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Analysing The Critical Role Of Artificial Intelligence In Digital Marketing For Achieving Sustainable Management

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Abstract
The potential of artificial intelligence technologies to change the landscape of digital marketing is becoming more obvious as these technologies continue to improve. This brings about substantial ramifications for organisations and the digital outreach methods they use. People are spending more time on social networking sites, which is a sign that these sites are becoming more essential. This has had a significant impact on the manner in which individuals purchase items. It is possible that the firm may enhance its approach by using AI-powered tools such as influencer marketing, customisation, and content optimisation. These technologies would assist the organisation in anticipating how consumers would behave. Using this method, the material is tailored to the consumer's preferences, improving the quality of the relationship with the customer. There has not been enough research done to adequately investigate the influence that social norms have on the acceptability of AI-powered products by consumers. Furthermore, the collection and utilization of social media data signify the emergence of a new strategic asset with the potential to improve marketing results.

Keywords: Digital Marketing, Sustainable Management, Regression

Introduction
In the context of an organisation, marketing is a collection of activities and a function that tries to develop, convey, and offer value to customers while simultaneously sustaining connections with those customers in a manner that is beneficial to the company as well as its stakeholders. Commodities, pricing, distribution methods, and advertising strategies are all elements that are used in traditional marketing in order to give customers value. This is a method of making money. Digital marketing methods, which employ a more concentrated and engaging way of communicating, have replaced traditional marketing methods, which were effective for large groups of people. The world has changed as a result of these changes. (Basri, 2020).

Artificial intelligence (AI) has brought about significant changes in a variety of fields, including finance, healthcare, education, and digital marketing in particular. The manner in which companies produce campaign content, attract leads, reduce the cost of gaining new customers, make consumers happy, acquire new workers, and convert social network users into customers (Nishant, 2020). In addition to this, it demonstrates a distinct movement towards automation, decision-making that is driven by data, and improved client experiences (Adamopoulou, 2020).

Digital marketing is becoming more important to contemporary businesses, and artificial intelligence is becoming a game-changing force that enhances marketing techniques and

promotes sustainability at the same time. (Stone, 2020). Artificial intelligence has the potential to transform businesses and contribute to the resolution of significant social issues, including sustainability. The function of marketing is expanding beyond just maintaining ties with customers to include tackling bigger concerns related to sustainability as it continues to develop. Consequently, this indicates that marketing is placing an increasing amount of attention not only on the management of customer relationships but also on the management of larger challenges, such as the implementation of social and environmental sustainability. Having a strong sense of self-efficacy, digital marketing, and product innovation are all highly essential factors in the success of a firm. According to a number of studies, the standard financial metrics are not as effective as the corporate sustainability performance (CSP) method when it comes to forecasting stock values (Magano, 2020).

Artificial intelligence (AI) has brought about changes in a number of other industries. Companies can market their goods and services via the use of these digital channels. Digital marketing is a relatively recent field of study that has seen significant growth and is widely acknowledged as the most prominent trend in the field of marketing. Companies are increasingly relying on artificial intelligence (AI) to assist them in improving their marketing tactics and staying ahead of the competition available online as technology continues to advance (Rahayu, 2021). The term "artificial intelligence" refers to computer software that operates by collecting data in order to carry out intelligent operations that are designed to increase the likelihood of success. Facebook, Instagram, and YouTube are examples of websites that examine their users' data before displaying customised advertisements to them (Mkwizu, 2020).

Literature Review

Perceived Benefits of AI

Companies can market their goods and services via the use of these digital channels. Although it is a relatively young topic of study, digital marketing has seen significant growth in recent years and is often regarded as the primary focus of marketing. As a result of developments in technology, companies are increasingly depending on artificial intelligence (AI) to improve their marketing tactics and get an advantage over their rivals on the internet while doing business. A computer system that is capable of gathering information and using it to perform intelligent actions that are designed to enhance the likelihood of success is referred to as artificial intelligence (AI). (Flavián, 2019).

This provides consumers with one-of-a-kind opportunities to connect with companies, promotes goods and services, and strengthens their loyalty to the brand. It could be simpler to comprehend these activities if they were categorised according to their nature and their objectives. For instance, there are four primary categories of operations that fall under the category of conventional internet marketing: content development and distribution, paid advertising, user engagement, and data monitoring and analysis. In social media marketing, the objective is to create a better relationship with the business while simultaneously entertaining, educating, or inspiring the target audience. It is crucial to have content of high quality that effectively captures and maintains the attention of the intended audience (Argan, 2022).

Perceived Risks of AI

One of the most significant effects that artificial intelligence has had on internet marketing is that it has provided companies with new opportunities to engage with consumers, tailor their experiences, and increase their advertising effectiveness. By reducing waste, making it

simpler to target consumers without providing them with an excessive amount of information, and providing knowledge about what customers want in sustainable goods, these capabilities enable the marketing function to operate more effectively and contribute to the achievement of sustainability objectives. By looking at behavioural data surrounding green buying trends, businesses may decide to adjust their strategy in order to encourage more ethical purchases and to make decisions that are better for the environment. Because AI has the ability to make user experiences more personalised, it makes internet marketing far more effective. The purpose of artificial intelligence systems is to deliver tailored suggestions for items and content by analysing data about how people act. Customer satisfaction is increased, conversion rates are raised, and brand loyalty is strengthened as a result of this (Rodgers, 2022).

The traditional method of marketing makes use of broad demographic categories and straightforward promotional tactics, neither of which is able to satisfy the requirements of all customer groups. A marketing strategy that is boosted by artificial intelligence makes use of data to deliver messages to particular individuals at the best times via the best channels, depending on real-time data metrics. The sophisticated analytics technology that is used in AI influencer marketing is able to locate content providers whose following is compatible with the target groups that have been established. This exceeds the typical boundaries that are associated with celebrity endorsements (Marjerison, 2022). Individualisation via the use of product recommendation systems results in the generation of one-of-a-kind ideas that are more successful than broad ones for targeted advertising. When clients want certain information at a particular time and location, content optimisation algorithms automatically modify marketing messages in order to make them as successful as they possibly can be. As machine learning delivers cost-effective analytics that lower trial costs and give greater returns, AI-driven solutions are becoming more economically viable. This is because machine learning provides cost-effective analytics.

Perceived Transparency of AI Systems

Artificial intelligence has had a significant impact on internet marketing since it has provided marketers with new methods to engage with consumers, tailor their experiences, and improve their advertising strategies. These characteristics not only improve the efficiency of marketing but also contribute to the achievement of sustainability objectives by lowering the amount of resources that are wasted, simplifying the process of targeting clients without overexposing them, and providing companies with knowledge about what customers want in sustainable goods. By looking at behavioural data surrounding green buying trends, businesses may decide to adjust their strategy in order to encourage consumers to make more ethical purchases and to make decisions that are better for the environment. The use of artificial intelligence technology in several aspects of marketing strategy demonstrates how AI is enhancing internet marketing (Desai, 2019). The ability to personalise user experiences is one of the most significant ways that artificial intelligence has aided internet marketing. The purpose of artificial intelligence systems is to deliver tailored products and content suggestions by analysing data about how consumers behave. Customer satisfaction is increased, conversion rates are raised, and brand loyalty is strengthened as a result of this. One further advantage is that marketing campaigns may be automated, which allows for the optimisation of advertisements, the management of budgets, and the segmentation of audiences (Batta, 2023). Machine learning is integrated with Google Ads and other technologies, allowing for real-time adjustments to be made to bids and the overall performance of campaigns. Because of this automation, prices are reduced and productivity is

increased, which enables marketers to have more time to concentrate on developing new ideas and generating content.

Trust in AI-Driven Marketing Tools

As a result of consumer confidence in environmentally friendly marketing strategies driven by artificial intelligence, brand loyalty and engagement are significantly impacted. Whether they are making a purchase in person or online, buyers who trust a brand are more likely to return for more purchases. (Rosa, 2022). It is for this reason that companies need to improve their ability to match the expectations of their customers. Artificial intelligence categorises individuals into categories according to their demographics, interests, and online activities, which makes it simpler to develop marketing strategies that are more specifically focused. Consequently, this assists businesses in achieving a higher return on their investment (ROI).

AI helps to generate dynamic connections between brands and their customers, which are essential for the development of sustainable enterprises and the promotion of brand expansion. Through the examination of client perspectives on AI-driven and sustainable marketing, researchers were able to give practitioners significant insights that can be used in the development of strategies. Within the context of the sharing economy, the research highlights the vital role of trust, revealing that consumer trust has a major effect on engagement and loyalty in both digital and physical interactions. Through the development of trust and loyalty among consumers, the study demonstrated how artificial intelligence (AI) makes a difference in the experiences of customers, especially on home-sharing platforms. A significant amount of information on the ways in which artificial intelligence influences people's thought processes was gleaned from the study that also investigated how customer trust in platforms and hosts influences their interactions. It was emphasised in the research that marketing strategies should include sustainability objectives, and it demonstrated how artificial intelligence may assist in achieving these goals.

Methodology

This study makes use of a mixed-method approach in order to conduct an in-depth investigation of the very important function that Artificial Intelligence (AI) plays in digital marketing for the purpose of establishing sustainable management. The research guarantees that it covers both the observable implications of artificial intelligence as well as the underlying perspectives that influence its deployment by combining the examination of quantitative data with understandings gained via interpretation. An investigation of the effect of elements such as perceived advantages, risks, trust, transparency, satisfaction, and user engagement on sustainable management performance within the framework of AI-driven digital marketing has been carried out using a technique that is both descriptive and analytical. The analytical section examines the strength and direction of the links between the research variables, while the descriptive section examines the present trends and behaviours of marketing professionals who are employing AI.

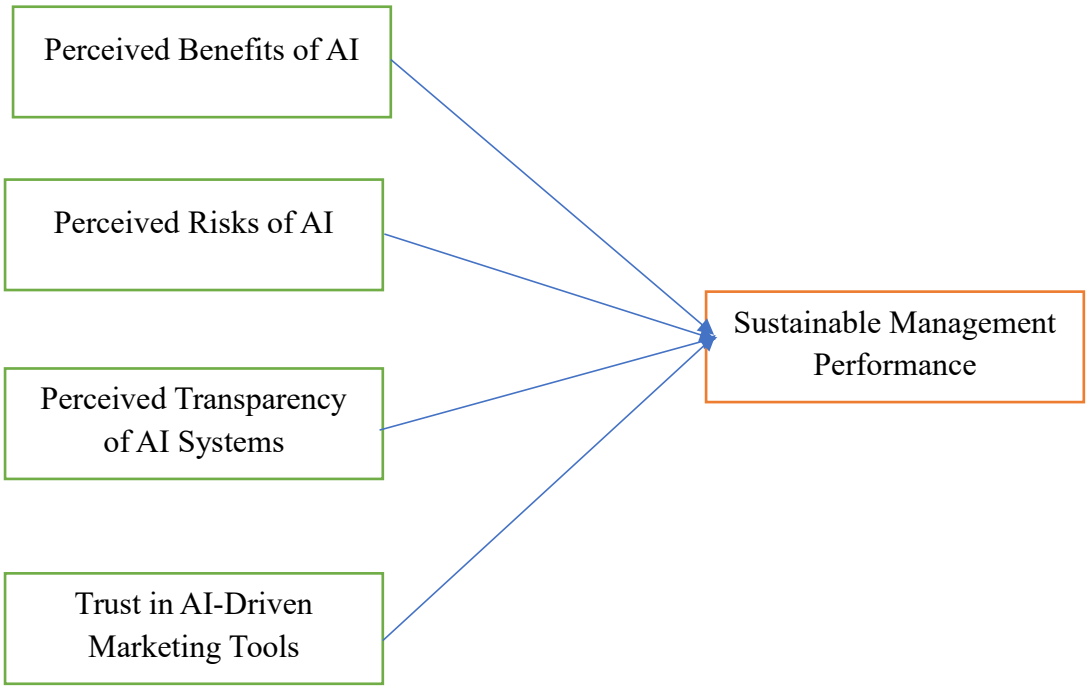
Both primary and secondary sources of information are used in the research project in order to improve the reliability and comprehensiveness of the results. Primary data was acquired by sending a structured questionnaire to individuals who work in marketing and related industries, such as those who are directly or indirectly engaged in digital marketing. This allowed us to collect as much information as possible. The questionnaire is designed to find out how respondents feel about the uses of artificial intelligence in digital marketing, how much faith they have in AI systems, how satisfied they are with their experiences, and how they believe AI will affect sustainable management practices. Secondary data was obtained

from reputable websites, as well as academic publications, studies on the industry, research papers, and other sources. This collection of secondary materials offers essential theoretical and contextual insights, notably about the trends in the global artificial intelligence industry, the principles of sustainability, and the improvements in digital marketing technology.
Purposive sampling, a non-probability selection strategy, was used in the research project to pick individuals who had the necessary expertise and experience in the field of artificial intelligence applications and digital marketing. In light of the experimental character of the study and the need to include individuals who have first-hand experience with AI-driven marketing tools and sustainable practices, this methodology was selected as the appropriate option.

Hypothesis development

H1: Perceived benefits of AI positively influence user acceptance of AI in digital marketing
H2: Perceived risks of AI negatively influence trust in AI-driven digital marketing
H3: Perceived transparency of AI systems positively influences trust in AI-driven marketing.
H4: Trust in AI-driven marketing tools positively influences sustainable management performance

Conceptual Model



Data analysis

Table 1: Correlation analysis

Correlations	Perceived Benefits of AI	Perceived Risks of AI	Perceived Transparency	Trust in AI-Driven Marketing Tools	Sustainable Performance
Perceived Benefits of AI	1	.861**	.907**	.816**	.794**
Perceived Risks of AI	.861**	1	.835**	.807**	.751**

Perceived Transparency	.907**	.835**	1	.828**	.803**
Trust in AI-Driven Marketing Tools	.816**	.807**	.828**	1	.686**
Sustainable Performance	.794**	.751**	.803**	.686**	1

The strong correlation (.794**) between the Perceived Benefits of AI and Sustainable Performance shows that companies that see real benefits from AI, like better efficiency, predictive analytics, and better use of resources, are more likely to reach their long-term management goals. The perceived dangers of AI have a strong positive correlation with sustainable performance (.751**), which means that even if there are risks, being aware of them and managing them well might make AI integration more responsible and sustainable. The association between Perceived Transparency and Sustainable Performance (.803**) suggests that transparent AI systems, defined by explicable and ethical decision-making processes, augment accountability and trust, hence fostering sustainability in marketing endeavours. There is a rather strong link between confidence in AI-driven marketing tools and Sustainable Performance (.686**), which means that trusting AI to be reliable, accurate, and used ethically helps managers and the environment stay sustainable over the long run. The strong links between Perceived Benefits and Perceived Transparency (.907**) and between Perceived Benefits and Perceived Risks (.861**) show that organisations often look at AI systems in a broad way. People who perceive big benefits also want to put openness first and manage risks well, which makes them trust AI more.

Table 2: Regression analysis

Model	Sum of Squares	df	Mean Square	F	p value		
Regression	162.932	4	40.733	74.206	.000b		
Residual	77.397	141	0.549				
Total	240.329	145					
						Collinearity Statistics	
Coefficientsa	B	Std. Error	Beta	t	p value	Tolerance	VIF
(Constant)	0.734	0.176		4.18	0		
Perceived Benefits of AI	0.258	0.117	0.281	2.201	0.029	0.14	7.153
Perceived Risks of AI	0.179	0.093	0.195	1.919	0.057	0.222	4.51
Perceived Transparency	0.46	0.129	0.438	3.559	0.001	0.151	6.622
Trust in AI-Driven Marketing Tools	-0.054	0.08	-0.063	-0.681	0.497	0.265	3.774
a Dependent Variable: Sustainable Performance							

The model is statistically significant, with an F-value of 74.206 and a p-value of .000. This means that the independent variables together explain a large part of the variance in sustainable performance. The R^2 value from the regression (around 0.68) shows that these AI-

related factors account for more than 68% of the difference in sustained performance, which supports the model's strength. The most important predictor of sustained success is the perceived transparency of AI systems (β = 0.438, p = 0.001). This means that businesses that value transparency in AI operations—through clear communication, algorithmic accountability, and data openness—are more likely to achieve better long-term results. The perceived benefits of AI significantly influence organisational outcomes (β = 0.281, p = 0.029), suggesting that when businesses see tangible advantages, such as increased efficiency and improved customer targeting using AI, they are more likely to sustain management success. The Perceived Risks of AI shows a moderately significant positive connection (β = 0.195, p = 0.057), which means that being aware of and able to deal with risks may lead to long-term results, maybe by encouraging responsible AI use. On the other hand, Trust in AI-driven marketing Tools has a negative and statistically insignificant correlation (β = -0.063, p = 0.497). This means that trust is important in theory, but it may not have a direct effect on sustainable performance. Instead, other factors like transparency or perceived benefits may be at play. The collinearity statistics show that the VIF values range from 3.77 to 7.15, which means that there is a lot of multicollinearity between the predictors. However, these values are still within acceptable limits for interpretation. The regression results show that perceived transparency and benefits are the main determinants that lead to successful, sustainable management in AI-driven digital marketing. Risk management and trust are also important, although they are not as direct.

Test of Hypothesis

H1: Perceived benefits of AI positively influence user acceptance of AI in digital marketing for sustainable management

Table 3: Chi-square analysis between perceived benefits of AI and sustainable management

Test Statistics	Perceived Benefits of AI	Sustainable Performance
Chi-Square	16.74	21.671
df	4	4
p value	0.00	0.00

The chi-square analysis confirms a substantial and positive association between customers' views of AI benefits and their use of AI technology in digital marketing for sustainable management objectives. The results support the hypothesis (H1) that companies or users that see specific advantages from AI—such as enhanced efficiency, improved decision-making, cost reduction, and better marketing targeting—are more likely to adopt and integrate AI technologies effectively. This acceptance, therefore, improves long-term sustainability by making the best use of resources, cutting down on waste, and encouraging management approaches that are based on facts. The high chi-square values show that perceived benefits are important for getting people to use AI in a way that will have long-term benefits for businesses.

H2: Perceived risks of AI negatively influence trust in AI-driven digital marketing for sustainable management

Table 4: Chi-square analysis between perceived risks of AI and sustainable management

Test Statistics	Perceived Risks of AI	Sustainable Performance
Chi-Square	21.945	21.671
df	4	4
p value	0.00	0.00

This research supports the hypothesis (H2) that perceived risks linked to AI negatively impact trust in AI-driven digital marketing for sustainable management. The results show that when people or businesses are aware of higher risks associated with AI, such as worries about data privacy, algorithmic bias, misuse of consumer data, or less human oversight, they typically have less faith in using AI-based technology. The lack of trust might make it harder to deploy AI technology successfully in marketing and could slow down the process of reaching long-term management goals. So, to build trust and make sure that AI adoption has a positive effect on long-term sustainability, it's important to lower perceived risks via stronger ethical guidelines, better data security measures, and clearer AI procedures.

H3: Perceived transparency of AI systems positively influences trust in AI-driven marketing for sustainable management.

Table 5: Chi-square analysis between perceived transparency of AI and sustainable management

Test Statistics	Perceived Transparency	Sustainable Performance
Chi-Square	35.644	21.671
df	4	4
p value	0.00	0.00

The chi-square analysis of the relationship between Perceived Transparency of AI and Sustainable Management reveals a very significant association, with chi-square values of 35.644 and 21.671 and p-values of 0.00, offering strong statistical validation for the hypothesis (H3). The perceived transparency of AI systems positively influences trust in AI-driven marketing for sustainable management. When businesses and customers regard AI systems as open and honest—where algorithms, data use, and decision-making processes are clearly explained and driven by ethical standards—they build more trust and confidence in these technologies. This transparency makes things less unknown, makes people more responsible, and makes sure that AI applications follow ethical and sustainable business practices. So, more transparency leads to more acceptance and reliance on AI technology, which in turn leads to better management via ethical digital marketing practices. The significant chi-square results indicate that transparency is an essential enabler of trust and sustainability in AI-driven marketing environments.

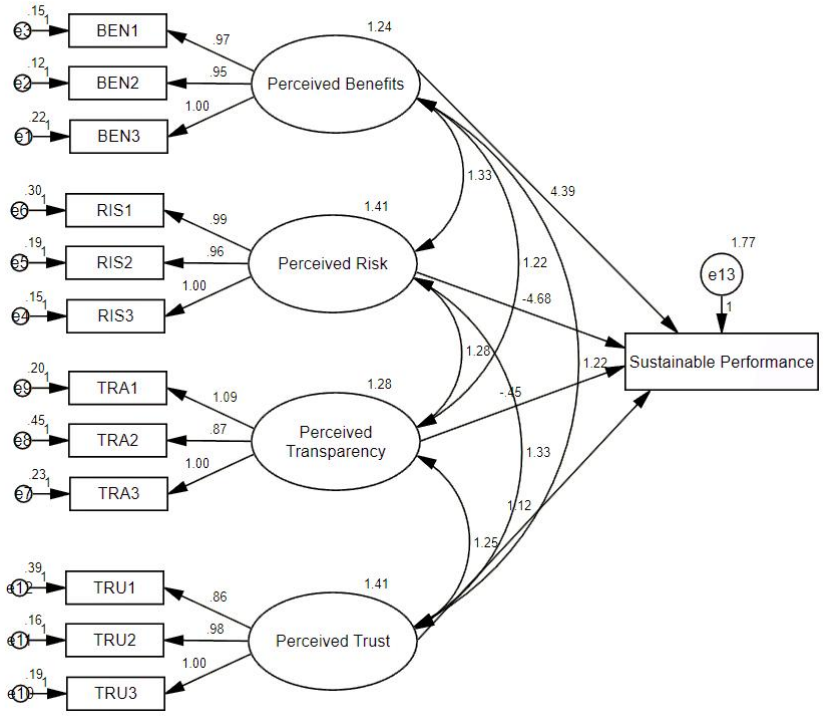
H4: Trust in AI-driven marketing tools positively influences sustainable management performance

Table 6: Chi-square analysis between Trust in AI-driven marketing tools and sustainable management

Test Statistics	Trust in AI-Driven Marketing Tools	Sustainable Performance
Chi-Square	30.438	21.671
df	4	4
p value	0.00	0.00

The chi-square analysis of Trust in AI-Driven Marketing Tools and Sustainable Management demonstrates a strong correlation, with chi-square values of 30.438 and 21.671 and p-values of 0.00, signifying statistical significance. This research validates the hypothesis (H4) that trust in AI-driven marketing tools substantially influences sustainable managerial performance. The results indicate that businesses are more likely to effectively integrate AI technologies into their marketing strategies when they have confidence in its reliability, precision, and ethical functioning. This trust makes operations more efficient, helps people make smart decisions, and promotes excellent business practices, all of which help the organisation stay in business for the long run. Managers are more likely to give AI applications analytical and strategic tasks when they trust AI systems. This leads to better resource allocation and better environmental and economic outcomes. The significant chi-square values thus validate that trust serves as a crucial link between AI adoption and sustainable management performance.

Structural Equation Model



The positive link between the Perceived Benefits of AI and Sustainable Performance indicates that businesses that see AI as beneficial—through enhanced efficiency, accurate marketing, and improved decision-making—are likely to achieve stronger sustainable outcomes. The negative correlation between Perceived Risk of AI and Sustainable Performance suggests that heightened perceived uncertainties or threats, like data privacy issues or algorithmic bias, hinder the use of AI technology, hence reducing sustainability performance. Acknowledged. The openness of AI systems has a strong and positive link to sustainable management performance. This means that when companies encourage transparency in AI-driven marketing by making algorithmic decisions clear and moral, they encourage accountability and long-term growth. Trust in AI-driven marketing tools shows a strong positive relationship with sustainable management performance. This means that trust is an important part of integrating AI into marketing, which leads to more dependable and long-lasting management outcomes. The high correlation values across latent variables (from 1.12 to 1.41) show that incentives, trust, and transparency all work together to promote sustainable performance. However, risk acts as a moderating disincentive.

Discussion

The overall analysis shows that social norms and how open AI seems to be are very important for building consumer trust in it. This shows that the social and ethical context of AI applications is just as important as their technological effectiveness for them to be acceptable. The strong positive link between social norms and trust shows that people's use of AI is affected by both their own experiences and the general feelings of the people around them. (Magano 2020). This is because more and more consumers expect companies that use current data analytics tools to be responsible, protect their privacy, and follow environmental standards. Transparency is essential for building trust by clarifying the uncertainty around AI systems. Customers are more likely to think that AI systems are fair, consistent, and follow ethical guidelines when they know how they work, what data they utilise, and how decisions are made. This knowledge clears up some of the unclear things that people typically associate with AI, which builds trust and makes more people want to use it. Artificial intelligence may change how businesses work and whole industries while also solving big societal problems, such as the need for long-term answers to today's problems. AI has been shown to provide several benefits in advancing environmental activities [36]. Using AI in sustainability strategies gives businesses a lot of chances to make their operations more efficient and have less of an effect on the environment.

Conclusion

AI makes marketing efforts more accurate by analysing data in real time and improving targeted advertising. This makes better use of resources and has less of an effect on the environment than traditional marketing methods, which frequently leave a lot of trash behind. AI in marketing is closely related to sustainability goals. AI helps companies explain how they are environmentally friendly and socially responsible, which is in line with the growing number of customers who care about sustainability when they shop. But AI also brings up problems with data privacy and moral issues.

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