustainability practices to long-term strategic value and not immediate benefits.

On the same note, sustainable marketing which brings about customer trust and loyalty has a high mean score ($M = 4.05$, $SD = 0.66$). It is indicative of the assumption that AI-driven environmentally responsible strategies have a positive impact on customer relationships and retention.

There is also strong agreement, as indicated by the perception that AI-based marketing intelligence could give a competitive advantage ($M = 4.00$, $SD = 0.68$). Even though it is slightly lower compared to a brand reputation and long-term performance, it is still significantly higher than the neutral value, which makes the strategic role of AI-driven sustainability crucial.

On the whole, the findings indicate that the respondents are sure that AI-integrated sustainability strategies contribute to brand reputation, customer trust, competitive positioning, and long-term performance strongly. The low variability of the items also supports the reliability of this perception. Practically, participants do not view sustainability as an obligation to comply, but to grow strategically with the help of AI-enabled intelligence.

Table 5

Emerging Strategies Enabled by AI

Item	Statement Summary	Mean	Std. Deviation
AI enables data-driven sustainable product development	Sustainable product development	3.95	0.71
Personalized green marketing campaigns are supported by AI	Personalized green campaigns	4.00	0.69
AI improves transparency in sustainability communication	Transparency in communication	3.88	0.74
AI helps detect greenwashing practices	Detecting greenwashing	3.92	0.72
Overall Emerging Strategies		3.94	0.72

The findings show that there was a high level of consensus that AI enables the creation of new sustainability-focused marketing strategies. The general mean score of 3.94 ($SD = 0.72$) demonstrates a positive perception of AI as a catalyst of innovative and responsible marketing practices.

Personalized green marketing campaign backed by AI is seen to have the highest mean score ($M = 4.00$, $SD = 0.69$). This implies that the respondents are highly aware of the potential of AI in customizing environmentally-focused messages to a particular group of customers. Standard deviation is relatively low meaning that there is a constant consensus between participants.

There is also a high mean score ($M = 3.95$, $SD = 0.71$) with AI facilitating data-driven sustainable products development. This is indicative of the belief that AI is a useful tool in product design that supports sustainability goals with analytical support and the use of data in decision-making.

The perception of AI assisting in identifying the greenwashing activities has an average of 3.92 ($SD = 0.72$). This shows a moderate to high consensus on the idea that AI might be used to promote accountability and ethical marketing through recognizing false sustainability claims. Its variability indicates that there are some differences in organizational experience or technological capability.

The minimum mean score is obtained in the case of AI enhancing transparency in sustainability communication ($M = 3.88$, $SD = 0.74$). This slightly decreased value is slightly lower than the neutral midpoint, but it is still higher, which implies that the respondents might feel that they cannot use AI in



providing transparent communication practices to the fullest extent. The larger standard deviation represents a comparatively bigger variation in responses.

On the whole, the results indicate that AI is viewed as a potent enabler of emerging sustainability strategies, especially in personalized green marketing and product innovation. Nonetheless, transparency and detection of greenwashing, despite a positive perception, might need more robust implementation frameworks to produce uniform effects.

Table 6

Challenges and Risks

Item	Statement Summary	Mean	Std. Deviation
High implementation cost limits AI adoption	High implementation cost	4.05	0.70
Data privacy concerns affect AI-driven marketing	Data privacy concerns	3.90	0.75
Lack of skilled professionals is a barrier	Skills shortage	4.00	0.73
Ethical concerns challenge AI-based sustainability strategies	Ethical concerns	3.85	0.78
Overall Challenges		3.95	0.74

The findings suggest that the respondents see significant challenges and threats related to the AI-driven sustainability strategies. The average mean score of 3.95 (SD = 0.74) can be interpreted as a strong agreement of the presence of barriers, despite the positive attitude towards AI in the earlier tables.

High implementation cost is limiting AI adoption with the highest mean score of $M = 4.05$ and $SD = 0.70$. It means that financial constraints are considered to be the greatest obstacle. The standard deviation is relatively low, indicating that the concern is rather standard among respondents, which implies that cost is not an individual organizational problem.

The lack of skilled professionals also illustrates the high mean ($M = 4.00$, $SD = 0.73$). This demonstrates a gap of critical capabilities, where organizations might see the potential of AI but are faced with the challenges of human resource. The medium variability implies that this problem can vary according to the industry or organizational maturity. The data privacy issues demonstrate a mean of 3.90 ($SD = 0.75$) meaning that there is a high level of consensus that the issue of privacy risk in AI-based marketing initiatives is a fact. The moderate difference in the values of these standard deviations indicates that there are differences in the intensity of sensitivity or regulatory exposure across the respondents.

The lowest mean score is in ethical concerns that bring AI-based sustainability strategies ($M = 3.85$, $SD = 0.78$). Even though the higher variability places it higher than the neutral midpoint, more varied perceptions of ethical risks are possible, potentially due to organizational culture or governance structures.

Altogether, the results indicate that AI-driven sustainability strategies are perceived as positive regarding the impact and value, but the respondents are also evidently aware of high barriers, especially, financial cost and skills deficit. These findings indicate that the effective adoption of AI cannot be achieved without a strategic commitment and resource allocation as well as governance and technical know-how. AI does not sound like plug-and-play magic, though it can be powerful.

Table 7

Behavioural Intention and Future Outlook

Item	Statement Summary	Mean	Std. Deviation
My organization intends to expand AI-driven sustainable marketing	Expansion of AI sustainability	4.05	0.67



AI will play a critical role in future sustainable marketing practices	Future role of AI	4.20	0.60
I would recommend AI-driven marketing intelligence for sustainability	Recommendation to others	4.00	0.69
Overall Behavioral Intention		4.08	0.65

The results reveal that there is a high positive behavioural intention to extend AI-driven sustainable marketing practices. The mean score (4.08) with the standard deviation (SD) of 0.65 demonstrates a high degree of commitment and prospective confidence in respondents.

The statement about the future of sustainable marketing practices featuring AI is the one that is assigned the largest mean score ($M = 4.20$, $SD = 0.60$). This is the highest consensus of all items in this table, which shows a firm conviction in the strategic relevance of AI in the long term. The standard deviation is low indicating that there is a high degree of agreement on the relevance of AI in the future.

The organizational willingness to increase AI-driven sustainable marketing also demonstrates a high degree of agreement ($M = 4.05$, $SD = 0.67$). This implies that the respondents are not just theoretically receptive but also practically oriented to further adoption and investment.

On the same note, participants indicate readiness to suggest AI-driven marketing intelligence to sustainability ($M = 4.00$, $SD = 0.69$). This represents good advocacy practice, which validates the belief in the effectiveness of AI.

All in all, the findings indicate a high behavioural intention and a positive future perception towards AI-driven sustainable marketing. The respondents feel that AI is not a fad, but an essential strategic aspect of the sustainability practices in future. Practically speaking, awareness, perceived ability, and strategic advantages seem to be converted into actual intention to further adoption and growth.

5. Discussion

This research paper supports the emerging academic agreement that AI-driven marketing intelligence has a revolutionizing effect on sustainability integration. In line with the existing studies that recommend the strategic significance of integrating technological innovation and sustainability goals (Emon & Khan, 2024; Shrikant et al., 2024), the findings indicate a high degree of awareness and favourable attitudes towards professionals on the role of AI in sustainable marketing. Not only are respondents familiar with AI tools but also noted the strategic value of AI in planning and decision-making, which reinforces the conclusion that AI has become a strategic capability rather than an operational tool.

There is a high level of consensus on the potential of AI to create real-time insights and discover sustainability-driven preferences of consumers, which is consistent with claims that AI can help to improve responsiveness based on data in dynamic markets (Garg et al., 2025; Kabir, 2025). It means that organizations are finding AI increasingly important to learn about environmentally aware consumers and predict sustainable product demand. These results align with previous literature, which claims that predictive analytics and segmentation are essential to implementing sustainability into competitive strategies (Salhab et al., 2025).

Moreover, the results confirm that the AI-based sustainability strategies are associated with the improvement of brand reputation, customer trust, and long-term performance. These results are consistent with the literature that proposed that sustainable marketing through the assistance of intelligent analytics could enhance the credibility and competitiveness of the organization (Islam et al., 2025; Akther & Rahman, 2025). The high scores of behavioural intentions also indicate that professionals view AI as a long-term enabler of sustainable marketing practices and not a trend.

However, the study also highlights persistent challenges. The implementation cost, absence of expertise, and data privacy remain significant barriers, as it was in previous studies (Alam et al., 2024; Khalid et al., 2024). Even though the respondents expressed high confidence in the opportunities AI can offer in the realms of both ethics and strategies, the mixed answers in the context of monitoring sustainability performance and transparency could suggest that strategic intent could develop faster than operational implementation.



On the whole, the discussion highlights one of the most important findings the strategic relevance of AI to the sustainability integration is widely acknowledged, but the success of its implementation is contingent on the ability to manage financial, ethical and capability-related limitations. The convergence in the empirical research and the literature available supports the argument that AI-driven marketing intelligence may be employed as a legitimate and scalable channel through which sustainability integration into mainstream marketing strategy can be achieved, should sufficient governance, investment, and professional capabilities be established.

6. Conclusion and Recommendations

The paper has investigated how AI- driven marketing intelligence can be utilized to facilitate the incorporation of sustainability in organizations. The results suggest that the level of awareness is high, the perception of AI possibilities is positive, and the strategic value of AI in sustainable marketing practices is clear. The respondents also consider AI as a data analysis instrument and a major facilitator of ethics-based decisions, sustainability in branding, competitive advantage, and business performance in the long term. The findings also show that companies are becoming more willing to develop AI- driven sustainability programs, indicating their belief in its applicability in the future.

Meanwhile, the research also points at significant challenges. The high implementation cost, untrained professionals, data privacy challenges, and ethical risks will continue to be serious obstacles to effective implementation. Even though organizations have acknowledged the strategic importance of AI, the existing gaps between awareness and full operationalization indicate that the sustainability results are contingent on orderly implementation, governance structures, and resource allocation.

Based on these findings, several recommendations are then recommended. The first step is that organizations have to undergo the process of capacity building, i.e. developing internal expertise on AI-based analytics and sustainable marketing. Implementation can be supported through training programs and inter-functional working with marketing, IT, and sustainability teams.

Second, the institutions should establish clear governance frameworks to address ethical concerns and data privacy. The existence of clear policies regarding the use of data, responsibility of algorithms and sustainability reporting will raise the degree of trust between the stakeholders and reduce the reputation risk.

Third, the management needs to adopt a gradual process. Instead of the large scale implementation, pilot projects may be established to apply AI applications in sustainable segmentation, demand forecasting and performance monitoring. This reduces financial risk and improves organizational learning.

Fourth, AI systems should be developed to ensure that sustainability goals are included at the design stage. To balance technological investments with environmental and social performance indicators, one should ensure that AI will enable genuine sustainability integration, and not superficial branding.

In conclusion, AI-driven marketing intelligence represents a significant opportunity to those organizations that consider sustainability as being a part of the strategic process. However, long-term success requires a fair investment in technology, governance, human resources, and ethical control to ensure that AI-driven sustainability plans deliver viable and measurable impact.

Contribution of Authors

All the authors participated in the ideation, development, and final approval of the manuscript, making significant contributions to the work reported.

Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding Statement

The authors did not receive financial support from any funding agency or external organization for the research, authorship, or publication of this article.

Informed Consent

Informed consent was obtained from all participants.

Data Availability



The datasets generated during and analysed during the current study are available from the corresponding author on reasonable request.

References

- Afshar, M. Z., & Shah, M. H. (2025). A narrative review for revisiting BCG matrix application in performance evaluation of public sector entities. *The Journal of Research Review*, 2(2), 325–337.
- Afshar, M. Z., & Shah, M. H. (2025). Resilience through adaptation: Examining the interplay between adaptive capacity and organizational resilience in public sector organizations. *ACADEMIA International Journal for Social Sciences*, 4(2), 1770–1789.
- 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. *PaperASIA*, 41(4B), 344–359.
- Akther, S., & Rahman, M. S. (2025). Artificial intelligence-driven marketing analytics capability and sustainability positioning in B2B firms: A review and future research direction. *Paradigm*, 29(2), 123–141.
- Alam, K. R., Saurav, K. R. H., Kabir, J. U. Z., Rahman, M. S., Hasan, M. I., & Barua, C. (2024). AI-driven digital marketing analytics and leadership strategies for sustainable business innovation: A mixed-methods research study. *Emerging Frontiers Library for The American Journal of Management and Economics Innovations*, 6(12), 83–102.
- Alim, I., Meghla, R. N., Matin, T. F., & Prodhon, T. M. M. H. (2026). A semantic and behavioral AI framework for detecting invoice fraud in automated accounts payable. *International Journal of Science and Research Archive*, 19(2), 1356–1380.
- Amin, F., & Imtiaz, U. (2025). Mitigating advanced persistent threats: A framework for enhancing organizational cybersecurity posture. *Journal of Engineering and Computational Intelligence Review*, 3(1), 99–113.
- Dixit, P., & Singh, P. B. (2025). AI-powered consumer insights for sustainable business practices: A literature review on ethical marketing and green consumerism. *Journal of Indian Institute for Engineering*, 4, 28.
- El Hassani, M., & Azdimousa, H. (2024). Leveraging artificial intelligence for sustainable marketing: The mediating role of corporate social responsibility and ethics. In *International Conference on Advanced Intelligent Systems for Sustainable Development* (pp. 912–921). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-78642-6_79
- Emon, M. M. H., & Khan, T. (2024). A systematic literature review on sustainability integration and marketing intelligence in the era of artificial intelligence. *Review of Business and Economics Studies*, 12(4), 6–28.
- Eshra, S. A., Zohora, F. T., Akter, S., Rasul, I., & Hossain, A. (2025). The role of threat intelligence in preventing financially motivated cyberattacks. *Journal of Engineering and Computational Intelligence Review*, 3(2), 20–37.
- Garg, V., Bohara, S., & Srivastav, A. (2025). AI-driven sustainability marketing transforming consumers' perception toward eco-friendly brands. *Discover Sustainability*, 6(1), 984. <https://doi.org/10.1007/s43621-025-00984-0>
- Hasan, M. A., Mazumder, M. T. R., Motari, M. C., Shourov, M. S. H., & Sarkar, M. (2025). AI-powered fraud detection: Strengthening risk monitoring with business intelligence in US financial institutions. *Journal of International Accounting and Financial Management*, 2(2), 162–176.
- Hasan, M. A., Mazumder, M. T. R., Motari, M. C., Shourov, M. S. H., & Sarkar, M. (2025). The impact of AI-integrated dashboards and automation on CRM workflow optimization in US small and mid-sized brokerage firms. *Journal of Theoretical and Applied Econometrics*, 2(1), 25–56.
- Hasan, S. T. (2023). Natural language processing for employee relations case management: Analyzing workplace complaints, grievances, and investigation narratives in healthcare organizations. *Journal of Computational Systems & Engineering Insights*, 1(1), 11–24.



- Hasan, S. T. (2024). AI-powered early warning systems for healthcare worker burnout in New York City: Predictive modeling of absenteeism, turnover, and scheduling burden. *Journal of Computational Systems & Engineering Insights*, 2(2), 1–14.
- Ijaz, S., & Zubair, M. T. (2025). A trust management-based energy-efficient message scheduling algorithm in the Internet of Things system. *Journal of Engineering and Computational Intelligence Review*, 3(2), 51–67.
- Iqbal, U., & Bhutto, Y. (2026). Digital transformation through artificial intelligence and advanced business analytics in American operational management. *Journal of Theoretical and Applied Econometrics*, 3(1), 37–50.
- Iqbal, U., Bekmez, S., & Qurashi, F. A. (2026). Operational risk management through machine learning and business intelligence in US businesses. *Spanish Journal of Innovation and Integrity*, 54, 239–253.
- Islam, M. A., Goldar, S. C., Imran, S. A., Halimuzzaman, M., & Hasan, S. (2025). AI-driven green marketing strategies for eco-friendly tourism businesses. *International Journal of Tourism and Hotel Management*, 7(1), 56–60.
- Jain, S., Dutta, S., Alvi, M. F. M., Abbasi, A., & Arul, V. (2025). Implementation of IoT-enabled smart devices for real-time health monitoring in nursing practice. In *2025 International Conference on Frontier Technologies and Solutions (ICFTS)* (pp. 1–7). IEEE.
- Kabir, S. M. H. (2025). Artificial intelligence-driven marketing and consumer behavior: Balancing sustainability and profitability in the digital age. *International Journal*, 39–44.
- Khalid, J., Chuanmin, M., Altaf, F., Shafqat, M. M., Khan, S. K., & Ashraf, M. U. (2024). AI-driven risk management and sustainable decision-making: Role of perceived environmental responsibility. *Sustainability*, 16(16), 6799. <https://doi.org/10.3390/su16166799>
- Khan, A., Imtiaz, U., & Amin, F. (2026). Big data analytics in advanced cybersecurity: A US study of proactive strategies and innovative solutions. *Spanish Journal of Innovation and Integrity*, 54, 163–180.
- Muduva, M., & Kiwa, F. J. (2025). Artificial intelligence-driven green marketing strategies for a circular economy. In *Sustainable Green Marketing Strategies for a Circular Economy: African Realities and Imperatives* (pp. 209–237). Springer Nature Switzerland.
- Noor, S. R., & Alim, I. (2023). Blockchain-integrated ERP platforms for ensuring security in US financial supply chains. *Journal of Business Insight and Innovation*, 2(2), 107–119.
- 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. <https://doi.org/10.3390/admsci15010020>
- Shrikant, A., Dwivedi, J., & Lepcha, D. (2024). AI-driven sustainability strategies for responsible business innovation. *EPRA International Journal of Economics, Business and Management Studies*, 12(3), 45–59.
- Twaha, U. (2024). Mitigating financial waste in the US healthcare system: An AI-driven framework for real-time fraud detection in Medicare and Medicaid. *Journal of Engineering and Computational Intelligence Review*, 2(2), 71.
- Usman, F. O., Eyo-Udo, N. L., Etukudoh, E. A., Odonkor, B., Ibeh, C. V., & Adegbola, A. (2024). A critical review of AI-driven strategies for entrepreneurial success. *International Journal of Management & Entrepreneurship Research*, 6(1), 200–215. <https://doi.org/10.51594/ijmer.v6i1.781>
- Zohora, F. T., Parveen, R., Nishan, A., Haque, M. R., & Rahman, S. (2024). Optimizing credit card security using consumer behavior data: A big data and machine learning approach to fraud detection. *Frontline Marketing Management and Economics Journal*, 4(12), 26–60.