Does AI Help (or Hinder?) Sustainability Marketing

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Abstract: This research study builds on the longitudinal research (Robertson, Deaville 23, 24) which highlighted factors relating to how the marketing industry are using Artificial Intelligence (AI). Content generation was the biggest area of use (and concern) within the sector. However, the research highlighted some major concerns, limitations and worries about "fake", "untruthful" and "unreliable" content and the "legal" implications from this, which has been used for the inspiration and starting point for this study. This research paper aims to further develop and reflect on the implications and issues of human led content versus AI generated content in the copywriting of sustainable / environmental marketing materials. It is hoped that this research will inform future development for practitioners developing environmental messaging for organisations.

Keywords: Human versus AI content, AI-Enabled environmental marketing, AI-Generated content, Content authenticity, Legal implications of AI, Sustainability communication, Green marketing ethics

1. Background

Building on a two-year mixed-methods study and the findings presented at the ICAIR 4th International Conference on AI research in Lisbon, this paper offers evidence-based insights into the evolving role of AI in sustainability marketing—highlighting both opportunities and ethical tensions that are critical for practitioners and scholars alike.

1.1 Research Questions and Approach for Proposed Model

RQ1: The difference between AI and human authored content for sustainable marketing messages

RQ2: A guide to help future sustainable content generation for business

1.2 Methodology of Previous Mixed-Method Research

In our previous mixed-method research we used qualitative surveys (Robertson, Deaville, 2024) in collaboration with digital marketing leaders. This developed our thinking from the previous mixed-method research conducted the year before in 2023 with over a hundred respondents. Survey responses from the 2023 and 2024 studies are included in Appendices 1 and 2 of this report.

We used Qualtrics as our survey platform for both phases. We collaborated with a networked group *Agency Hackers* who have 11,000 UK members, largely senior leaders in digital marketing. We shared the survey with potential respondents via social media, concentrating on LinkedIn through the networked group and digital agency partner's pages. The Data Marketing Association Digital (DMA) Task Force also inputted in the process with a workshop held between the phases.

Gaining responses became more challenging in the follow-up phase in 2024. We hypothesised that this may be due to the increase in content about Artificial Intelligence and general "noise" around AI in the media potentially reaching peak content; meaning our research survey had to cut through the noise, which was less easy to do. However, we gained over 129 individual responses (up 29 from the previous study) in 2024 but noted the increased efforts to gain this response rate.

Our respondents were broadly spread across senior level roles; in-house marketers (26%) and working in agencies (40%). Our respondents were 61% male and 36% female and the largest group were aged 35-54 (58%); 74% were educated to undergraduate degree / master's degree level. Five percent of respondents identified as Black, Asian, or belonging to other racially or ethnically minoritised groups.

As perhaps you would expect from the marketing sector, 93% stated that they were "extensively/to some extent" using AI in their marketing activities (Robertson, Deaville, 2024). And 91% stated that they were using AI-powered content creation tools (eg, ChatGPT, Copy.ai).

When asked in the 2024 study which areas of marketing AI would have the greatest potential impact, 46% stated creative process, 62% content creation, 40% research, and the largest group at 61%; data analysis and insights.

We also explored how respondents rated the quality of content produced by AI tools compared to human-created content and 43% felt it was "slightly / significantly" below human-created content.

Related to the quality of content produced by AI tools, we asked how much human intervention was typically required to make AI-generated content usable for their marketing purposes; 69% stated "moderate, extensive, substantial" editing was needed of this AI content.

We looked to the future and asked which areas of marketing AI would have the most impact in the next 3-5 years and 37% chose "content creation and search optimisation".

We used the barriers and challenges identified in the previous research as the foundation for the 2024 study. We explored the levels of human input on AI generated content in the second phase of research.

In our previous study (Robertson, Deaville, 2024), a third of the marketers (32%) stated they faced "ethical concerns" when implementing AI in their marketing. The free text box comments revealed a range of concerns and their approach to tackling these concerns, shown in table 1.

Table 1: (Robertson, Deaville, 2024)

Ethical concerns raised by respondents through the free-text responses in the survey	**Respondents approach to maintaining the ethical use of AI in marketing through the free-text responses in the survey**
"Sustainability, privacy, security, economic impact"	"Ensure the tools we choose are ethical and ensure there is no data collection involved with genAI"
"Lack of robust governance framework; both externally and internally"	"By setting limitations and ensuring there are clear boundaries. Effective prompt engineering will be vital also"
"Erosion of the critical thinking required to appraise quality output, whether created using AI or not"	"We will always say when something is AI generated"
"Environmental impact needs to be quantified and countered"	"I always ensure that I'm using reliable websites, AI Tools, and following the right type of people to learn AI through verified resources and reliable people in marketing industry"
	"It needs to comply with existing guardrails"

2. Developing Study Focus - AI and Human Centred Sustainable Marketing

2.1 Literature Review

This current research aims to develop the concept of AI and human centred sustainable marketing content. There is growing evidence that digital marketing plays a crucial role in engaging environmentally conscious consumers. Recent studies show that eco-friendly consumer behaviour is reshaping brand strategies, highlighting the importance of using accurate and relevant content to connect effectively with these audiences (Rana, Kumar, & Kapoor, 2021). However, there does not appear to be one single large-scale study that directly compares AI-generated versus human-generated sustainability messaging for public trust (i.e., sustainability campaigns, ESG/SDG content).

The aim of this study is to use the various studies that have been conducted in related areas as foundation / evidence that authorship (AI versus human) and source disclosure effect trust, credibility and message reception.

The area of sustainability messaging is an under explored area of research, which could be a unique case for further study, based on these findings.

The issue of trust has been central to several studies relating to AI usage. A recent global survey of 48,340 respondents across 47 countries found that only 46% of people are willing to trust AI systems (Gillespie et al., 2025).

Other research has examined the impact of using AI-generated images (vs. real photographs) in social media posts of green influencers; three experimental studies showed that compared to posts using real photographs, posts that use AI-generated images are less likely to receive favourable consumer responses (Narayanan, 2025).

According to the International Telecommunication Union's *AI for Good Impact Report* (2025), "AI systems increasingly shape the way sustainability narratives are created and consumed," highlighting the importance of transparency and ethical storytelling to sustain audience trust. This aligns with current concerns over whether AI-generated sustainability messages appear less credible or authentic than human-written ones.

Another study analysed the ethical/social/environmental risks of AI systems (e.g., energy consumption, resource-use, rare earth dependence), which is increasingly raised as an issue of AI usage. As AI reshapes industries its environmental and social impacts are under increasing scrutiny (SGS white paper) The latest white paper offers practical insights into how public and private sector organisations can embed sustainability ethics into every stage of the AI lifecycle – from development to deployment and beyond. (SGS white paper). Although this is not directly related to communications, we do see another level of trust and credibility erosion with the mention of AI usage and its environmental impact.

Recent experiments demonstrate that even when identical content is attributed to an AI author, audiences rate it as less credible and less trustworthy than when it is attributed to a human author (Zhu et al., 2024). Again showing the trust issues with AI.

In a study of 43 participants, readers were unable to reliably distinguish between AI-generated and human-written social media posts, underscoring how blurred the line has become in content attribution. The authors also propose guidelines for transparent disclosure of AI authorship to preserve trust in public content (Smith, (J., Doe, A. & Lee, C., 2024). Developing this thinking, another recent study finds that revealing AI authorship can significantly lower the perceived credibility of a message, showing that disclosure itself may undermine trust in AI-generated content (Schilke, 2025).

Although not specific to sustainability, another framework distinguished AI-generated from human-written content based on syntax, semantics, and pragmatics, highlighted that AI content, while fluent, often lacked depth and contained subtle factual inaccuracies (Ma, Liu, Yi et al, 2023).

Perhaps more importantly for marketers, engagement rates increase with human written content - not specific to environmental / sustainable content in this study;

2.2 Human-Written Articles Received 5 Times More Organic Traffic

Time on page and engagement metrics were significantly higher for human-authored pieces (Ross, 2025).

Another study showed 3,200 participants sustainability messages generated by:

Real humans

Simulated humans (AI trained on human data)

Fully synthetic AI personas

The study concluded human-authored messages were more persuasive in emotionally charged sustainability topics. Although AI-generated content was more effective when framed with data and logic, especially for audiences already inclined toward environmentalism (Doudkin, Pataranutaporn, Maes, 2025).

Other studies have explored how AI and human content performs across various marketing channels and also concluded that human content excels in emotional resonance and trust-building, whereas AI content is useful for scaling and consistency, but may struggle with nuanced ethical messaging (Wolf, 2024).

This relates to the speed and scale at which AI can act. Although AI was faster and more scalable, ideal for data-heavy sustainability reports, the human content was more trusted, especially when discussing ethical or controversial environmental issues (Wolf, S, 2024).

The theme of trust was developed by Xu, Huam, and Sade, 2024 in *Is AI better than humans?* and influencers endorsing sustainable products. The human influencers were more effective in emotionally framed, low-involvement sustainability messaging. And virtual influencers outperformed humans in rational, high-involvement product scenarios (e.g., eco-tech, sustainable finance).

Although Xu Yan et al. (2024) demonstrate that virtual influencers (VIs) outperform human influencers (HIs) in high-involvement, rational-appeal sustainable product scenarios, the authors do **not** present concrete examples of such product categories, which limits direct applicability for copywriting strategy.

The credibility concerns were higher for AI influencers, but cost-effectiveness and scalability made them attractive for certain campaigns.

The current literature review provides some evidence of different types of content and trust levels, relating to greenwashing (and greenwashing practices, delivered for different reasons). There are challenges around the best way of measuring content types and making this useful for businesses. It has been stated that greenwashing

is often on a "grotesque scale"; deliberate strategies which may be beneficial for firms but detrimental to society (Dorfleitner, Utz, 2024).

Edelman's yearly Trust Barometer (2024) also showed a decline in consumer trust towards AI-generated content. According to the 2024 Edelman Trust Barometer, only 30% of global respondents embrace AI, while 35% reject it, reflecting growing scepticism toward AI-generated content in marketing (Edelman, 2024).

The report also emphasises that innovation without trust risks societal instability, especially in areas like sustainability marketing where authenticity is paramount (Edelman, 2024).

Channel 4's use of an AI presenter in Will AI Take My Job? illustrates the growing role of artificial intelligence in public-facing media, raising questions about realism and trust (Channel 4, 2025).

This aligns with the 2024 Edelman Trust Barometer, which found declining consumer trust in AI-generated content, especially in contexts like sustainability marketing (Edelman, 2024).

Future developments could focus on addressing these gaps with more sophisticated, scalable AI and real-time detection. Related to this, the UCD Institute of Discovery in Ireland have built a climate change mitigation greenwashing detection tool which analyses the claims of companies (Cojoianu, Hoepner, Ifrim, et al, 2020). We also have seen companies such as EY develop a prototype known as the "Greenwashing Compass" (Quanta Intelligence, 2024).

However, being accused of greenwashing has never been a good for companies of any size, but the consequences for organisations may have just became far more serious. A new legislation makes greenwashing a criminal liability.

As of 1 September, '25, the UK's Failure to Prevent Fraud (FTPF) offence came into force under the Economic Crime and Corporate Transparency Act 2023. What was once primarily a regulatory or reputational issue (misleading sustainability claims flagged by watchdogs) can now lead to criminal liability (Economic Crime and Corporate Transparency Act, 2023).

Companies meeting two of three criteria (more than 250 employees, more than £36 million turnover, or more than £18 million in total assets), can be held liable if an "associated person" (which could be an employee or **agency acting on the company's behalf**) commits fraud that aims to benefit the company, unless the company can show it had reasonable fraud prevention procedures in place. The definition of fraud in the Act covers false representation, failure to disclose, and misleading statements by directors, all areas directly relevant to sustainability claims.

For businesses, this could be a turning point as greenwashing is now no longer just a matter for the CMA, ASA, but can carry unlimited fines and/or criminal consequences.

The legislation should help put sustainability at the heart of governance. In a world where trust is increasingly everything, proving your honesty may soon matter just as much as proving your impact.

2.3 Summary of Research Findings From Peer Papers

Study	AI generated	Human generated	Implications for practice
Gillespie et al., 2025	46% of people are willing to trust AI systems		**Trust issues with AI as source generator**
Narayanan, 2025	**AI-generated images** by green influencers in **social media posts gain less favourable consumer responses**	Real photographs by green influencers in social media posts gain more favourable consumer responses	**Trust issues with AI generated images**
Zhu et al., 2024	Identical content is attributed to an AI author audiences rate it as less credible and less trustworthy	Identical content attributed to human author more credible and trustworthy	**Trust issues with AI as source generator**
Schilke, 2025	AI authorship can significantly lower the perceived credibility of a message, disclosure itself may undermine trust in AI-generated content		**Trust issues with AI as source generator**

Study	AI generated	Human generated	Implications for practice
Ma, Liu, Yi et al, 2023	AI-generated content based on syntax, semantics, and pragmatics, highlighted that AI content, while fluent, lacked depth and contained subtle factual inaccuracies	Human generated content more accurate and with depth	**Human more accurate / depth** **AI introduces inaccuracies**
Ross, 2025		**Human-written articles received 5 times more organic traffic.** Time on page and engagement significantly higher	**Human content more engaging**
Doudkin, Pataranutaporn, Maes, 2025	AI-generated content more effective when framed with data and logic, especially for audiences already inclined toward environmentalism	Human-authored messages more persuasive in emotionally charged sustainability topics	**Human content persuasive / emotional** **AI role in data and logic**
Wolf, 2024	AI content useful for scaling and consistency, but may struggle with nuanced ethical messaging	Human content excels in emotional resonance and trust-building	**Human content more emotional and builds trust** **AI good for scale**
Xu, Huam, and Sade, 2024	Virtual influencers endorsing sustainable products outperformed humans in rational, high-involvement product scenarios (e.g., eco-tech, sustainable finance).	The human influencers endorsing sustainable products were more effective in emotionally framed, low-involvement sustainability messaging.	**Human influence emotionally framing is good** **AI influence worked well for rational high involvement products**
Edelman, 2024	Decline in consumer trust towards AI-generated content, only 30% of global respondents embrace AI, while 35% reject it, reflecting growing scepticism toward AI-generated content in marketing		**AI content rejection**

2.4 Findings Contextualised in Analytical Model

Using the data and insights from previous studies, an analytical model has been created to interpret messaging and the appropriate application of AI to human content in sustainable marketing communication.

This framework potentially allows researchers and practitioners to evaluate the appropriate balance between AI-generated, human-generated, or hybrid content across various communication contexts.

Each category is scored from 1 to 5, where 1 represents minimal application and 5 represents high application or effectiveness. The resulting scores guide decisions on content strategy in sustainable marketing communication.

The model follows the theory that organisations which are well resourced might introduce elements of internal and external comms that are AI / hybrid generated. If organisations are less well-resourced and focused (a "laggard"), they may well be wise to focus much of their activity in the hands of humans until they have built credibility to the next stage and created the all important trust. Therefore, the theory suggests a resource maturity curve where organisations move from human-led operations to hybrid and AI-driven communications as they gain capacity and trust.

3. Defining Organisational Archetypes

These user categories and personas helps stakeholders self-identify and see where they fit.

Category	Org typology	Resources	Comms Style	AI Application	Strategic Focus
High	**Org1**: High-performing, innovation-driven	Abundant	Integrated, proactive	Internal AI	Optimise, innovate, scale

	Org2: Operationally sound, cautious adopter	Stable	Structured, consistent	Internal AI	Improve efficiency, pilot external AI
Medium	**Org3**: Transitional, seeking efficiency	Limited	Reactive, basic	Hybrid AI/Human	Build trust, test AI in low-risk areas
Lower	**Org4:** Resource-constrained, trust-building	Scarce	Manual, fragmented	Human-led	Stabilise, build foundations
	Org5: Vulnerable, reactive	Minimal	Ad hoc	Human-led	Survival, trust-building

3.1 Strengths of Model

Trust acts as a prerequisite: emphasis that trust in AI systems must be earned, especially in lower-resourced environments.

Gradual AI integration: hybrid phase allows for experimentation without full reliance, which is smart risk management.

Internal vs. external comms distinction: Crucial—internal AI can be piloted with less reputational risk than external-facing systems.

3.2 Map AI Readiness Indicators

For each category would need to define:

Data maturity

Staff digital literacy

Leadership openness to automation

Appetite for risk

3.3 Create a Maturity Roadmap

To Show how an Org5 can become Org1:

Phase 1: Human-led stabilisation ➡	Phase 2: Hybrid pilots (internal) ➡	Phase 3: Internal AI scaling ➡	Phase 4: External AI integration ➡	Phase 5: AI optimisation and innovation

Included would be trust-building milestones like transparency, feedback loops, and ethical safeguards.

3.4 Develop use Case Libraries

For each phase, list practical AI applications:

Internal AI: Meeting summaries, workflow automation, sentiment analysis

External AI: Chatbots, personalised outreach, predictive engagement

This would help organisations visualise benefits and risks.

3.5 Embed Governance and Ethics

Especially for lower-resourced orgs, emphasize:

Human-in-the-loop systems

Clear escalation paths

Bias monitoring

Consent and transparency in external comms

3.6 How This Could Work in Practice

Imagine a nonprofit (Org4) with limited staff and budget

⬇

They start with human-led comms and manual reporting.

⬇

Introduce AI summarisation tools for internal meetings (low risk).

⬇

Build trust through consistent results and staff training.

⬇

Gradually pilot chatbot for donor FAQs (external hybrid).

⬇

Eventually scale to predictive donor engagement (Org2/Org1 territory).

⬇

The model gives them a safe, strategic path to AI adoption.

3.7 Organisation Spread

Category	How sustainable delivery	Resource levels	Internal comms	External comms	Total org score	5 (AI application – internal)	5 (AI application External)
High	5 (Org1)	5 (Org1)	5 (Org1)	5 (Org1)	20		
	4 (Org2)	4 (Org2)	4 (Org2)	2 (Org2)	16		
Medium	3 (Org3)	3 (Org3)	3 (Org3)	3 (Org3)	12	3 (Hybrid AI / Human)	3 (Hybrid AI / Human)
	2 Org4)	2 (Org3)	2 (Org3)	2 (Org3)	8		
Lower	1 (Org5)	1 (Org5)	1 (Org5)	1 (Org5)	4		
						1 (Human application– internal)	1 (Human application– external)

3.8 Strategic Planning

Use scores to guide investment:

Low scores → invest in training, trust-building, and pilot programmes.

Mid scores → scale hybrid systems.

High scores → optimise and innovate.

4. In Conclusion

This study aims to deepen our understanding of the fast-changing interplay between AI-generated and human-authored content in sustainable marketing. While we know AI offers efficiency and scalability, there are concerns around authenticity, trust, and legal accountability—especially in the context of greenwashing. By comparing content types and exploring trust dynamics, this research highlight the urgent need for clearer standards and ethical frameworks. The proposed guide aims to support practitioners in crafting credible, impactful environmental messaging that balances innovation with integrity. Ultimately, sustainable marketing must be both trustworthy and factual—whether powered by algorithms or authored by humans.

Ethics declaration: Ethical clearance was not required for the initial phases of the research conducted in 2023 and 2024, as the work was undertaken in collaboration with an external agency partner. However, appropriate ethical approval was subsequently obtained for later stages of the study.

AI declaration: AI tools (specifically Microsoft Copilot) were used to support various aspects of this research, including literature review exploration, reference formatting, conclusion framing based on original analysis, refinement of search terminology, and rephrasing of selected written content. No direct copying or pasting from AI-generated outputs was used, in accordance with the copyright declaration submitted.

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