



JOURNAL OF RESILIENT ECONOMIES

PLATINUM OPEN ACCESS 

Journal homepage: <https://journals.jcu.edu.au/jre/index>



Can Generative Artificial Intelligence Help or Hinder Sustainable Marketing? An Overview of Its Applications, Limitations and Ethical Considerations

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Abstract

The consumption and production of household goods and services is a significant contributor to climate change, which has led to the rise of more sustainable brands. The aim of this paper is to offer an analysis of the advantages, practical applications, limitations and ethical risks of GenAI within the realm of sustainable marketing. The paper contributes to the literature since there is a scarcity of scholarly research that explores what GenAI could mean for sustainable marketing. The findings show that GenAI is a double-edged sword: it has the potential to foster creativity, support brand activism, increase public support for 'green' policies, and improve efficiencies, however the potential for 'ethics-washing' could harm sustainable brands. Many countries have developed voluntary principles and frameworks to ensure that AI is practiced in a safe and responsible manner. A comprehensive classification of these principles is provided. Five key ethical principles are summarised such as benefiting society, avoiding harm, autonomy, justice, and explainability. The paper concludes with recommendations for bridging the gap between ethical principles and practices in the context of sustainable marketing, including selective disclosure, design of inclusive chatbots, use of visualizations to achieve sustainability goals, third party certification schemes, training and education. Recommendations for future research are outlined.

Keywords: Generative Artificial Intelligence; Applications; Limitations; Ethical Principles; Ethical Practices; Sustainable Marketing

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1. Introduction

In line with the digitisation of the marketplace, the adoption of artificial intelligence (AI) within marketing practice has grown rapidly. In recent years, AI has been complemented with generative AI (GenAI) that has the capacity to generate new content and transform modalities of communication, such as image, text, audio and video (Soni et al., 2023). ChatGPT, developed by OpenAI, is a large language model and is designed to respond to a wide variety of questions and prompts in a human-like, conversational manner (OpenAI, 2022). When it was first released in November 2022, it became the focus of global discussion and quickly garnered over one million users (Marr, 2023). GenAI offers new opportunities for marketers in many industries, such as the tourism and hospitality industry (Dogru et al., 2023; McAlister et al., 2024). AI systems have become pervasive across healthcare, banking and eCommerce retail (Ooi et al., 2024) and these industries are ideally suited to AI integration because they process large amounts of data. The top six sectors that use ChatGPT are reported to be technology-based sectors, education, business services, manufacturing, finance, retail, and healthcare (Variety Intelligence Platform, 2023). In Australia, most AI companies fall into the information technology (IT), professional services, financial services, and healthcare categories (Hajkowicz et al., 2023).

While GenAI poses salient opportunities for marketing, particularly in the area of content marketing (Wahid et al., 2023), many are wary of this technology given the potentially harmful impacts on society. There is a growing literature in many disciplines documenting the ethical risks related to GenAI (Stahl et al., 2023). The risks include the risk of copyright infringement, privacy and security breaches, malicious AI, machine learning bias, labour outsourcing and environmental damage (Kumar & Suther, 2023; Paul et al., 2023; Wach et al., 2023; Walsh et al., 2019). While there is significant research on the ethical aspects of ChatGPT, much of this discussion is broad in nature and not contextualised to the marketing discipline (Kumar & Suther, 2024; Wu, Dodoo, & Wen, 2024). Thus, there is a need to identify and categorise AI ethical issues that are specific to marketing. Debates are taking place about achieving a balance between the right of society to benefit from new technology and the need to minimise potential harms to society (Floridi et al., 2018). Yet, generative AI is still in its infancy, and how a balance can be achieved is not clear. These philosophical debates are particularly relevant to sustainable marketing. With a focus on social and environmental sustainability, sustainable brands have to build consumer trust and avoid allegations of ‘greenwashing’ and ‘ethics-washing’. According to Morley et al., (2020, p.1), the scholarly debate on AI has focused on principles, the ‘what’ of AI ethics, rather than on practices, the ‘how’, how to translate principles into action. It is critical to identify and implement policies to protect against misuse and abuse of GenAI (Dwivedi et al., 2023). Questions remain in relation to whether marketing practitioners are willing to embrace AI ethical principles and how they could implement these principles in practice. Davonport et al., (2020) argue that marketing practitioners should take a leading role in addressing ethical issues, because they have a lot to gain from GenAI. Marketing practitioners, through better knowledge of harms, can educate the consumer and help protect them against the misuse of Gen AI. Furthermore, consumer trust in sustainable brands could be undermined if the harms outweigh the benefits.

The research questions of this study are as follows:

- (1) What are the advantages, applications, limitations, and ethical challenges that are associated with GenAI, particularly in the context of sustainable marketing?
- (2) What are the main theories and ethical principles that underpin the safe and responsible use of GenAI technologies?
- (3) How can the gap between ethical principles and practice be closed?
- (4) What are the recommendations for future research on GenAI in the sustainable marketing sphere?

The answers to these research questions contribute to the literature as the insights help marketers and researchers understand the importance of GenAI, the ethical debates and implications for sustainable marketing practices. The outline of this paper is as follows: a context is provided by outlining the role of GenAI in marketing. This is followed by a brief review of ethical principles and theories in relation to responsible innovation along with policy and industry responses to ethical issues. The chasm between principles and practices is described and applied to marketing. Lastly, recommendations for future research are laid down accordingly.

2. Generative AI in sustainable marketing: advantages, applications, and limitations

Generative AI refers to “a class of machine learning techniques that aim to generate new data that is similar to, but not identical to, the data it was trained on. In other words, GenAI models learn to create new data samples that have similar statistical properties to the training data, allowing them to create new content such as images, audio, or text that has never been seen before” (Banafa, 2024, p. 41). There are many well-known GenAI applications (see Table 1 in Appendix A) such as Midjourney and DALL-E-2, which can assist with illustrations, artworks and photographs. While pioneers such as ChatGPT receive a good deal of media attention, there is an emerging eco-system of start-ups, not-for-profits and research organisations. For example, Australia has over 500 AI companies (Hajkowicz et al., 2023) and examples of start-ups are Leonardo AI and Relevance AI.

There is a growing body of literature on AI in marketing (Mariani et al., 2021) and specifically, GenAI for marketing (Paul et al., 2023; Schweidel et al., 2023; Wahid et al., 2023). However, given the infancy of GenAI, research on the opportunities and challenges posed by GenAI for sustainable marketing is scarce (Hermann, 2023; Sadiq et al., 2024). The Brundtland Report defines sustainable development as “the development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland & Khalid, 1987). Consequently, marketing scholars define sustainable marketing in terms of the three pillars, environmental, social and economic. However, the author of the triple bottom line framework has called for a recall of this framework due to the failure to demonstrate real-world impact and lack of systemic change (Elkington, 2018). The environmental dimension emphasizes the preservation of natural resources and eco-systems, e.g., conserving water, developing

energy-efficient products, avoiding waste, using eco-friendly packaging materials. The social dimension focuses on improving human welfare and ensuring equitable access to resources. In practice, this means supporting people directly or indirectly, such as addressing harms in global supply chains or fostering inclusive workplaces. It refers to contributions to the community and to efforts to improve quality of life (e.g., donations to local charities). Economic sustainability refers to the creation of economic value, e.g., ensuring that the business remains profitable and generates employment (Peterson et al., 2021). Given the broad scope of sustainable marketing activities, it cannot be assumed that the adoption of GenAI by marketers will lead to positive outcomes or offer unique advantages.

According to Floridi et al. (2018, p. 692), AI provides “smart agency”, meaning that it supports human intelligence and enhances human agency, whereby people can work better and faster with AI models. GenAI has many applications, which are outlined below.

3. Generating information about sustainability, promoting pro-environmental behaviour and building support for ‘green’ policies.

GenAI is seen as a useful visualisation tool, which can support educational and behavioural change campaigns. In a recent study, it was reported that providing the public with AI-generated visuals of car-free cities increased support for sustainable transport policies (Dubey et al., 2024). Another study found that ChatGPT can provide consumers with useful information that influences attitudes, such as the environmental impact of products, a company’s recycling practices and how one brand performs relative to competing brands. It can also assist with environmental impact comparisons (Sadiq et al., 2024). In the case of the fashion sector, it is reported that augmented reality (AR) technology, such as virtual ‘try-ons’, has the potential to engage customers, reduce stockpiling and returns, and ultimately reduce the level of textile waste in the industry (Karadayi-Usta, 2024). Gen AI could also support digital advocacy campaigns. Corporate activism means that companies often take a public stance on controversial socio-political issues to bring about societal change (Eilert & Cherup, 2020). For example, the Patagonia brand is strongly aligned with environmental causes. Brand activism is an organisation-driven phenomenon that aims to build specific ties with society (Pimentel et al., 2023), and it is argued that AI technologies can support brand activism and increase consumer trust in the sustainability claims made by companies (Doe & Hinson, 2023).

Personalisation

ChatGPT can assist with personalization by providing tailored recommendations to customers based on their specific needs or demographic characteristics. Matching the tone and content of a message to the psychological profile of the recipient is known as “personalized persuasion” and it is considered to be a very effective messaging strategy. For example, an extrovert who likes sailing and who is concerned about marine pollution is likely to respond positively to advertising that depicts people using plastic-free products while on a social sailing trip. ChatGPT can support

personalisation at scale by automatically creating a broad range of tailored messages for specific audiences (Matz et al., 2024). It is particularly useful for digital marketing campaigns (Soni et al., 2023). For example, a large language model could be asked to generate customer personas for a particular brand, and used to target consumers who value sustainable offerings (Hermann, 2023).

Content creation

The creation of content is a critical function for all marketing and advertising practitioners. Common tasks include creating a storyboard, writing copy for advertisements, crafting emails and posts for social media networks. GenAI technology has sophisticated capabilities, such as ‘voice-over’ in video and ‘text-to-video’ capabilities, which makes the content creation process cheaper and more efficient than traditional methods (Frank et al., 2022; Islam et al., 2024; Kshetri et al., 2024). GenAI makes it easy to translate and localise content to suit different audiences, which is useful for international businesses (Rajaram & Tinguely, 2024). AI is particularly helpful to small businesses as they can use pre-built, ‘off-the-shelf’ GenAI software to create content, without having to outsource work to agencies (Islam et al., 2024). Likewise, the affordable subscription models should benefit niche companies, such as ethical clothing brands or organic food brands, that operate with small marketing budgets. Graphic designers and advertising agencies can now employ GenAI to create brand logos and advertising copy (Amankwah-Amoah et al., 2024).

Furthermore, Google plans to integrate generative AI into their advertising services (Hartmann et al., 2023). Recent research shows that AI-generated online ads can compete with human-made images (i.e., from human freelancers and stock photography) and achieve a higher click-through rate (up to 50%) than human-made images. Virtual influencers have emerged, which refer to digital personas that exhibit the attributes of human influencers (e.g., voices, bodies, movements of a real human being) (de Cicco et al., 2024) and some have been successful in attracting millions of followers. ChatGPT can also assist with interactive content creation such as quizzes or polls to engage customers (Grey, 2024).

Customer service

Chatbots are increasingly used to provide customer service, but one weakness is the limited capacity to deal with complex enquiries. GenAI supports the development of advanced chatbots, and since the models are based on natural language processing, the outputs sound natural and human-like (Banafa, 2024b). Advanced chatbots can also nudge consumers to consider other products and services in eCommerce platforms (Dwivedi, Pandey, & Currie, 2023). Scholars argue that chatbots can act as “green evangelists” by recommending eco-friendly products to a suitable audience (Sadiq et al., 2024). Scholars have concluded that diversity, inclusion and equity goals must be considered when chatbots are designed and used for human interactions (Abdelhalim et al., 2024).

For marketers, this could mean ensuring that voice assistants do not perpetuate racial and gender stereotypes (Lobel, 2022), i.e., ensuring that assistants are not always female, English, subservient and polite. Thus for sustainable brands, the design of chatbots needs to incorporate inclusive practices.

Market research, search engine optimisation, viral marketing and other tasks

AI supports market research in several ways, such as generating draft versions of questions for a survey, generating a list of key players in an industry, analysing customer feedback and providing insights into customer behaviour (Marr et al., 2022). Likewise, Buckley (2023) reports that ChatGPT is an efficient tool for extracting, processing and summarising data and it supports qualitative and quantitative research.

AI plays a role in search engine optimization (SEO) by generating suitable keywords that are ranked highly by search engines. However, the algorithms are likely to penalize sites for using computer-generated content (Marr et al., 2022). Since GenAI can recognize patterns and trends in viral content, it could be used to generate ideas for viral, short-form videos for TikTok or other social-media platforms (Harreis et al., 2023).

There is a growing body of work outlining the major applications of ChatGPT in marketing (Dwivedi et al., 2023; Tafesse & Wien, 2024). Applications include formulating digital marketing campaigns; content marketing and artistic design; services marketing; B2B marketing; search engine optimisation; marketing research and brand comparisons. An increasing number of companies are using GenAI to better engage with customers. For example, retailers such as Victoria's Secret have started using AI-powered assistants to create personalized messages and promote products and services that are aligned with the consumer's interests (Google, 2024). Commonwealth Bank in Australia developed a customised AI model called 'Bill Sense' that uses AI to help customers manage their bills (Department of Industry, Science, Energy and Resources, 2024a). Thus, GenAI could improve the financial literacy and budgeting skills of consumers and contribute to social sustainability goals.

Limitations of GenAI in marketing

Although GenAI can enhance marketing, it has its limitations. A recent study found that public sentiment towards GenAI has undergone a shift, with the initial enthusiasm being replaced by concerns over the risks of ChatGPT (Ngo, 2024). Positive sentiment exists over the role of the GenAI in supporting coding, education, the creative process, and personal productivity. However negative sentiment exists in relation to concerns over credibility, implicit bias, employment and ethics (Ng & Chow, 2024). A broad range of limitations are summarised in the next section.

Inaccuracies, hallucinations and model collapse

Concerns about GenAI include the propensity of ChatGPT to generate "hallucinations", which refers to the outputs that are meaningful but has factual errors (Ji et al., 2023; Maynez et al., 2020; Smith, 2023). Furthermore, visual content sometimes displays disconcerting flaws (e.g., hands appear deformed or unrealistic in image platforms). Human faces are also prone to visual imperfections, which could hamper the images' appeal to consumers (Hartmann et al., 2023). The risk of 'model collapse' is also an issue, which means that future AI systems could use too much model-generated data (as opposed to the original, human-generated data) and become 'polluted', leading to errors and a degradation of performance over time (Shumailov et al., 2024).

Need for training and collaboration

Employees require new skills in order to develop effective prompts, use AI systems responsibly and protect sensitive data (i.e., data related to intellectual property) (Kunz & Wirtz, 2023). Furthermore, it is proposed that the integration of GenAI into business requires collaboration with external partners (Kunz & Wirtz, 2023) and cross-functional collaboration, including legal, human resources, technology and procurement (Malaviya & Raven, 2024).

Creative potential

While some scholars argue that AI-generated content is bland and cannot match the creativity or originality of human-generated content (Dwivedi et al., 2024; Islam et al., 2024), recent research shows that AI models are more creative than humans on divergent thinking tasks, which captures flexible or 'out-of-the-box' thinking (Hubert et al., 2024). It is argued that ChatGPT can support the design process and accelerate creativity (Hughes, Zhu, & Bednarz, 2021).

For example, fashion products such as t-shirts can be designed by generative adversarial networks (GANs). One study found that willingness to pay for GAN-generated designs was high among young fashion buyers (Sohn et al., 2020). Yet another study revealed an antipathy towards AI-designed clothing due to perceptions of reduced quality and authenticity, but one solution is to give consumers the option of customizing fashion designs (Lee & Kim, 2024). In a recent study, scholars conclude that AI-generated marketing imagery can surpass human made images (i.e., visual assets from stock photography and images commissioned from human freelancers) in relation to quality, realism, aesthetics and creativity (Hartmann et al., 2024). Thus, debates are arising in relation to the need to have a human being in the creative process (Bellaiche et al., 2023) and how creative industries can exploit GenAI without diminishing the value placed on human creativity (Amankwah-Amoah et al., 2024).

Lack of human empathy and authenticity

The lack of human empathy and authenticity are seen as drawbacks when consumers interact with machines (Marr et al., 2022). For instance, marketing communications is often factual in nature (i.e., communicating price changes, delays, stockouts, new products, exclusive offers) and also designed to elicit an emotional response (i.e., joy, despair or sadness). A recent study found that AI-generated social media content leads to negative consumer attitudes, such as a reduction in perceived credibility, poor brand attitudes, reduced word-of-mouth and decreased brand loyalty.

Thus, if AI generated content lacks the 'human touch', it results in lower customer engagement and furthermore, genuine human interactions with consumers is likely to be more valuable in the presence of greater AI-generated content (Brüns & Meißner, 2024). Research shows that AI agents are perceived differently than human agents and people are less inclined to attribute 'selfish' and 'benevolent' intentions to AI agents.

For example, a consumer responds less negatively to negative content (i.e., a price increase) when it is administered by an AI agent and more positively to positive content (i.e., a price reduction) when it is administered by a human (Garvey et al., 2022). Therefore, AI assistants could be useful in influencing consumers to

choose sustainable products or services that have negative attributes, i.e., organic food that is expensive but delivers health and environmental benefits.

Consumer resistance to robots and AI-assisted chatbots

Prior literature on AI-human interactions suggests that the dehumanization of services draws a negative response from customers. Studies show that consumers have concerns about the perceived “creepiness” of robot interactions that mimic human behaviour (Baek & Kimm, 2023). This negative response is explained by the “uncanny valley” theory which suggests that as robots become more human, people will experience a sense of unease (Mori, 1970). Customer engagement often decreases when an AI agent administers a transaction, since a machine does not have a human being’s mental or emotional attributes (Longoni, Bonezzi, & Morewedge, 2019). Dwivedi et al., (2023) posit that customers who are used to being served by employees may be hesitant to interact with chatbots, thus removing personal interactions might be a challenge, particularly in the hospitality and tourism sector. Chatbot research suggests that humans perceive chatbots as less empathetic and less knowledgeable than humans (Li et al., 2023). However other scholars posit that chatbots are preferable to humans when discussing embarrassing topics (Mariani et al., 2021). Thus the use of chatbots needs to be context-sensitive and giving consumers the option to speak to a human assistant could help maintain customer satisfaction.

Lack of disclosure

The development of highly realistic synthetic content blurs the lines between authenticity (what is real) and deception (what is fake). Research shows that people are unable to distinguish AI content from human-created products (Samo et al., 2023). This raises ethical questions, for instance, it is ethical to use images of perfect humans in the fashion and beauty industry given the risks to consumer well-being? The role that advertising plays in reducing self-esteem has been the subject of much research (Burnette et al., 2017). In the light of ‘deepfakes’, there are calls for greater disclosure; for example, the labelling of AI systems in use (‘made by AI’) or the watermarking of AI-generated content to prevent consumers from feeling misled or deceived. Google launched ‘SynthID’ in 2023, a novel digital toolkit for watermarking AI-generated content (Google, n.d). Scholars note that synthetic media detection tools and watermarking techniques offer promise, yet they are not a panacea (Sadasivan et al., 2023). Complex challenges demand multi-faceted solutions. Under the EU AI Act (2024a), individuals must be informed that they are interacting with an AI chatbot, and AI-generated images and text also need to contain an explanation they are generated by AI. Sands et al., (2024) argue that disclosure is dependent on the situation. For example, if the AI-generated content in major in nature and has a significant impact on a consumer’s purchase decision, then disclosure is needed. For example, if claims are made that an organic, chemical-free beauty cream leads to glowing skin, but if an image of a synthetic human is shown, then non-disclosure would be deceptive. Despite the case for disclosure on ethical grounds, there is a negative bias towards AI-generated content. Research shows that people think more highly of art if they are told that the work is the product of human effort (Bellaiche et al., 2023; Chiarella et al., 2022).

Ethical and Legal Risks

GenAI poses a wide range of ethical and legal concerns (Hermann, 2022; Stahl & Eke, 2024) and a summary of the issues is presented below.

- *Bias and discrimination*

AI can be used by organisations and the government to make important decisions that affect people’s lives. ChatGPT can potentially perpetuate stereotypes and biases present in the training data which can have negative implications for society. For example, AI applications designed to predict a person’s suitability for a job could disadvantage females if the models are trained on non-representative data. Facial recognition schemes that generate biased results can lead to the misidentification of individuals and violations of civil liberties, particularly among marginalised communities (Ottenheimer, 2024). One example of bias was Google’s image classification system. The system’s weaknesses were exposed when it was discovered that faces of Black individuals had not been extensively tested, and racial diversity in models was overlooked (Ottenheimer, 2024). Biases in training data may result in discriminatory outcomes in areas such as employment, credit, housing and access to resources, hindering equal opportunity for individuals (Kunz & Wirtz, 2023).

- *Privacy and data breaches*

Threats to privacy and lack of control over personal data are seen by consumers as key drawbacks of ChatGPT (Gal, 2023). Surveys on public opinion reveal low trust in AI models (KPMG, 2024). Some AI projects have wilfully ignored established practices such as obtaining explicit and up-to-date consent from users to use their data (Ottenheimer, 2024). For example, it was reported that Clearview AI, the developer of a facial recognition tool, breached Australian privacy laws by scraping peoples’ images from social media sites for training purposes (Office of the Australian Information Commissioner, 2021). Facial recognition technology is increasingly used for large event management to verify attendees and prevent illegal resale of tickets (Okumura et al., 2020), although the use of biometric data raises privacy concerns (Cifci et al., 2024). Lack of trust in organisations has major ramifications for organisations, such as the threat of lawsuits (Ottenheimer, 2024), the potential for customers to distort information and engage in boycotts (Kaplan & Haenlein, 2020). Furthermore, the collection of personal data by major entities raises concerns about data breaches, and the potential for identity theft and fraud (Kunz & Wirtz, 2023).

- *Manipulation of consumers*

Scholars argue that AI can deliver detailed information on customers that could be used to exploit vulnerabilities and influence individuals’ choices (Kunz & Wirtz, 2023). For example, the use of ‘big data’ could offer insights into consumer lifestyles that are relevant for health insurance purposes and those insights result in unfair outcomes, such as premium pricing or over-pricing, and loan rejection (Dolman et al., 2020; Mariani et al., 2021). In addition, consumers could be persuaded into acting against their best interests (Marshall et al., 2024). For instance, targeting ‘buy now-pay later’ loans to people who don’t have the cognitive capacity to make a fully

informed decision would be considered unethical. Under the European Union's AI Act, the use of AI to manipulate people, and **exploit vulnerabilities** related to age, disability, or socio-economic circumstances, causing significant harm, is illegal (European Union, 2024a).

- *Malicious use of GenAI*

There are notable concerns that GenAI could be used to harm people, manipulate public opinion and generate misinformation. If misused, AI could undermine human dignity or human flourishing (Floridi et al., 2018). A recent report found that most Australians (40%) agreed that generative AI would harm Australian society, and most adult Australians are not confident about their ability to identify false and misleading information online (Notley et al., 2024). A recent study reported approximately 200 incidents of the malicious use of GenAI over a three-month period (Marchal et al., 2024). The most prevalent tactic was the creation of non-consensual intimate imagery (Marchal et al., 2024), leading to the spread of deepfake pornography and AI generated cyber-abuse. The generation of highly realistic fake images known as 'deepfakes' (Whittaker et al., 2021; Zhu et al., 2017a), which can be used to impersonate a person, is linked to fraud. The goals of bad actors range from financial gain to harassment and political disruption (Marshall et al., 2024). AI tools such as 'text-to-speech' and 'image-to-video' can augment the skills of 'bad actors' and lead to more sophisticated, personalised and persuasive scams and phishing emails (Ji et al., 2023; Maynez et al., 2020). From a business perspective, the misuse of AI could result in reputational damage to brands and financial losses (Schell, 2024; Campbell et al., 2022). To minimize harm to society, government regulation and oversight of AI systems is required (Hughes et al., 2021). For example, the EU AI Act (2024a) aims to minimise harms to society by regulating high-risk AI activities.

- *Intellectual property infringement*

Copyright infringement is a real concern, where GenAI is used to produce part or the entirety of someone's intellectual property (such as music and artistic works) without their permission (Marshall et al., 2024). Lawsuits have been taken against generative AI music platforms such as Suno and Udio alleging copyright infringement (i.e., that the training data consisted of pre-existing sound recordings owned by various record labels and copied without permission). It is expected that new licensing arrangements between AI and industry will be developed (Potter, 2024). The protection of trademarks and brand identity is an important issue in the age of AI. For example, the use of AI for fashion design is expected to grow which increases the risk of intellectual property infringement (Oxford Analytic, 2024). As AI technologies grow more pervasive in marketing, it becomes easier for counterfeiters to produce and sell counterfeit goods. This presents a threat to the reputation and earnings of established businesses.

- *Labour displacement*

Given that AI can now carry out many tasks previously performed by humans, there is a risk that marketing skills will be devalued, leading to job displacement (Iyer & Bright, 2024). It is reported that GenAI will have a transformative impact on creative

industries (Amankwah-Amoah et al., 2024) which include art, music, film, fashion, design, advertising, and IT (e.g., software and computer games). While AI can be a collaborative tool for creators, it may replace the need for creative workers, models and actors, physical cameras, and complex video editing tasks.

- *Lack of transparency and accountability*

One of the main challenges facing generative AI is its 'black box' nature and transparency is not fully achieved with closed-source, proprietary AI models (Bandi et al. 2023). Data are fed to a trained neural network, which then outputs a decision or an action. The algorithms used in AI are often complex and opaque, making it difficult to understand how decisions are made and who is accountable for them. For example, if job applications are assessed by 'black box' AI systems, then applicants may not know how, or why, certain decisions were made. This opaque nature can also lead to a fundamental mistrust between end-users and the systems with which they are interacting (Hughes et al., 2021). Mindful of this, an Australian AI company, Sapia, developed a set of guidelines for fair, transparent and trustworthy applications of AI in recruitment (Hajkowicz et al., 2023).

- *Environmental harm*

The training of large-scale AI models with millions or billions of parameters requires significant energy for specialised hardware, data centres and servers (Bandi et al., 2023), thus the emissions related to GenAI development is a source of harm to society (Hermann, 2023). However, the relationship between AI and the environment is complex, and AI has the potential to reduce ecological footprints, carbon emissions and facilitate an energy transition (Wang et al., 2024).

- *Cybersecurity*

The application of AI in business introduces unique cybersecurity challenges. Although it is true that all digital platforms are vulnerable to hacking and cyberattacks, generative AI may exacerbate this risk. Many companies run the risk of being hacked and suffering major financial and reputational losses. Training is needed to enable employees to detect new threats and investing in new AI-based security tools is another defense strategy (Renaud et al., 2023). Recent research has shown that AI training sets can be 'poisoned' with even a small number of data points, leading to errors and biases (Hunz & Wirtz, 2023) or even fraud (Renaud et al., 2023). Under the EU AI Act (2024a), all providers of general-purpose AI models that present a systemic risk must test their models, track and report serious incidents and ensure cybersecurity protections.

- *Shift away from public exchange*

It is suggested that the proliferation of AI platforms could lead to a reduction in the online sharing of knowledge. For example, one study found that participation in an online forum, Stack Overflow (aimed at computer programmers), was reduced following the release of ChatGPT. The move away from public exchange on the web has implications for the provision of digital public goods and the amount of open data that models can learn from in the future (del Rio-Chanona et al., 2023). For sustainable brands, this shift could potentially reduce participation in online communities, such as those dedicated to sustainable living, which could have negative implications for business and society.

Having outlined the applications, advantages, limitations and ethical challenges, the theories and principles relevant to an ethically engaged approach to AI are outlined in the next section.

4. Ethical theory and ethical principles

Ethics is a philosophical discipline that refers to prescriptive rules and moral concepts such as right and wrong, fair or unfair (Hunt and Vitell, 1986). There are many theories relating to ethics and their roots can be traced back to the ancient Greeks (Stahl & Eke, 2024). One framework that provides a rich foundation for explaining AI principles is the theory of responsible innovation (von Schomberg, 2013). This theory posits that innovation should be socially desirable, undertaken in the public interest and adhere to a set of ethical principles. A similar theory is that of deontology, which posits that the ethical quality of an act is not determined by its consequences (as in teleology) but rather by examining the intention of the agent undertaking action. Deontologists argue that it is essential to consider the fundamental rights of human beings before making any decision, and ethical acts should be motivated by duty (Stahl & Eke, 2024; Xu & Ma, 2016).

Scholarly interest in the ethics of AI has increased in the last few years (Floridi et al., 2019; Field et al., 2020; Stahl et al., 2024). There is growing expectation that AI should be informed by ethical principles so that the benefits of AI can be maximized and the harms to society minimized (Fjeld et al., 2020). Numerous documents on ethical principles have been published by a multiplicity of stakeholders, including the government, industry (i.e., Google, Meta, ChatGPT), intergovernmental institutions, academia and civil society. Table 2 (see Appendix A) summarises a few frameworks, such as those developed by the Australian Government, the European Commission (EU), the OECD and the Montreal Declaration for Responsible AI. Other organisations are A14People, from academia, and the Institute of Electrical and Electronics Engineers (IEEE), which is the world's largest technical and professional organization dedicated to advancing technology. It is important to note that the European Union's Artificial Intelligence Act came into force in 2024 (European Union, 2024b). This is the first law internationally designed to comprehensively manage AI risks. While the frameworks and number of principles vary, there is a broad consensus on principles including transparency, fairness, privacy, sustainability and human oversight.

5. The gap between principles and practice and recommendations for future research

Many organisations that are developing AI models have already produced statements of their values and principles. Yet Floridi (2019) notes the rise of 'ethics bluewashing' defined as "the malpractice of making unsubstantiated or misleading claims about, or implementing superficial measures in favour of, the ethical values and benefits of digital processes, products, services, or other solutions in order to appear more digitally ethical than one is." Scholars have argued that the gap between principles and practices is wide and there is a need to demonstrate genuine commitment to ethical standards (Floridi et al., 2018). An Australian study found that while 82% of Australian organisations believed they were practising AI responsibly, only 24% had measures in place to ensure this was the case (Fifth Quadrant, 2022). Scholars posit that there are tensions and trade-offs between organisational goals, such as

profitability, and ethics. The financial benefits from the collection and use of consumer data, improved customer experience through AI-driven personalization, and cost reduction through service automation, are benefits that prevent companies from prioritizing good 'corporate digital responsibility' (CDR) (Kunz & Wirtz, 2024). CDR refers to "the principles underpinning a service firm's ethical, fair, and protective use of data and technology when engaging with customers within their digital service ecosystem" (Wirtz et al., 2023, p. 173).

Drawing on the work of previous scholars, Figure 1 (see Appendix B) offers a summary of ethical principles and practises in the marketing and business context. The ethical framework developed by Floridi et al., (2018) is chosen since it is a concise yet comprehensive framework. The five key principles are as follows:

I. Beneficence

Beneficence: there is a need for AI to benefit society and promote the well-being of people and the planet. For instance, the 'AI for Good' movement presents a digital platform where AI innovators identify practical AI solutions to advance the United Nations Sustainable Development Goals (AI for Good, n.d). In relation to the marketing of financial services, it means directing people towards financial products and services suited to their needs and that improve their financial literacy by delivering customised advice and suggestions (BFOA, 2021). Scholars report that chatbots can be designed with inclusivity goals in mind. For instance, chatbots can empower the low-vision user by switching from text to voice commands (Abdelhalim et al., 2024). GenAI could be used to screen marketing materials for diversity, potentially leading to a more inclusive representation of people (ethnic minorities, people who are neuro-diverse, people with disabilities), people who traditionally do not have a voice in the media. For industry, having awards and a system of certification for deserving products and services could support the principle of beneficence. For AI developers, it could mean ensuring data centres are powered by renewable energy and sponsoring 'AI for good' projects.

II. Non-maleficence

Non-maleficence means there is a need for AI to avoid harm and negative consequences such as discrimination, threats to privacy, cyber-security, copyright protection and fraud as well as environmental impacts. For AI developers, this principle means good data governance (BFOA, 2021); restricting prompts and usage of AI models that violate terms of service (i.e., copyright infringement, scams). For business users of AI, evaluating vendors to mitigate security and ethical risks is of paramount importance (Ottenheimer, 2024). Examples of relevant practices in marketing are respecting copyright and human creativity; respecting consumers' privacy rights; considering the well-being of consumers when using GenAI; having a process for managing AI-related complaints, having a system for redress, remedy or compensation for a wrong, harm or grievance caused by AI.

III. Autonomy

Autonomy refers to the 'power to decide', the autonomy of machines should be restricted, and humans retain control over decision-making. Examples of relevant practices in marketing are deciding what activities should be outsourced to AI and ensuring human oversight of activities.

IV. Justice

The principle of justice means that AI should contribute to global justice and people should have equal access to the benefits of AI technologies. Examples of relevant practices in marketing are striving for fairness and equal opportunity in AI systems. AI systems can make automated decisions that affects individuals in areas such as employment, insurance and loans. For example, in the case of the marketing of a financial product, if credit scoring by AI leads to the rejection of a loan application, and the risk of defaulting is low, this represents a harm to the customer (BFOA, 2020). Using AI to engage in price discrimination (i.e. personalised pricing) that disadvantages certain groups would be considered unethical or even illegal under anti-discrimination legislation (Dolman et al., 2020). Having an AI ombudsperson to manage complaints arising from AI would be one way of enacting this principle.

V. Explainability

Explainability refers to accountability and transparency: According to the Cambridge Dictionary, accountability refers to 'the face of being responsible for what you do and able to give a satisfactory reason for it'. Transparency refers to the 'characteristic of being easy to see through' (Cambridge, n.d.). This principle is somewhat degraded in relation to AI since it is often difficult to know exactly how the machine learning algorithm has made its correlations (BFSO, 2021). Accountability means people are held accountable in the event of a negative outcome, since AI systems or machines cannot be held accountable. Transparency means that AI systems are open, and developers can explain their reasoning and decision-making processes. Examples of relevant practices in marketing are notifying customers when they are interacting with chatbots and disclosing use of AI in creative work, particularly if it has an impact on purchase decisions and consumer well-being. Training in prompt engineering and education to improve AI literacy would also support the principle of explainability.

Several writers have proposed detailed recommendations to address the gap between ethical principles and actual practices (Floridi et al., 2018; Malchal et al., 2024; Reid et al., 2023). For example, potential risks could be minimized through education, risk management (e.g. insurance) or through legal remedies, such as mandating disclosure (Floridi et al., 2018). However, due to the recency of GenAI, little is known about the attitudes of marketing practitioners and consumers towards the disclosure principle. As noted by Kunz and Wirtz (2023), more research is needed to understand which tools are effective and which are not. For instance, societal expectations are likely to be transformed by the rapid diffusion of AI and people may not care if a work is AI-generated (Amankwah-Amoah et al., 2024). In addition, managers may have insufficient technical understanding of AI to effectively instruct AI developers in relation to ethics and deferral of responsibility between parties could lead to poor governance (BFO, 2020).

6. Future research

A list of questions that offer directions for future research is presented in Table 3 (see Appendix A). Given the infancy of the field, the ethical issues associated with GenAI may have different meanings for different groups of customers. There is the possibility that the disclosure of AI-generated content may have an impact on consumers in unanticipated and novel ways. Therefore, this paper calls for more research on consumers' affective and cognitive

responses towards disclosure. A promising area of research is how people respond to AI-generated visualisations and whether they can build support for 'green' policies, facilitate sustainable brand activism and nudge consumers to make better choices, i.e., using 'virtual try-ons' to reduce textile waste. As there is a dearth of research that explores how GenAI could be used for the benefit of sustainable marketing, several research questions are posed. For instance, are sustainable consumers more concerned about the potential for GenAI to replace humans than mainstream consumers? How can the negative biases towards AI generated designs and advertising be mitigated? Is full or partial disclosure required? Does participation in AI platforms reduce person-to-person interactions in 'green' online communities?

7. Summary

This paper provides an overview of generative AI, its applications, advantages, limitations, and ethical considerations. GenAI has diverse applications including personalisation, content marketing, market research and much more. It offers the potential to enhance creativity, improve productivity and help consumers make more ethically responsible choices. GenAI has numerous limitations, for instance, it falls short in terms of human empathy, may generate biased or inaccurate information, and could harm sustainable brands. To avoid the charge of 'corporate digital irresponsibility' or 'AI ethics-washing' (where businesses espouse ethical principles but do not implement them in practice), practitioners need to demonstrate that their usage of AI is aligned with societal values. The ethical challenges are complex, including threats to privacy, infringement of intellectual property, unemployment, discrimination, deception, lack of transparency and cyber security risks.

No one solution exists and a diverse range of stakeholders, such as industry, government and not-for-profits, must work collaboratively to have an impact and ensure that the benefits of GenAI outweigh the risks. Early adopters of GenAI must carefully monitor and navigate the rapidly changing regulatory and legal landscape. This paper is not intended to provide a systematic literature review or exhaustive summary of research on AI in marketing. Rather, it is a thought-piece intended to stimulate discussion amongst marketing scholars and practitioners and highlight ethical principles. The paper calls for further research on the use of GenAI in the field of sustainable marketing.

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Appendix A

Table 1- Generative AI Platforms, Source: Internet

Name	Description	Url
ChatGPT 3, 4	Founded by OpenAI, a platform that assists with writing.	https://openai.com/index/chatgpt/
DALL-E-2	Text-to-Image platform from OpenAI.	https://openai.com/index/dall-e-2/
Gemini	Large language model that works with text, images, video.	https://gemini.google.com/
Illuminate	Transforms content into AI-generated audio	https://illuminate.google.com
Stability AI	Text-to-image, video, large-language model	https://stability.ai/
MidJourney	Text-to-image model	https://www.midjourney.com/
Veo. Imagen 2.	A collection of tools developed by Google, including a text-to-image (Imagen) and video generation models (Veo).	https://deepmind.google/
Co-Pilot	Large language model, developed by Microsoft.	https://copilot.microsoft.com/
Perplexity.ai	Developed by a start-up, Perplexity.	https://www.perplexity.ai/
Firefly	GenAI tool developed by Adobe	https://firefly.adobe.com
Claude	Developed by start-up, Anthropic.	https://claude.ai/
Liami 3.1	Open-source AI developed by Meta.	https://llama.meta.com/
Synthesia	Text-to-video software.	https://www.synthesia.io/
Deepl	Automatic Translation	https://www.deepl.com
NVidia	StyleGan – AI image generator	https://www.nvidia.com
CopyAI	AI content creation tool	https://www.copy.ai/
Jasper	Assists with marketing copywriting	https://www.jasper.ai/
Genus AI	AI generated advertisements, images and video content for product catalogues	https://genus.ai/
Runway	An AI research company focusing on video, film, art, entertainment.	https://runwayml.com/
Relevance AI	Australian company; bespoke AI agents	https://relevanceai.com/
Leonardo AI	Australian company; image generator	https://leonardo.ai/

Table 2- Ethical Principles and Frameworks, Sources: Floridi et al., (2018); Field et al., (2020); Stahl et al., 2024; the internet.

Name of framework	Description	Principles	Reference
Australia’s AI Ethics Principles	A total of eight principles developed by the Australian Government	Human, societal and environmental wellbeing; human-centred values; fairness; privacy protection and security; reliability and safety; transparency and explainability; contestability and accountability	Department of Industry, Science, Energy and Resources (2024b).
Ethics Guidelines for Trustworthy AI	A total of seven key requirements that AI systems should meet in order to be trustworthy.	Human oversight, technical robustness and safety, privacy and data governance, transparency, diversity and non-discrimination, societal and environmental well-being, and accountability.	European Commission (2019)
OECD AI Principles	Principles were developed in 2019 and updated in 2024. .	Inclusive growth, sustainable development and wellbeing; human rights and democratic values, including fairness and privacy; transparency and explainability; robustness, security and safety; accountability.	OECD (2024)
Principles for the Ethical Use of Artificial Intelligence in the United Nations System	Developed in 2022 and adopted by UNESCO’s General Conference in November 2021.	A set of ten principles: do no harm; defined purpose, necessity and proportionality; safety and security; fairness and non-discrimination; sustainability; right to privacy, data protection and data governance; human autonomy and oversight; transparency and explainability; responsibility and accountability; inclusion and participation	United Nations System Chief Executives Board (2022)
The Montreal Declaration for Responsible AI	Developed in 2017 by the University of Montreal, following the Forum on the Socially Responsible Development of AI in 2017.	Well-being; Respect for autonomy; Protection of privacy and intimacy; Solidarity; Democratic participation; Equity; Diversity and Inclusion; Prudence, Responsibility; Sustainable Development.	Montreal Declaration for Responsible AI (2024)
AI4People	Launched in 2018 by the AI4people, an institute that contributed to the AI Act in Europe.	Beneficence, non-maleficence, autonomy, justice and explicability	Floridi et al., (2018).
IEEE	The General Principles of Ethically Aligned Design	Human rights, wellbeing, data agency, effectiveness, transparency, accountability, awareness of misuse, competence.	IEEE (2019).

Table 3- Future research questions in relation to ethics in marketing

AI-based ethical theme	Consumer-oriented research
Ethical risks, disclosure and consumer well-being	<p>What are consumers’ affective and cognitive responses to GenAI?</p> <p>Are consumers aware of the ethical risks attributed to GenAI and what are their effects on purchase decisions?</p> <p>Are consumers willing to use ChatGPT to get information on sustainable consumption?</p> <p>Do consumers trust the information provided by ChatGPT on the social and environmental impact of products?</p> <p>Does consumer engagement with AI platforms reduce interactions in online communities?</p> <p>Do sustainable segments exhibit more concern about ethical issues than mainstream consumers?</p> <p>What type of chatbot persona do sustainable consumers prefer and what is the impact on brand-related attitudes and purchase intentions?</p> <p>Can visualisations build support for sustainable policies and build brand activism?</p> <p>How well do sustainable consumers respond to traditional influencers versus AI-generated influencers?</p> <p>To what extent do ethical risks influence consumers’ brand-related attitudes?</p> <p>How can potentially negative responses to AI content be mitigated?</p> <p>Does disclosure diminish authenticity perceptions?</p> <p>Does disclosure diminish trust in the brand/company?</p> <p>What impact does disclosure have on customer satisfaction and purchase intentions?</p> <p>Under what conditions does disclosure increase or diminish brand-related outcomes?</p> <p>What level of disclosure is needed and when should disclosure take place?</p> <p>Does disclosure increase perceptions of firm innovativeness and trendiness?</p> <p>Does disclosure increase perceptions of fairness and corporate digital responsibility?</p> <p>How do millennial attitudes towards Gen-AI fashion design compare to those of previous generations?</p> <p>Do consumer attitudes towards ethical issues raised by GenAI vary depending on demographics, generational cohort and personality traits (e.g., consumer innovativeness)?</p> <p>How do consumers respond to ‘synthetic influencers’ and does acceptance vary according to the industry context? (i.e., fashion and beauty industry, electronics, manufacturing, etc.)</p> <p>To what extent do AI-enhanced bodily images affect consumer well-being?</p>
Ethical risks, disclosure and managerial implications	<p>Practitioner-oriented research</p>
	<p>What are the barriers to enacting ethical principles?</p> <p>Do practitioners have the knowledge and skills to use Gen AI tools in an ethical fashion?</p> <p>Are practitioners willing to disclose the use of GenAI in content marketing?</p> <p>Are there conditions under which disclosure not needed?</p> <p>When should AI content be disclosed – before or after the content is displayed?</p> <p>What is the role of AI in promoting ethical consumption and meeting the needs of the ‘green’ consumer?</p> <p>How may GenAI be leveraged to support diversity, inclusion and equity goals in marketing?</p>

Appendix B

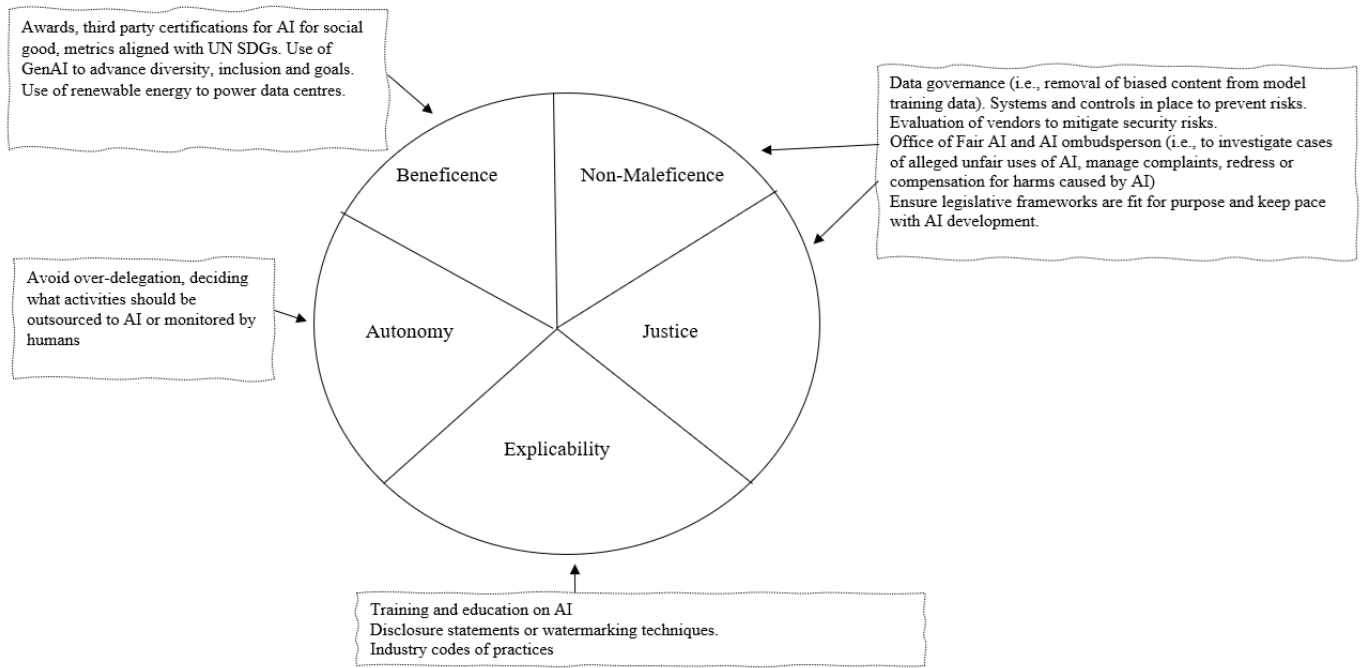


Figure 1- Ethical Principles and Practices: Applied to GenAI, Adapted from Floridi et al., (2018) and Malchal et al., (2024)