Generative AI in ESG Reporting: A Systematic Review

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Abstract. The increasing demand for accurate and transparent Environmental, Social, and Governance (ESG) reporting, coupled with the rapid advancements in generative Artificial Intelligence (AI), presents a transformative opportunity for the ESG reporting landscape. Despite this potential, comprehensive research exploring the intersection of generative AI and ESG reporting remains limited. This systematic review aims to fill this knowledge gap by rigorously analyzing existing literature on the application of generative AI in ESG reporting. In accordance with the PRISMA guidelines, we systematically searched Scopus and IEEE Xplore databases, ultimately identifying nine relevant publications from an initial pool of 3,679 articles. Our findings reveal that advanced generative AI models, such as GPT-4, and the integration of AI usage cards and human-AI collaboration frameworks, can significantly enhance the accuracy, efficiency, and transparency of ESG reporting. However, challenges related to data quality, bias, and the need for regulatory frameworks are also identified. This study promotes transparent and efficient ESG reporting practices by bridging the gap between research and practice. This review provides a comprehensive overview of the current state of generative AI in ESG reporting, highlighting its potential benefits and challenges. By synthesizing existing research, this review contributes to the scholarly understanding of this emerging field, offering valuable insights to guide future research and development. Moreover, it provides practical implications for practitioners seeking to leverage AI for ESG reporting and policymakers responsible for developing effective regulatory frameworks.

Keywords: Artificial Intelligence · Generative AI · ESG · Systematic Literature Review.

1 INTRODUCTION

A transformative force in many sectors, generative artificial intelligence (AI) has redefined the potential of technology and data utilization in recent years. The term "generative AI" describes a group of algorithms and models that use a wide range of existing data to learn and produce new content, such as text, images, and data patterns[1, 2]. AI technologies, such as GPT (Generative Pre-trained Transformer) and VAEs (Variational Autoencoders), demonstrate how machines can not only replicate human responses but also produce predictive data insights and automate intricate procedures[3]. Beyond mere automation, generative AI significantly improves efficiency and decision-making processes in business settings and stimulates innovation in a variety of fields, including creative arts and healthcare diagnostics[4, 5].

In recent years, sustainability and corporate responsibility have become integral components of corporate strategy, evolving alongside technological advancements. The integration of ESG standards into business practices has become crucial for shaping an organization's operational and strategic frameworks. ESG reporting plays a vital role in helping businesses articulate their management of opportunities and risks associated with environmental, social, and ethical considerations. Effective ESG reporting not only enhances a company's reputation but also attracts ethical investors who prioritize sustainable business practices. By adhering to ESG standards, companies can demonstrate their commitment to responsible governance, social equity, and environmental stewardship. This commitment is increasingly demanded by stakeholders, including consumers, investors, and regulatory bodies, who are placing greater emphasis on corporate transparency and accountability[6].

Moreover, ESG reporting provides a comprehensive view of a company's performance beyond financial metrics, encompassing aspects such as carbon footprint reduction, diversity and inclusion, and ethical business practices[7]. By aligning with international standards and expectations, businesses can ensure their operations contribute positively to global sustainability goals. This alignment fosters long-term value creation, risk mitigation, and resilience, positioning companies to thrive in an increasingly complex and interconnected world[8]. Ultimately, the incorporation of ESG principles into corporate strategy is not only a moral imperative but also a strategic advantage.

It enables businesses to build trust, drive innovation, and achieve sustainable growth, thereby securing a competitive edge in the market. Generative AI integration with ESG reporting is emerging as a promising area of research. One of the main challenges in ESG reporting is the collection and analysis of vast amounts of data, which can be time-consuming and prone to errors. Generative AI addresses these issues by automating data collection and ensuring accuracy through its advanced processing capabilities. This technology can synthesize enormous volumes of data from various sources, providing businesses with deeper insights and more comprehensive predictive analytics[9].

By leveraging generative AI, companies can enhance their decision-making processes related to sustainability initiatives. AI-driven insights enable organiza-

tions to make more informed and proactive decisions, optimizing their strategies for better environmental and social outcomes. Additionally, the efficiency and accuracy of sustainability reports can be significantly improved through the automation of their generation and analysis. AI can identify patterns, highlight key metrics, and predict future trends, offering a more detailed and reliable overview of a company's ESG performance[10]. Furthermore, the integration of generative AI into ESG reporting not only streamlines the process but also enhances transparency and accountability. Businesses can produce more consistent and standardized reports, meeting regulatory requirements and stakeholder expectations more effectively. As a result, generative AI holds the potential to revolutionize ESG reporting, driving better sustainability practices and contributing to long-term environmental and social goals.

As corporations worldwide strive to meet increasingly stringent sustainability requirements and stakeholders demand greater transparency and accountability, the integration of generative AI into ESG reporting could serve as a catalyst for more dynamic, responsive, and impactful sustainability practices. This systematic review explores the current applications of generative AI in ESG reporting, evaluates its impacts, and discusses future directions for research and implementation in this evolving field.

1.1 Research Questions

- RQ1: What AI technologies and methods are identified in the papers that could potentially be applied to ESG reporting?
- RQ2: How do the papers describe the current challenges or limitations in their respective fields that could be analogous to those in ESG reporting?
- RQ3: What are the benefits and outcomes of applying AI as discussed in the papers and how can these be translated into the context of ESG reporting?
- RQ4: According to the papers, what future directions or emerging trends in AI technology could influence ESG reporting practices?

1.2 Research Objectives

The primary aim of this systematic review is to identify applicable AI Technologies in ESG reporting and analyze the challenges with it. Additionally, the review includes the benefits and outcomes of these technologies and explores future AI trends along with their potential implications for ESG reporting.

2 Materials and Methods

This systematic literature review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [11]. This method, instrumental in ensuring the comprehensiveness and reliability of literature reviews, involves several critical stages designed to ensure that all relevant literature is systematically identified, selected, and synthesized.

2.1 Defining Eligibility Criteria

Studies were selected based on the following criteria designed to ensure the selection of relevant and high-quality research papers:

Inclusion Criteria

- Studies that focus on the use of AI for generating ESG-related content.
- Studies that specify the ESG application domain.
- Articles published in English.
- Studies published from January 2022 to May 2024.
- Works published in peer-reviewed journals or conferences.
- Accessible articles.

Exclusion Criteria

- Articles without detailed technical AI descriptions.
- Studies where the application domain is unclear or irrelevant.
- Letters to editors, review articles, case reports, posters, and the full text are not accessible and not available.
- Articles not published in English.

2.2 Information Sources

The systematic literature review was conducted using two databases: SCOPUS and IEEE Xplore. On May 10, 2024, these databases were thoroughly searched to identify all relevant studies on the intersection of generative AI and ESG reporting. IEEE Xplore, a leading resource for accessing scientific and technical research in engineering and technology, provided a wealth of articles and conference papers. SCOPUS, known for its comprehensive coverage of peer-reviewed literature across various disciplines, complemented this by offering a broad spectrum of academic publications.

2.3 Study Search Strategy Process

The search strategy was developed to search for generative AI and ESG reporting separately due to the lack of papers directly addressing generative AI in the context of ESG reporting. To ensure the search is comprehensive and precise, synonymous terms related to generative AI were included using the OR operator, such as 'artificial intelligence' and 'AI.' Additionally, given the significance of generation in reporting, key terms such as 'content generation,' 'data generation,' 'text generation,' and 'natural language generation' were also included using the OR operator. Papers containing both AI and generation-related keywords were included exclusively. For the reporting aspect, key terms such as 'ESG reporting,' 'environmental social and governance reporting,' 'sustainability reporting,' and 'sustainable development reports' were included using the OR operator. The search strings used and publications are listed in Table 1 and Table 2.

Table 1. DATABASE CARRIED OUT VIA SCOPUS RESULTS

QUERY STRING	PUBLICATIONS
("generative AI" OR "artificial intelligence" OR "AI") AND ("content generation" OR "data generation" OR "text generation" OR "natural language generation")	1242
"ESG reporting" OR "environmental social and governance reporting" OR "sustainability reporting" OR "sustainable development reports"	1273

Table 2. DATABASE CARRIED OUT VIA IEEE-EXPLORE RESULTS

QUERY STRING	PUBLICATIONS
("generative AI" OR "artificial intelligence" OR "AI") AND ("content generation" OR "data generation" OR "text generation" OR "natural language generation")	1111
"ESG reporting" OR "environmental social and governance reporting" OR "sustainability reporting" OR "sustainable development reports"	53

2.4 Study Selection and Screening Process

In our systematic literature review, the study selection and screening process were executed in four meticulous phases to ensure data rigor and high relevance. Firstly, according to the predefined search strategy, all identified articles were imported into the reference management software EndNote. Subsequently, duplicate articles were systematically removed within EndNote. In the third phase, the remaining articles were screened against the predefined eligibility criteria, which included specific inclusion and exclusion parameters. Each article was evaluated to determine its relevance and adherence to these criteria. Finally, the articles that passed the initial screening underwent a comprehensive full-text review. During this phase, articles deemed irrelevant or non-utilizable were excluded, ensuring that only highly relevant and high-quality studies remained. By following this structured study selection and screening process, we established a solid foundation for this systematic literature review, thereby enhancing the credibility and accuracy of our subsequent research. This approach ensures methodological rigor and strengthens the reliability of our findings, providing a robust basis for further analysis and discussion.

2.5 Data Extraction Process

The data extraction process in this systematic review was meticulously implemented to ensure that all extracted data were both focused and comprehensively analyzed. This careful approach was essential to maintain the integrity and reliability of the review findings. The process identified the specific AI technologies utilized in each study, examined the focus areas within ESG reporting, and the

benefits and challenges associated with each study were carefully extracted and analyzed.

3 Results

3.1 Search and Selection

The search and selection process was meticulously designed, as illustrated in Fig. 1. In the initial search phase, we identified a total of 3,679 citations, comprising 2,515 citations from Scopus and 1,164 citations from IEEE Xplore. First, we removed 293 duplicate citations. Subsequently, we applied our predefined inclusion and exclusion criteria, which resulted in the removal of 3,354 citations. This step ensured that only relevant studies were considered for further analysis. Next, 10 papers were excluded because they could not be retrieved. The remaining 22 papers underwent a comprehensive full-text review conducted by the authors. During this phase, we excluded 10 citations that did not utilize AI and 3 citations that were deemed irrelevant to the study. Finally, 9 studies met all the inclusion criteria and were included in this systematic review.

3.2 Growing Trend Analysis of Generative AI in ESG

The field of generative AI in ESG reporting is still in its nascent stages. However, the rapid rise in interest in generative AI over the past three years suggests that generative AI in ESG reporting holds immense potential for future developments. Fig. 1 illustrates the number of documents released annually from 1975 to 2024 using the search string for generative AI as outlined in Table 1 on Scopus.

From Fig. 2, it is evident that the number of documents has increased dramatically since 2019. The publications in 2022 saw a 300% increase compared to 2019, followed by another 300% increase in 2023 compared to 2022. Although the data for 2024 is only updated until May, the number of publications has already reached nearly 300. Given that there are seven months remaining in 2024, it is highly probable that the total number of documents released in 2024 will surpass those in 2023.

This significant rise in publications underscores the growing influence and impact of generative AI. The surge in research and publications reflects the increasing recognition of the potential applications and benefits of generative AI in various domains, including ESG reporting. As generative AI continues to evolve and mature, its role in enhancing the quality, efficiency, and accuracy of ESG reporting is expected to become even more prominent.

3.3 Characteristics of the Included Studies

The characteristics of the nine included studies are presented in Fig. 3 and Fig. 4. Among the studies included in this systematic review, the majority were published in the last three years. Specifically, five studies were published in 2023, three in 2024, and one in 2022.

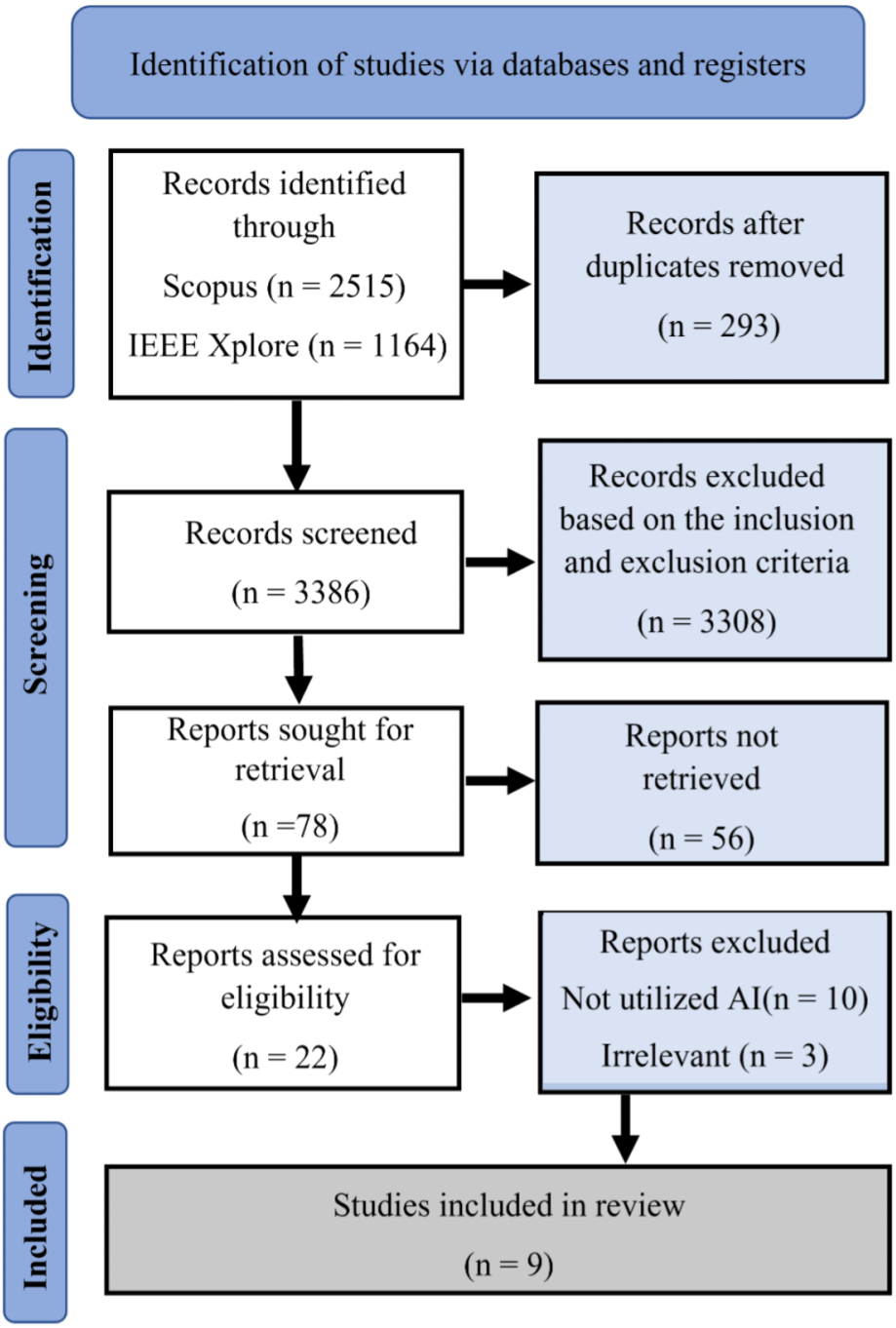

Fig. 1. PRISMA Flowchart of Literature Review

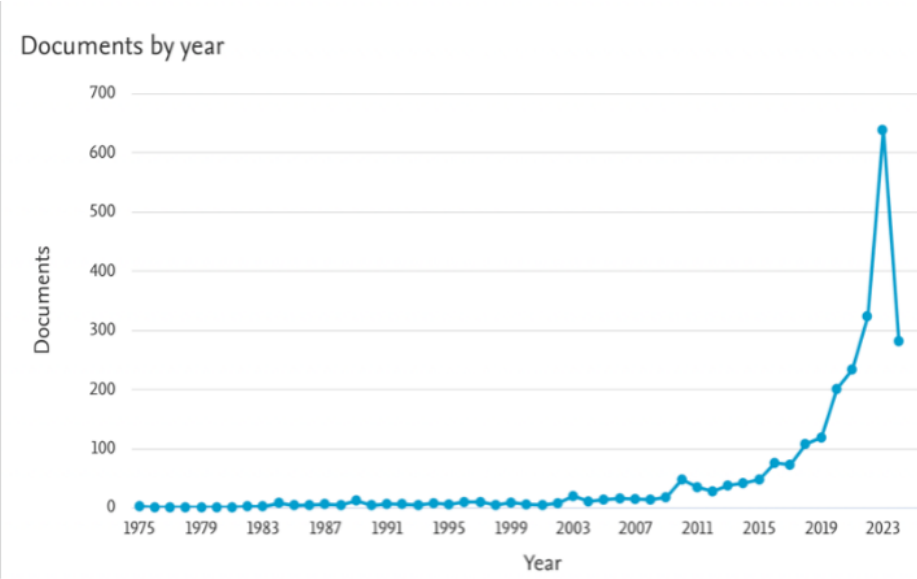

Fig. 2. Growing trend analysis of Generative AI on ESG reporting using Scopus

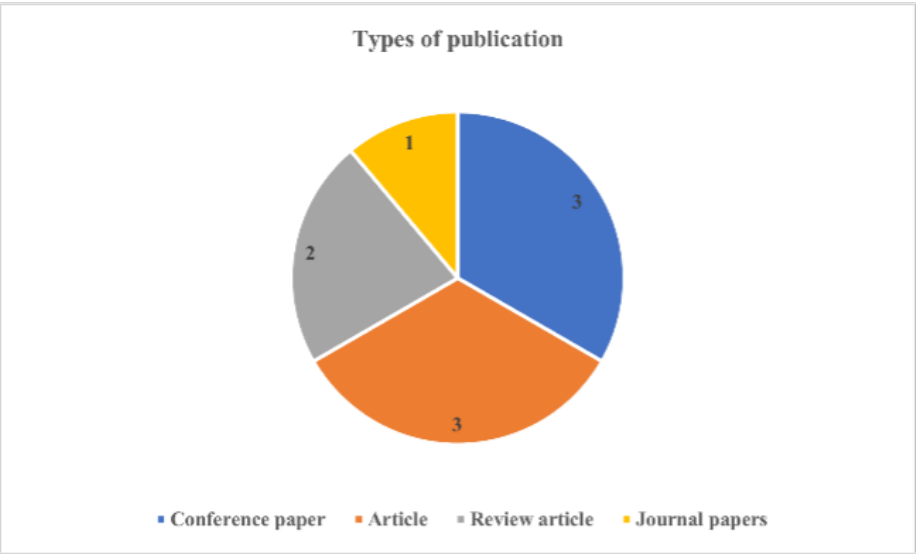

Fig. 3. TYPE OF PUBLICATION

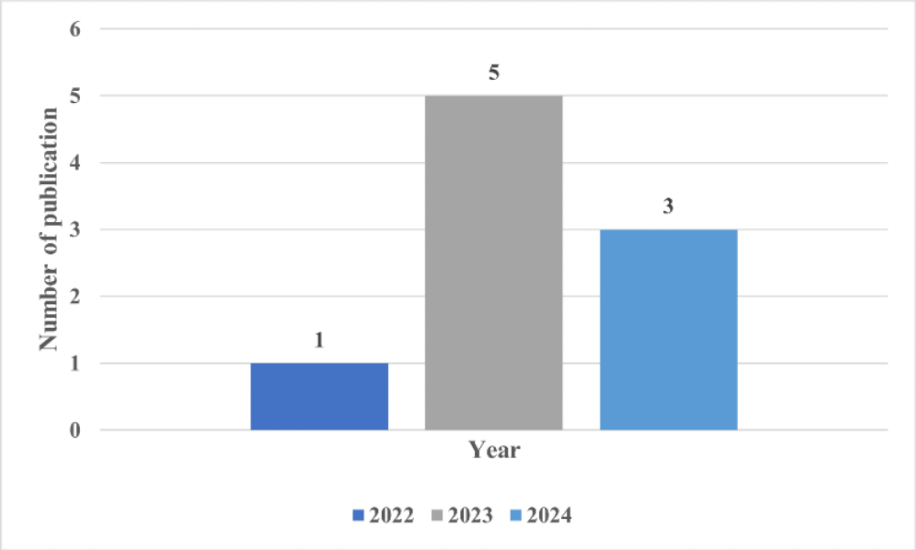

Fig. 4. TYPE OF PUBLICATION

Regarding the type of publication, three studies were conference papers, three were articles, two were review papers, and one was a journal article.

3.4 Synthesis of Results

The synthesis of the nine studies as summarized in Table III reveals several key themes that underscore the transformative potential of AI in ESG reporting. These themes include transparency and accountability, efficiency and accuracy, personalization and engagement, and the detection and mitigation of greenwashing.

Transparency and accountability are critical components in ESG reporting. AI Usage Cards [12] and frameworks like GenNI [13] provide robust mechanisms to document AI use and ensure ethical standards. These frameworks enhance the credibility of reports by promoting clear attribution and responsibility for AI-generated content. By ensuring that the use of AI in generating ESG reports is transparent and accountable, these frameworks help build trust among stakeholders and enhance the overall integrity of the reporting process.

Efficiency and accuracy gains brought about by AI tools are another significant theme. Techniques such as Natural Language Processing (NLP), Machine Learning (ML), and sentiment analysis streamline the reporting process [14, 15]. These technologies enable the rapid and accurate generation of comprehensive ESG reports, which improves the overall quality and reliability of the reporting. The ability to process large volumes of data quickly and accurately allows organizations to present more timely and precise information, which is crucial for effective decision-making and stakeholder communication.

The potential for personalization and engagement is notably advanced by emotion-aware multimedia synthesis. By incorporating user sentiment into the content generation process, these AI systems produce ESG reports that are personalized and emotionally resonant [16]. This approach increases stakeholder engagement and relevance, as reports can be tailored to address the specific interests and concerns of different audiences. The integration of emotional intelligence into AI-generated content represents a significant advancement in making sustainability reports more engaging and impactful.

Lastly, the detection and mitigation of greenwashing are paramount concerns addressed by several studies [14, 15]. AI techniques, particularly those leveraging NLP and ML, are effective in identifying misleading claims and ensuring the integrity of sustainability disclosures. These technologies help maintain the trustworthiness of ESG reports by preventing the dissemination of false or exaggerated claims [17]. By enhancing the accuracy and transparency of reporting, AI contributes to the credibility of sustainability initiatives and supports the overall goal of achieving genuine and verifiable improvements in environmental, social, and governance practices.

4 Discussion

4.1 Challenges and Limitations of Generative AI and ESG Reporting

The utilization of generative artificial intelligence (AI) within ESG reporting is a relatively nascent field with limited empirical research. This nascent state necessitates a reliance on theoretical insights and analogous research from other sectors such as healthcare, finance, and marketing. However, these analogies may not fully capture the unique challenges and complexities inherent in ESG reporting, such as the need for standardized documentation and the integration of diverse data sources. The speculative nature of current insights constrains the ability to definitively determine the effectiveness of generative AI in this context, making evidence-based recommendations challenging.

Moreover, the rapid evolution of generative AI technologies presents a significant challenge. As new models and methodologies continuously emerge, research and applications can quickly become outdated. This dynamic evolution requires organizations to continually update their AI systems to capitalize on the latest advancements, which may not always be feasible due to resource constraints.

Specific challenges identified in the literature include data privacy concerns, technical barriers, and the necessity for human oversight to ensure accuracy and relevance. For example, studies have highlighted the complexity of integrating AI systems into existing ESG frameworks and the potential for biases in AI-generated content. To address these issues, frameworks like AI Usage Cards and human-AI collaboration models have been proposed to enhance transparency, accountability, and control in AI-driven ESG reporting.

In conclusion, the primary obstacles to integrating generative AI into ESG reporting stem from the early stage of research, the reliance on comparative stud-

ies from other sectors, and the swift evolution of AI technologies. Addressing these challenges requires cautious interpretation of current insights and ongoing exploration to develop robust evidence-based methodologies for the effective utilization of generative AI in ESG reporting.

4.2 Future Research and Directions

Given the rapid advancements in AI technologies and their potential for ESG reporting, future research should focus on developing automated systems for ESG report generation using diverse generative AI tools. These systems must prioritize precision, transparency, and adaptability to various corporate settings and standards. Utilizing cutting-edge AI models like GPT-4, these systems should ensure the accuracy and integrity of reports through robust data validation and verification mechanisms.

Future research should emphasize the importance of transparency and accountability in automated ESG reporting. Techniques that enhance the interpretability of AI-generated reports are crucial. For instance, the use of AI Usage Cards [12] can provide standardized documentation of AI involvement, ensuring transparency and accountability. Additionally, human-AI collaboration frameworks, such as GenNI [13], which facilitate user interaction and control over AI-generated content, can help stakeholders understand and trust the AI decision-making process.

Automated ESG reporting systems must also be highly adaptable, capable of integrating into diverse corporate environments and complying with various international standards. This adaptability requires developing flexible AI models tailored to different industries and regulatory frameworks. Studies such as [18] and [17] emphasize the need for AI systems that can handle the dynamic and varied nature of ESG data across different contexts. Research should focus on enhancing the adaptability of AI tools to ensure they can efficiently manage and process diverse ESG data, thereby supporting accurate and comprehensive reporting.

Evaluating the performance of different AI tools in ESG reporting is crucial. This involves testing the latest models and assessing their effectiveness in producing accurate, high-quality reports. Comparative studies should identify the strengths and limitations of various generative AI models, examining their specific use cases and performance metrics in ESG reporting. Developing a comprehensive assessment framework with standardized evaluation methods is essential to ensure the reliability and quality of AI-generated ESG reports.

In conclusion, future research in AI-driven ESG reporting should concentrate on creating automated, transparent, adaptable, and high-quality reporting systems. Leveraging the latest AI models and establishing robust performance evaluation frameworks will enable more effective and reliable ESG reporting practices, meeting the evolving needs of stakeholders and regulatory bodies.

Table 3. Overview of the Selected Studies

Reference	AI Techniques	ESG related Focus	Benefits	Challenges
AI Usage Cards: Responsibly Reporting AI-generated Content [12]	AI Usage Cards Transparency Integrity Accountability	Transparency and Accountability in Reporting	Standardized Documentation Enhanced Credibility	Implementation Costs Technical Expertise
Approach to the Impact of Digital Technologies on Sustainability Reporting through Structural Equation Modeling and Artificial Neural Networks [18]	Structural Equation Modeling (SEM) Artificial Neural Networks (ANN) Digital Transformation Indicators	Economic Social and Environmental Performance	Improved Performance Metrics Real-time Monitoring	Data Privacy Technical Barriers
Emotion-Aware Multimedia Synthesis: A Generative AI Framework for Personalized Content Generation based on User Sentiment Analysis [16]	Conditional Generative Adversarial Networks (cGANs) Sequence-to-Sequence Models Variational Autoencoders (VAEs) Sentiment Analysis	Personalized and Emotionally Resonant Content	Increased User Engagement Personalized Reports	Complex Integration Data Privacy
Enabling Generative AI to Produce SQL Statements: A Framework for the Auto-Generation of Knowledge Based on EBNF Context-Free Grammars [19]	ANTLR4 EBNF Grammars Syntactic and Semantic Validation	Accuracy of ESG Data Reporting	High Accuracy Valid Data Generation	Complex Grammar Rules Recursion Handling
GenNI: Human-AI Collaboration for Data-Backed Text Generation [13]	Human-AI Collaboration Forecast-Refine Loop Constraint Graphs	Precision and Contextual Relevance in Reporting	Enhanced Control User Interaction	User Training Interface Complexity
Greenwashing Sustainability Reporting and Artificial Intelligence: A Systematic Literature Review [15]	Natural Language Processing (NLP) Text Mining Machine Learning (ML)	Detection and Mitigation of Greenwashing	Enhanced Credibility Reliable Data	Bias Detection Data Privacy
How will AI text generation and processing impact sustainability reporting? Critical analysis a conceptual framework and avenues for future research [14]	AI Text Generation NLP Human Oversight	Efficiency and Accuracy of Reporting	Improved Efficiency Accurate Reporting	Data Bias and human Oversight Required
Role of Artificial Intelligence in Sustainability Reporting by Leveraging ESG Theory into Action [17]	AI Tools Data Accuracy ESG Performance Optimization	Environmental Social and Governance Performance	Better Performance Efficient Reporting	High Costs Lack of Technical Skills
Navigating the Challenges of Environmental Social and Governance (ESG) Reporting: The Path to Broader Sustainable Development [20]	Interdisciplinary Approaches Advanced Technologies	Challenges and Solutions in ESG Reporting	Enhanced Transparency Addressed Challenges	Interdisciplinary Collaboration Data Consistency

5 Conclusion

The integration of generative AI into ESG reporting presents a huge potential to enhance the accuracy, efficiency, and transparency of sustainability disclosures. Key findings from the reviewed studies indicate that AI Usage Cards and human-AI collaboration frameworks significantly improve transparency and accountability. Additionally, advanced AI models like GPT-4 streamline the reporting process, ensuring high accuracy and data integrity. Emotion-aware multimedia synthesis enhances stakeholder engagement by creating personalized and relevant reports, while NLP and ML techniques effectively detect and mitigate greenwashing.

However, several challenges need to be addressed, including technical barriers, high implementation costs, data privacy concerns, and the rapid evolution of AI technologies. Future research should focus on developing automated, adaptable, and transparent ESG reporting systems. Enhancing the accuracy of AI-generated reports through various AI models and establishing standardized evaluation frameworks are crucial steps to ensure the reliability and quality of ESG disclosures.

In conclusion, AI has the potential to revolutionize ESG reporting, but ongoing research and development are essential to overcome the challenges and fully leverage the benefits of AI. Interdisciplinary collaboration and continuous adaptation to technological advancements and regulatory changes will be key to achieving effective and reliable AI-driven ESG reporting practices.

This study makes significant contributions in three key areas. First, it bridges the gap between research and practice, promoting transparent and efficient ESG reporting practices. Second, by providing a comprehensive overview of the current state of generative AI in ESG reporting, this review enhances scholarly understanding of this emerging field, offering valuable insights to guide future research and development. Finally, it provides practical implications for practitioners seeking to leverage generative AI in ESG reporting and for policymakers responsible for developing effective regulatory frameworks.

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References

1. Y. Wang, Y. Pan, M. Yan, Z. Su, and T. H. Luan, "A Survey on ChatGPT: AI–Generated Contents, Challenges, and Solutions," *IEEE Open Journal of the Computer Society*, vol. 4, pp. 280-302, 2023. doi: 10.1109/OJCS.2023.3300321.

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2. A. Golda et al., "Privacy and Security Concerns in Generative AI: A Comprehensive Survey," *IEEE Access*, vol. 12, pp. 48126-48144, 2024. doi: 10.1109/ACCESS.2024.3381611.
3. S. Sai, U. Yashvardhan, V. Chamola, and B. Sikdar, "Generative AI for Cyber Security: Analyzing the Potential of ChatGPT, DALL-E, and Other Models for Enhancing the Security Space," *IEEE Access*, vol. 12, pp. 53497-53516, 2024. doi: 10.1109/ACCESS.2024.3385107.
4. J. Rao and M. Xiong, "A New Art Design Method Based on AIGC: Analysis from the Perspective of Creation Efficiency," in *2023 4th International Conference on Intelligent Design (ICID)*, 20-22 Oct. 2023, 2023, pp. 129-134. doi: 10.1109/ICID60307.2023.10396804.
5. S. Sai, A. Gaur, R. Sai, V. Chamola, M. Guizani, and J. J. P. C. Rodrigues, "Generative AI for Transformative Healthcare: A Comprehensive Study of Emerging Models, Applications, Case Studies, and Limitations," *IEEE Access*, vol. 12, pp. 31078-31106, 2024. doi: 10.1109/ACCESS.2024.3367715.
6. M. A. A. Zaid and A. Issa, "A roadmap for triggering the convergence of global ESG disclosure standards: lessons from the IFRS foundation and stakeholder engagement," *Corporate Governance (Bingley)*, vol. 23, no. 7, pp. 1648-1669, 2023. doi: 10.1108/CG-09-2022-0399.
7. E. W. P. Paricahua, A. K. P. Paricahua, A. Gehlot, V. Patidar, M. V. S. Kumar, and M. Lourens, "Corporate Social Responsibility Reports: A Big Data Approach," in *2023 3rd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE)*, 12-13 May 2023, 2023, pp. 371-375. doi: 10.1109/ICACITE57410.2023.10182491.
8. J. Dye, M. McKinnon, and C. Van der Byl, "Green Gaps: Firm ESG Disclosure and Financial Institutions' Reporting Requirements," *Journal of Sustainability Research*, vol. 3, no. 1, 2021, Art no. e210006. doi: 10.20900/jsr20210006.
9. B. Jonsdottir, T. O. Sigurjonsson, L. Johannsdottir, and S. Wendt, "Barriers to Using ESG Data for Investment Decisions," *Sustainability (Switzerland)*, vol. 14, no. 9, 2022, Art no. 5157. doi: 10.3390/su14095157.
10. R. Gupta, K. Nair, M. Mishra, B. Ibrahim, and S. Bhardwaj, "Adoption and impacts of generative artificial intelligence: Theoretical underpinnings and research agenda," *International Journal of Information Management Data Insights*, vol. 4, no. 1, 2024, Art no. 100232. doi: 10.1016/j.jjimei.2024.100232.
11. M. J. Page et al., "The PRISMA 2020 statement: an updated guideline for reporting systematic reviews," *BMJ*, vol. 372, p. n71, 2021. doi: 10.1136/bmj.n71.
12. J. P. Wahle, T. Ruas, S. M. Mohammad, N. Meuschke, and B. Gipp, "AI Usage Cards: Responsibly Reporting AI-Generated Content," in *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries 2023*, 2023, pp. 282-284. doi: 10.1109/JCDL57899.2023.00060.
13. H. Strobelt, J. Kinley, R. Krueger, J. Beyer, H. Pfister, and A. M. Rush, "GenNI: Human-AI Collaboration for Data-Backed Text Generation," *IEEE Transactions on Visualization and Computer Graphics*, vol. 28, no. 1, pp. 1106-1116, 2022. doi: 10.1109/TVCG.2021.3114845.
14. C. de Villiers, R. Dimes, and M. Molinari, "How will AI text generation and processing impact sustainability reporting? Critical analysis, a conceptual framework and avenues for future research," *Sustainability Accounting, Management and Policy Journal*, vol. 15, no. 1, pp. 96-118, 2024. doi: 10.1108/SAMPJ-02-2023-0097.
15. W. Moodaley and A. Telukdarie, "Greenwashing, Sustainability Reporting, and Artificial Intelligence: A Systematic Literature Review," *Sustainability (Switzerland)*, vol. 15, no. 2, 2023, Art no. 1481. doi: 10.3390/su15021481.

16. G. Sivasathiya, D. Anil Kumar, A. R. Harish Rangasamy, and R. Kanishkaa, "Emotion-Aware Multimedia Synthesis: A Generative AI Framework for Personalized Content Generation based on User Sentiment Analysis," in *2nd International Conference on Intelligent Data Communication Technologies and Internet of Things, IDCIoT 2024*, 2024, pp. 1344-1350. doi: 10.1109/IDCIoT59759.2024.10467761.
17. A. Kulkarni, S. Joseph, and K. Patil, "Role of Artificial Intelligence in Sustainability Reporting by Leveraging ESG Theory into Action," in *2023 International Conference on Advancement in Computation and Computer Technologies, InCACCT 2023*, 2023, pp. 795-800. doi: 10.1109/InCACCT57535.2023.10141584.
18. A. Mehedintu and G. Soava, "Approach to the Impact of Digital Technologies on Sustainability Reporting through Structural Equation Modeling and Artificial Neural Networks," *Electronics (Switzerland)*, vol. 12, no. 9, 2023, Art no. 2048. doi: 10.3390/electronics12092048.
19. C. Troy, S. Sturley, J. M. Alcaraz-Calero, and Q. Wang, "Enabling Generative AI to Produce SQL Statements: A Framework for the Auto- Generation of Knowledge Based on EBNF Context-Free Grammars," *IEEE Access*, vol. 11, pp. 123543-123564, 2023. doi: 10.1109/ACCESS.2023.3329071.
20. S. S. Chopra et al., "Navigating the Challenges of Environmental, Social, and Governance (ESG) Reporting: The Path to Broader Sustainable Development," *Sustainability (Switzerland)*, vol. 16, no. 2, 2024, Art no. 606. doi: 10.3390/su16020606.