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CHATGPT AND CORPORATE ENVIRONMENTAL SUSTAINABILITY: ENHANCING ESG DISCLOSURES

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Abstract: With the rising importance of environmental, social and governance (ESG) disclosures, there has been a notable increase in demand for transparent, standardised and comparable corporate sustainability reporting practices. The advent of artificial intelligence (AI) tools in the recent times, has helped humans in every aspect of life including enhancing sustainability reporting. Among the numerous AI tools, ChatGPT has been grabbing eyeballs for being an advanced model of conversational language which is capable of processing as well as generating complex information. This study examines the contribution of ChatGPT in enhancing and enabling environmental disclosure initiatives and practices. Deriving from existing literature, globally accepted frameworks of sustainability reporting, and increasing application of artificial intelligence by businesses, this study dives into how ChatGPT can support and enhance interpretation of data, ensure consistency in the narratives, ensure compliance with the required frameworks and heighten stakeholder communication. The study sheds light on the potential benefits of adopting ChatGPT for sustainability reporting like increased transparency, consistency, clarity and comparability of reports. However, in addition to that, the study also identifies certain challenges associated with adopting ChatGPT like increasing concern regarding data reliability, ethical issues and risk of over standardisation which may limit disclosures specific to firms. This study, by offering conceptual insights as well as implications, provides input about the emerging use of AI in sustainability reporting. The outcomes of this study are particularly useful for corporate managers and sustainability professionals who are seeking to use AI responsibly.

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Key Words: ChatGPT; Artificial Intelligence; ESG Disclosures; Corporate Sustainability; Environmental Sustainability; Sustainability Reporting.

Introduction:

Climate change, environmental degradation, depletion of natural resources and rise in environmental pollution has become the top concern globally. With this increase in concern, there has been a spurt in demand for environmental sustainability, prompting companies to inspect beyond their financial performance and be responsible for the impact their operations have on the environment. Consequently, corporate sustainability reporting and responsible corporate practices have gained prominence worldwide.

Environmental, Social and Governance (ESG) reporting, sometimes used synonymous as sustainability reporting, has emerged as a prominent tool through which organisations communicate their sustainable performance to the stakeholders. The companies, by providing details regarding their performance across the three aforementioned dimensions, enable investors, regulators as well as the public to make an informed decision. Now, transparent and consistent sustainability disclosure is used as a parameter for assessing an organisation's long- term value and performance.

Among the three dimensions of ESG, the environmental dimension has garnered particular attention in the recent years. Companies are under increased pressure to report their environmental performance as regulators, investors, policymakers, customers are demanding transparency related to the environmental footprint of the organisations. Most companies now publish detailed as well as audited environmental reports to cater to the stakeholder demands. However, in spite of the growing importance, sustainability reporting continues to be riddled with numerous challenges related to its quality and efficiency.

Standardisation of sustainability reports and consistency in reporting remains the major challenges as the companies follow different reporting frameworks and formats and use different measurement methods. This leads to inconsistent reporting which makes inter firm or inter industry comparison difficult. Additionally, the environmental data like calculation of green house gas (GHG) emission, energy

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intensity etc, can be complex and not easily understandable by every stakeholder group. This may lead to reduced credibility and transparency of such reports.

The technological advancements in the artificial intelligence domain have led to the development of tools that have unlocked new paths of improving the corporate sustainability reporting practices by increasing the efficiency, accuracy and aiding in decision making. ChatGPT is one such conversational language model-based AI tool that possesses the ability to generate consistent and context-aware text which makes it useful for different business applications.

In relation to corporate environmental reporting, ChatGPT possesses the capability to offer support in the reporting and disclosure process. ChatGPT can help summarise environmental data, present them in an easy-to-understand way, align the disclosures with accepted frameworks as well as regulatory requirements. By increasing the standardisation, clarity, consistency and overall quality in drafting the environmental disclosures, ChatGPT can help improve stakeholder trust and confidence.

However, the application of ChatGPT in ESG reporting is not devoid of concerns. Accuracy of data, ethical use of AI, generation of overly generic data are few of the concerns that need consideration. Moreover, there is a possibility of greenwashing the data to demonstrate compliance rather than actual environmental accountability. Therefore, it is crucil to use AI tools as a way of enhancing reporting rather than as a replacement of human judgement in sustainability reporting.

Against this backdrop, this study examines the contribution of ChatGPT in supporting and enhancing corporate environmental sustainability disclosures. By reviewing the literature related to sustainability reporting and the utilization of AI tools, this study is expected to provide valuable insights related to the benefits and challenged of using ChatGPT in environmental reporting. The outcomes of this study aim to contribute to body of literature related to AI driven sustainability reporting measures and provide valuable understanding of the same to the managers, policymakers, sustainability professionals etc.

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Literature Review:

Corporate Environmental Sustainability and ESG Reporting

Environmental sustainability has become a crucial aspect of assessing the overall performance of an organisation. The *Triple Bottom Line* framework was established by Elkington (1997), which emphasises that the performance of an organisation should not be assessed only in terms of its financial performance but also its environmental footprint and social performance. This framework, laid the groundwork for ESG reporting which urged companies to look into and take accountability of their impact on the society beyond financial numbers. In accordance to this, studies have found that firms who place emphasis on their sustainable performance, are likely to perform better in the long term, together with building strong relationships with stakeholders (*Eccles, Ioannou, & Serafeim; 2014*). Therefore, ESG reporting works as a key mechanism of communicating sustainability efforts of a firm.

Quality and Challenges of Environmental Disclosures

The quality of environmental disclosure has been a matter of concern and consequently a topic of discussion in research for a long time. It has been observed that the companies with better environmental performance are likely to report more extensively and provide more credible information (*Clarkson, et.al.; 2008*). Such disclosures enable stakeholder to gauge the environmental performance of an organisation in a better way. However, studies also identify key challenges in ESG reporting. Studies have revealed that certain companies engage in selective disclosure and only report the indicators where they have performed satisfactorily and minimise their negative impact (*Cho, Michelon, & Patten; 2012*). Such practices, referred to as "greenwashing" reduce the transparency and credibility of such reports and also hinders comparability of such data across firms. These challenges assert the need for more credible and transparent approaches of reporting the environmental performance.

Role of Artificial Intelligence in Corporate Reporting

Artificial Intelligence tools are being progressively adopted globally in order improve the efficiency of reporting and help in decision making. Such tools help in analysing structured as well as unstructured data, process large volumes of complex data, helping managers form decisions and also help maintain consistency in reporting

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information (*Raisch, & Krakowski; 2021*). Studies have also revealed the AI tools can guide us to reduce human error and improve efficiency (*Celestin, M.; 2023*).

Artificial Intelligence and Environmental Sustainability

Studies have also explored the role of AI in enhancing sustainability reporting. The results stated that AI has the potential to support environmental monitoring, perform risk assessment as well as manage resources in an efficient way and thus, help in achieving United Nations Sustainable Development Goals (UNSDG) (*Vinuesa, et.al.; 2020*). AI tools can also help in identifying environmental risks or areas of improvement, like identifying ways of energy conservation and consequently improve sustainability outcomes (*Mustafa, F., et.al.; 2025*). These studies highlight the rising importance of AI tools in sustainability reporting and environmental management.

ChatGPT and Sustainability Reporting

AI tools such as ChatGPT and their application for corporate reporting has also been an area that has gained the attention of researchers. ChatGPT is an important as well as efficient tool for developing data that is structured, standardised as well as comparable, making it appropriate for tasks that require complex reporting (*Dwivedi, et.al.; 2023*). OpenAI (2023) also highlighted ChatGPT's complex data processing abilities which can help organisations process and present sustainability disclosures in a standardised way. ChatGPT helps organisations promote socially responsible activities, help strengthen external supervision as well as internal control and communicate their sustainable practices to stakeholder in a clear and structured way (*Zhuang, X., & Wu, Y.; 2024*).

Ethical and Governance Concern in AI Adoption

Even though the benefits of AI tools and ChatGPT are undeniable, the ethical as well as governance concern regarding its use in sustainability reporting remains significant. The risk of algorithmic bias, accuracy of the information, generation of overly generic data, transparency etc., remains issues that require attention (*Floridi, et.al.; 2018*). In case of sustainability reporting, over-reliance on ChatGPT can lead to reduced credibility and authenticity of the disclosures. The risk over-standardised result and superficial reporting also remain high. Therefore, responsible, controlled and supervised use of AI tools is important in order to enhance the reporting practices.

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Studies have explored the automation and efficiency of AI tools, however, the use of generative AI tools like ChatGPT in sustainability reporting remains an underexplored area.

Research Gap:

The existing body of literature mainly focuses on areas like disclosure quality, regulatory compliance, adoption of global reporting frameworks etc. Areas like lack of standardised and comparable disclosure and greenwashing of disclosures have also been explored. However, the researcher has found limited research related to the role and use of AI tools in enhancing sustainability reporting.

Additionally, while existing body of literature has looked into the potential and capabilities of ChatGPT, research that focus on the ethical or governance implications, prospects and challenges in relation to sustainability reporting are rather scarce. The current study aims to address this gap in literature by analysing how ChatGPT can enhance sustainability disclosures and tackle the challenges related to governance and transparency.

Objectives of the Study:

1) To study the application of ChatGPT in corporate environmental sustainability and ESG disclosures.
2) To evaluate the benefits and challenges of AI-assisted ESG environmental reporting.
3) To examine the implications of ChatGPT adoption for corporate environmental transparency and governance.

Conceptual Framework:

The conceptual framework of the present study targets to explain the role of generative AI tools like ChatGPT in enhancing corporate sustainable practices and sustainability reporting. This framework has been developed based on findings of the studies on sustainability reporting, use of artificial intelligence in corporate reporting practices and the ethical and governance concerns of AI adoption.

The framework follows an input-process-output approach. The “input” here, refer to the information that the organisations typically use while preparing sustainability reports. This includes data related to the firm’s sustainable activities, environmental

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information, sustainability policies of the organisation, regulatory requirements and the regulatory framework adopted by the organisation like Global Reporting Initiative (GRI).

The "process" component of the framework refers to the application and support of ChatGPT in generating the sustainability report. ChatGPT helps in organising and summarising the relevant information, drafting easy-to-understand sustainability narratives, aligning the disclosures to the regulatory requirements and reporting frameworks while improving the comparability and clarity of sustainable or environmental reporting. In this stage, it is very crucial to exercise human oversight and make use of managerial judgement to assure that the AI tool has been used in an ethical way and the generated report contains credible and accurate information. The governance mechanisms of the organisation and their ethical guidelines play the role of moderating factors and the effectiveness of integrating ChatGPT in reporting practices rely on them.

The "output" component of the framework includes transparent, comparable, consistent and structured and understandable environmental and sustainable disclosures. These outcomes help enhance stakeholder understanding which results in strengthened stakeholder relation as well as contribute in creating stronger corporate governance inside the organisation. While there are a number of benefits of integrating AI in sustainability reporting, this framework also acknowledges the potential drawbacks such as lack of reliable data, algorithmic bias, superficial reporting etc., which may lead to reduced efficiency of the reports, if not managed properly.

Altogether, this conceptual framework places ChatGPT as a supporting tool for environmental or sustainability reporting and not a replacement of human expertise and judgement. ChatGPT has the potential of refining corporate sustainability reporting when used along with strong governance and ethical guidelines and professional judgement.

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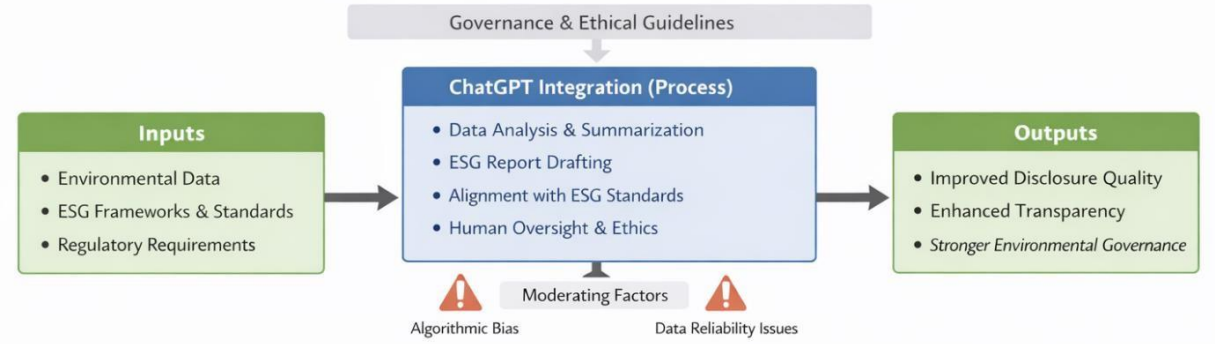

Figure 1: *ChatGPT-Enabled Corporate Environmental ESG Reporting*

Research Methodology:

Research Design

The present study is qualitative in nature and adopts a conceptual research design in order to investigate the role of ChatGPT in enhancing sustainability disclosures. As this study focuses on conceptual understanding, the application, benefits and challenges of integrating ChatGPT in ESG reporting rather than any quantitative assessment, a qualitative approach was found to be more suitable.

Nature and Sources of Data

The study relies entirely on secondary data. The data has been collected from numerous research articles, academic journals across reputed databases like Scopus-indexed journals, publisher websites and reports from national as well as international organisations. A systematic review of the existing literature was undertaken in order to identify relevant studies and only credible sources were selected to ensure reliability

Method of Analysis

The approach of thematic analysis was used in order to analyse the select literature. Existing studies were reviewed and various key-themes like ESG disclosure quality, reliability, transparency, use of AI in reporting, ethical considerations, governance implications and challenges and benefits of adopting ChatGPT were identified and pieced together. The analysis focused on understanding how ChatGPT can be employed to improve ESG disclosures and improve quality while addressing the challenges.

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Conceptual Framework Development

Based on the analysis of the existing literature, a conceptual framework has been devised so as to explain the relationship between adoption of ChatGPT, ESG reporting processes and disclosures, quality of disclosures, its transparency and corporate governance outcomes.

Scope of the Study

Even though the present study provides important conceptual insights, it does not perform empirical testing. It aims to provide researchers, managers as well as policymakers with valuable insights and understanding the practical implications and role of ChatGPT in enhancing sustainability reporting practices.

Discussion

The present study sheds light on the role of ChatGPT in supporting and enhancing ESG reporting and improving the quality of communicating corporate sustainability performance. The literature indicates that quality ESG reporting is an essential tool in demonstration one's commitment to sustainability and thus, helps in creating long term value *(Elkington, 1997; Eccles, Ioannou, & Serafeim, 2014*). However, numerous challenges like lack of standardisation, inconsistency in reporting, lack of transparency and the practice of "greenwashing" hinder the quality and comparability across firms (*Cho, Michelon, & Patten, 2012; Clarkson et al., 2008*). These findings highlight the need for adopting reporting tool that can enhance the quality and provide reliable, accurate and accessible sustainability reports.

Artificial intelligence tools, particularly conversational language based generative models like ChatGPT, have emerged as a promising solution to address such challenges. AI tools have been able to process complex data, organise, analyse and summarise relevant information, draft reader friendly sustainability narratives and improve the overall quality of sustainability reporting (*Raisch & Krakowski, 2021*). In the backdrop of sustainability reporting, AI can assist in monitoring the environment, resource optimisation and also perform risk assessment, consequently, improving the ESG performance of the organisation (*Vinuesa et al., 2020*). ChatGPT in particular, can facilitate the preparation of ESG reports by generating structured, standardised, consistent and relevant narratives that align with regulatory requirements and

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recognised ESG frameworks (*Dwivedi et al., 2023; OpenAI, 2023*).

However, the literature also highlights the potential challenges and ethical and governance concerns. Limitations such as algorithmic bias, reliability of data, generating overly generic information and ethical oversight underscores the importance of human supervision and expert judgement (*Floridi et al., 2018*). Therefore, ethical responsibility needs to be balanced along with technological efficiency while integrating ChatGPT with ESG reporting in order to ensure reliable and credible disclosures.

Overall, the study reveals that when used responsibly, ChatGPT can help enhance the quality and transparency of ESG reporting and improve corporate governance. However, it is important that ChatGPT is used to supplement human expertise and not as a replacement in order to achieve that.

Managerial and Policy Implications

From the managerial perspective, adopting ChatGPT can help the organisation improve the consistency, clarity and accuracy of ESG reporting. Managers can make use of this AI tool to organise, summarise and present data in a structured manner, aligning the disclosures to regulatory requirements and established ESG reporting frameworks. It helps in analysis complex data efficiently to generate easy-to-understand results and thus, facilitate quicker decision making. However, managerial or expert supervision is indispensable in order to generate accurate data and ensure ethical use of AI tools and avoid over dependence.

From the perspective of policies and policy makers, the study reveals the need for regulatory policies and guidelines that facilitate responsible use of AI tools, in particular ChatGPT in sustainability reporting. The policy makers as well as the bodies and boards responsible for setting standards can promote transparency by encouraging the organisations to disclose in their reports the application of AI tools and encourage adherence to ethical principles of using AI. Clear policies and guidelines can help balance innovation and accountability, thus, strengthening trust, improving governance and ensuring credibility of ESG disclosures.

Limitations and Future Research Directions

This study has certain limitations. The study is conceptual in nature and relies solely on secondary data taken from existing literature without empirical testing.

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Therefore, the findings provide theoretical insights rather than direct organisational evidence. Also, the study does not dive into the industry-specific factors or regional variations contributing to differences in reporting. Additionally, the technological world is always rapidly evolving which may impact the relevance of the findings in the long term.

Future researchers can aim to address these limitations by adopting an empirical approach such as case studies to assess the practical implication of integrating ChatGPT in ESG reporting. Comparative studies can also be undertaken, taking into consideration industry specific or regional variations to dive deeper into contextual differences in AI driven sustainability reporting. Future research can also investigate the need for regulatory framework in order to ensure ethical practice in the adoption of AI tools in sustainability reporting.

Conclusion

The study highlights that the adoption of AI tools like ChatGPT for sustainability reporting marks a meaningful shift in how organisations and managers approach ESG reporting. ChatGPT can prove to be an extremely helpful mechanism in organising and summarising data and generating meaningful, consistent and standardised sustainability reports. As it has the capability of processing even complex data, it has the potential of reducing inefficiencies in reporting. Additionally, ChatGPT can also help align the disclosures with required frameworks and regulations.

However, technological innovation and advancement do not ensure credible and accurate sustainability outcomes. The efficiency and effectiveness of adopting ChatGPT for ESG reporting depends majorly on the quality of the data, managerial intent, ethical practices and human supervision. Lack of governance may result in superfluous or symbolic compliance without any substance. Overall, the study states that even though ChatGPT has numerous benefits, it is merely a supporting tool and not a substitute for human judgement. Responsible and transparent use of AI tools can help strengthen ESG governance and promote credible sustainability disclosures.

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