

Generative AI in ESG Reporting: Navigating the Dual Role of Efficiency Enabler and Greenwashing Facilitator in the Indonesian Context

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Abstract. The integration of generative artificial intelligence (AI) into Environmental, Social, and Governance (ESG) reporting represents a transformative yet double-edged development in corporate sustainability practice. This conceptual paper examines the dual role of generative AI—specifically large language models (LLMs)—as both an efficiency enabler and a potential facilitator of greenwashing in ESG disclosure. Grounded in Legitimacy Theory and the ESG Disclosure Framework, this study critically analyses how AI-generated content can streamline sustainability reporting processes while simultaneously introducing risks of biased, misleading, or unverified disclosures. Drawing on recent empirical and theoretical literature from 2022 to 2025, the paper maps the trajectory of AI adoption in ESG reporting, identifies key greenwashing mechanisms enabled by generative AI, and evaluates regulatory responses—including Indonesia's tightened ESG disclosure requirements under Otoritas Jasa Keuangan (OJK). Findings suggest that while generative AI significantly reduces reporting burdens, enhances data synthesis, and improves stakeholder accessibility of sustainability reports, it also creates new pathways for impression management and selective disclosure that undermine the credibility of ESG information. The paper proposes a governance framework for responsible AI-assisted ESG reporting, incorporating human oversight, algorithmic transparency, and regulatory auditing mechanisms tailored for the Indonesian context. This study contributes a novel perspective to the intersection of accounting, sustainability, and artificial intelligence, filling a critical gap in the literature from developing country standpoints.

Keywords: Generative AI; ESG Reporting; Greenwashing; Legitimacy Theory; Sustainability Disclosure

INTRODUCTION

The emergence of generative artificial intelligence (AI) technologies, particularly large language models (LLMs) such as GPT-4, Claude, and Gemini, has fundamentally altered the landscape of corporate communication and reporting. Within the domain of Environmental, Social, and Governance (ESG) reporting, generative AI offers unprecedented capabilities: synthesizing vast datasets, generating narrative disclosures, identifying material sustainability risks, and benchmarking corporate performance against global standards. These capabilities have positioned AI as a powerful tool in reducing the significant time and resource burden associated with producing comprehensive ESG reports.

However, the same capabilities that make generative AI a powerful reporting tool also render it a potential vehicle for sophisticated greenwashing—the practice of misrepresenting or overstating an organization's environmental and social commitments. The fluency, persuasiveness, and scalability of AI-

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generated text can amplify selective disclosure, obscure material omissions, and create impressions of sustainability performance that diverge from operational reality. This duality presents a critical challenge for regulators, auditors, investors, and standard-setters worldwide.

The Indonesian context adds particular urgency to this analysis. The Otoritas Jasa Keuangan (OJK), Indonesia’s financial services authority, has progressively tightened ESG disclosure requirements for listed companies and financial institutions, most recently through Peraturan OJK (POJK) No. 18/POJK.04/2023, which mandates enhanced sustainability reporting aligned with global frameworks such as the Global Reporting Initiative (GRI) and the Task Force on Climate-related Financial Disclosures (TCFD). As Indonesian corporations navigate these new obligations, many are beginning to adopt AI-assisted tools to meet reporting demands—creating a regulatory and ethical landscape that has received minimal scholarly attention.

This paper is grounded in two theoretical pillars. First, Legitimacy Theory (Suchman, 1995; Deegan, 2002) posits that organizations seek to align their reported activities with societal norms and expectations to maintain legitimacy, which can motivate both genuine and performative disclosure. Second, the ESG Disclosure Framework provides a normative structure for what constitutes credible, material, and decision-useful sustainability information. Together, these frameworks enable a nuanced analysis of how generative AI interacts with organizational incentives and disclosure obligations.

The primary objectives of this paper are: (1) to map the key applications and benefits of generative AI in ESG reporting; (2) to identify mechanisms through which AI can facilitate greenwashing; (3) to assess the regulatory landscape in Indonesia and globally; and (4) to propose a governance framework for responsible AI-assisted ESG disclosure. The paper proceeds as follows: Section 2 reviews the relevant literature; Section 3 outlines the theoretical framework; Section 4 presents the analysis and discussion; Section 5 offers conclusions and policy recommendations.

LITERATURE REVIEW

Generative AI and Corporate Reporting

The application of AI technologies to corporate reporting has grown substantially over the past decade, evolving from rule-based automation to sophisticated natural language generation (NLG) systems. Early AI applications focused on structured financial data extraction and anomaly detection (Cao et al., 2021). The advent of transformer-based LLMs, beginning with BERT (Devlin et al., 2019) and culminating in generative models such as the GPT series, has enabled AI to produce contextually coherent, stylistically appropriate, and technically accurate narrative disclosures (Brown et al., 2020).

In the sustainability domain, research has documented AI’s capacity to analyze unstructured ESG data from diverse sources including news feeds, regulatory filings, satellite imagery, and social media (Kang et al., 2023). Studies by Berg et al. (2022) and Diaye et al. (2022) demonstrate that AI-assisted ESG scoring systems can achieve higher consistency and coverage than manual analyst processes, though they also find significant divergence across rating providers—a phenomenon linked to differing AI model architectures and training data. More recently, Friederich et al. (2023) showed that LLMs can generate ESG narrative sections that are indistinguishable from human-authored equivalents in blind reading tests, raising profound questions about authenticity and accountability in sustainability reporting.

ESG Reporting: Frameworks, Quality, and Disclosure Incentives

ESG reporting has grown from a niche corporate social responsibility (CSR) practice into a mainstream financial disclosure imperative. The GRI Standards, first published in 2000 and continuously revised, provide the most widely adopted framework globally, with uptake among over 10,000 organizations in more than 100 countries (GRI, 2023). Complementary frameworks include the Sustainability Accounting Standards Board (SASB), the Integrated Reporting Framework (IR), and—more recently—the International Sustainability Standards Board (ISSB) standards, which aim to create a globally consistent baseline for climate and sustainability disclosure (IFRS Foundation, 2023).

Quality in ESG reporting is typically assessed across dimensions of completeness, accuracy, comparability, and decision-usefulness (Hummel & Schlick, 2016). Research consistently finds significant

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variation in ESG disclosure quality, driven by factors including firm size, industry, regulatory pressure, and ownership structure (Lins et al., 2017; Eccles et al., 2019). In the Indonesian context, studies by Cahya (2023) and Puspitasari et al. (2022) document moderate levels of ESG disclosure quality among listed companies, with improvements following OJK regulatory interventions but persistent gaps in environmental and governance categories.

The incentive structure underlying ESG disclosure is complex and contested. Legitimacy Theory (Suchman, 1995; Deegan, 2002) suggests that disclosure is fundamentally a legitimization strategy, with organizations revealing positive information and concealing negative information to maintain societal approval. Stakeholder Theory (Freeman, 1984; Donaldson & Preston, 1995) emphasizes responsiveness to multiple constituencies, while Institutional Theory (DiMaggio & Powell, 1983) highlights the role of normative and coercive pressures in shaping disclosure practices.

Greenwashing: Mechanisms and Consequences

Greenwashing, broadly defined as the dissemination of misleading or unverified environmental claims, has been documented across industries and geographies. Lyon and Maxwell (2011) provide an early taxonomy distinguishing passive greenwashing (selective omission) from active greenwashing (affirmative misrepresentation). More recent typologies include greenwashing by over-claiming (asserting attributes not supported by evidence), greenwashing by omission (failing to disclose material negative information), and symbolic greenwashing (using certifications or imagery decoupled from operational reality) (Delmas & Burbano, 2011; Marquis et al., 2016).

The financial consequences of greenwashing exposure are significant. Studies find that firms caught greenwashing experience significant stock price declines, increased cost of capital, and reputational damage that persists beyond the initial event (Luo & Bhattacharya, 2006; Walker & Wan, 2012). Regulatory penalties are also escalating: the European Union’s Anti-Greenwashing Directive (2024) and SEC climate disclosure rules (2024) have substantially increased legal exposure for misleading sustainability claims. In Indonesia, while explicit anti-greenwashing regulation remains nascent, OJK’s enhanced disclosure requirements create implicit legal risk for organizations making material misstatements in sustainability reports.

The intersection of AI and greenwashing is an emerging research frontier. Lund et al. (2023) identify AI-generated text as a key vector for sophisticated greenwashing, noting that LLM-produced disclosures can mimic the linguistic patterns of high-quality reporting while containing unverified or fabricated claims—a phenomenon they term “deep disclosure deception”. Sheng et al. (2024) analyzed 500 AI-assisted sustainability reports and found systematic over-representation of positive environmental outcomes, consistent with legitimization motives.

AI in the Indonesian ESG Landscape

Indonesia’s ESG reporting landscape has evolved significantly since the OJK issued its first sustainability finance roadmap in 2015. The subsequent POJK No. 51/POJK.03/2017 established mandatory sustainability reporting for financial sector companies, followed by expanded requirements under POJK No. 18/POJK.04/2023 for capital market entities. These regulations align broadly with GRI Standards while incorporating national priorities such as biodiversity conservation, community development, and financial inclusion (OJK, 2023).

The adoption of AI tools by Indonesian corporations for reporting purposes is at an early but accelerating stage. A survey by PricewaterhouseCoopers Indonesia (2024) found that 34% of surveyed large Indonesian companies had deployed some form of AI in their sustainability data management, with 18% experimenting with generative AI for narrative report drafting. However, governance frameworks for AI use in reporting are largely absent, and auditor competency in evaluating AI-generated content remains limited (IAPI, 2024).

THEORETICAL FRAMEWORK

Legitimacy Theory

Legitimacy Theory provides the foundational explanatory logic for this analysis. Suchman (1995, p. 574) defines legitimacy as “a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions.” For publicly accountable organizations, ESG reporting serves as a primary legitimization mechanism, enabling firms to signal alignment with evolving societal expectations regarding environmental stewardship, social responsibility, and ethical governance.

The theory distinguishes between substantive legitimacy (achieved through genuine operational change) and symbolic legitimacy (achieved through communication and impression management without underlying change). Generative AI, by dramatically reducing the cost and effort of producing sophisticated sustainability narratives, lowers the barrier to symbolic legitimacy while potentially widening the gap between disclosed and actual performance. This mechanism is particularly relevant in contexts characterized by weak regulatory enforcement and limited ESG auditing infrastructure—conditions that partially describe the current Indonesian environment.

Extending Legitimacy Theory to the AI-ESG nexus, we propose that organizations face a “legitimacy optimization problem”: they must produce disclosures that satisfy stakeholder expectations (and increasingly, regulatory requirements) at minimum reputational and operational cost. Generative AI shifts this optimization frontier by enabling high-quality, stakeholder-responsive disclosures at low marginal cost, creating incentives for expanded symbolic reporting that may not be matched by operational improvements.

ESG Disclosure Framework

The ESG Disclosure Framework, as operationalized in GRI Standards, ISSB standards, and TCFD recommendations, establishes normative criteria for credible sustainability disclosure. Key principles include materiality (reporting on issues material to stakeholders and business value), accuracy (reporting verifiable facts with appropriate precision), balance (representing both positive and negative performance), and comparability (enabling meaningful comparison across periods and organizations).

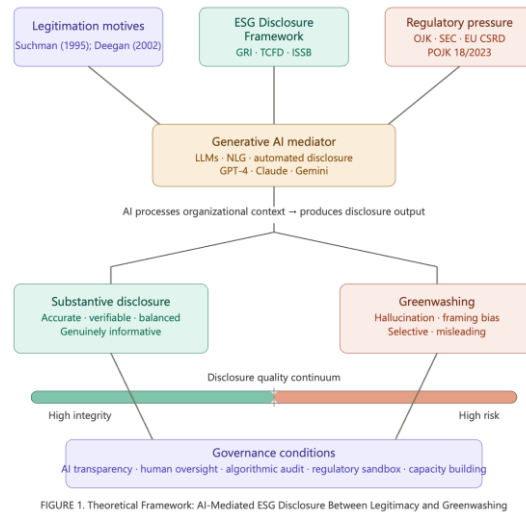
Generative AI interacts with each of these principles in complex ways. On materiality, LLMs trained on large corpora of existing ESG reports may systematically over-weight topics prominent in training data and under-weight organization-specific material issues. On accuracy, AI models are prone to “hallucination”—generating plausible but factually incorrect statements—which represents a fundamental risk in the context of regulated disclosures. On balance, commercial optimization pressures and legitimization motives may bias AI model outputs toward positive framing. On comparability, AI-generated disclosures may apply standard language in ways that obscure genuine performance differences across organizations.

Figure 1 conceptualizes the theoretical framework synthesizing Legitimacy Theory and the ESG Disclosure Framework in the context of AI-assisted reporting. The framework posits that organizational legitimization motives, mediated by AI capability and regulatory pressure, determine the disclosure outcome—situated on a continuum from substantive disclosure (genuinely informative) to greenwashing (misleading).

FIGURE 1. Theoretical Framework: AI-Mediated ESG Disclosure Between Legitimacy and Greenwashing

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METHODS

This paper employs a systematic literature review (SLR) methodology to synthesize evidence on generative AI applications in ESG reporting and associated greenwashing risks. The SLR approach, following Tranfield et al. (2003) and Templier & Pare (2015), ensures systematic coverage of the relevant literature while enabling critical synthesis and theory building.

Search Strategy

A structured database search was conducted across five academic databases: Scopus, Web of Science, ScienceDirect, SSRN, and Google Scholar. Search terms included: (generative AI OR large language models OR LLMs) AND (ESG OR sustainability reporting OR non-financial reporting OR CSR disclosure) AND (greenwashing OR impression management OR symbolic disclosure OR disclosure quality). Publication date filters restricted results to 2019–2025, with particular emphasis on literature from 2022 onwards given the rapid evolution of LLM capabilities.

An initial search yielded 487 potentially relevant articles. Following deduplication and title/abstract screening, 156 full texts were retrieved and assessed for eligibility. A final corpus of 78 articles met inclusion criteria—defined as: peer-reviewed journal articles or high-quality conference papers; primary focus on AI, ESG reporting, or greenwashing; and sufficient methodological rigor. Complementary grey literature sources, including regulatory publications from OJK, ISSB, GRI, SEC, and EU regulatory bodies, were also incorporated to ensure policy relevance.

Analysis Approach

The analysis employs a thematic synthesis approach (Thomas & Harden, 2008), identifying cross-cutting themes, patterns, and tensions in the literature. Three primary analytical themes were developed inductively: (1) AI efficiency mechanisms in ESG reporting; (2) AI-enabled greenwashing pathways; and (3) governance and regulatory responses. Within each theme, the analysis distinguishes between empirical findings, theoretical propositions, and normative recommendations.

The Indonesian regulatory context was analyzed through documentary analysis of OJK regulations, Bapepam-LK guidelines, and ESG reporting trends among Indonesian listed companies, drawing on data from the IDX Sustainability Reporting Award database and annual OJK sustainability finance reports (2020–2024).

RESULTS AND DISCUSSION

AI Efficiency Mechanisms in ESG Reporting

The literature identifies five primary mechanisms through which generative AI enhances the efficiency and quality of ESG reporting. First, automated data aggregation: LLMs can integrate structured data from ERP systems, IoT sensors, and supply chain platforms with unstructured data from internal reports, news, and regulatory sources to produce comprehensive performance narratives (Kang et al., 2023; Friederich et al., 2023). Second, intelligent materiality assessment: AI models trained on stakeholder consultation data and industry materiality maps can automate the identification of priority reporting topics (Tsang et al., 2023). Third, multilingual and multi-framework adaptation: generative AI can simultaneously produce ESG disclosures compliant with multiple reporting frameworks (GRI, TCFD, ISSB), reducing the duplication of effort inherent in current multi-standard reporting (Meuer et al., 2020). Fourth, stakeholder-responsive narrative generation: LLMs can tailor disclosure language and emphasis to specific stakeholder audiences while maintaining factual consistency (Lund et al., 2023). Fifth, continuous and real-time reporting: AI enables shift from annual to continuous ESG disclosure, advancing the reporting cycle from retrospective to near-real-time (Yoon et al., 2021).

For Indonesian companies, these efficiency gains are particularly significant given the resource constraints facing many mid-sized listed companies confronting new OJK requirements. PwC Indonesia (2024) estimates that AI-assisted ESG reporting could reduce preparation costs by 30–50% for medium-sized firms, making compliance more accessible while potentially improving disclosure completeness.

AI-Enabled Greenwashing Pathways

Despite its efficiency benefits, generative AI introduces multiple pathways through which greenwashing may be amplified or concealed. This analysis identifies four primary risk mechanisms.

The first mechanism is hallucination and factual fabrication. LLMs are inherently probabilistic text generators that can produce confident, stylistically appropriate statements that are factually incorrect. In ESG reporting, this risk manifests as fabricated emissions figures, non-existent certifications, or invented community benefit claims. Unlike human-authored errors—which tend to be localized and detectable—AI hallucinations can be systematically embedded throughout large documents in ways that resist conventional auditing approaches (Ji et al., 2023).

The second mechanism is selective emphasis and framing bias. Training data for commercial LLMs is dominated by positive-framing ESG content from high-rated companies, creating a systematic bias toward optimistic narratives. When applied to organizations with weaker sustainability performance, AI models may apply linguistic patterns that convey higher performance than the underlying data supports—a form of algorithmic impression management (Sheng et al., 2024). Marquis et al. (2016) documented similar patterns in human-authored reports; AI amplifies this tendency at scale.

The third mechanism is template-driven superficiality. Generative AI excels at producing reports that conform to established templates and linguistic conventions of high-quality ESG disclosure while lacking the organizational specificity that distinguishes genuine from performative reporting. Research by Berg et al. (2022) and Diaye et al. (2022) demonstrates that AI-generated reports consistently score higher on surface-level quality metrics (readability, completeness, framework alignment) than on substance metrics (verifiability, specificity, connection to operational data).

The fourth mechanism is scale-enabled regulatory arbitrage. AI enables organizations to produce regulatory-compliant disclosures at minimal cost, potentially decoupling compliance from genuine performance improvement. In jurisdictions like Indonesia where ESG audit verification is limited, AI-enabled compliance at scale could create a “legitimacy bubble” in which the volume and apparent quality of sustainability disclosure grows faster than underlying performance, eventually eroding investor and stakeholder trust in ESG information (Delmas & Burbano, 2011).

Comparative Analysis: Efficiency vs. Risk

Table 1 synthesizes the efficiency benefits and greenwashing risks of generative AI in ESG reporting across key reporting dimensions, providing a comparative framework for practitioners and regulators.

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TABLE 1. Efficiency Benefits and Greenwashing Risks of Generative AI in ESG Reporting

Reporting Dimension	Efficiency Benefit	Greenwashing Risk
Data Collection	Automated multi-source aggregation; reduces manual data gathering by up to 60%	Data quality varies; AI may fill gaps with estimated or hallucinated values
Narrative Generation	Rapid production of framework-compliant, stakeholder-tailored disclosures	Systematic positive bias; stylistic compliance may mask substantive gaps
Materiality Assessment	Algorithmic identification of priority topics using stakeholder input analysis	Over-reliance on historical patterns may miss emerging material issues
Multi-framework Alignment	Simultaneous GRI, TCFD, ISSB compliance at reduced cost	Boilerplate language may satisfy formal requirements without substantive disclosure
Verification Support	AI-assisted cross-checking of claims against source data	Hallucinations resistant to standard audit procedures; creates verification challenges
Stakeholder Accessibility	Plain-language summaries; multilingual output; interactive reports	Accessibility improvements may distract from limited substantive content

Regulatory Landscape: Global and Indonesian Context

The regulatory response to AI-related ESG risks is evolving rapidly, though governance frameworks remain nascent relative to the pace of AI deployment. At the global level, three regulatory trajectories are discernible. The European Union has taken the most proactive approach, with the Corporate Sustainability Reporting Directive (CSRD, 2023), the European Sustainability Reporting Standards (ESRS), and the Anti-Greenwashing Directive (2024) collectively creating stringent requirements for verified, audit-ready sustainability disclosure. The EU AI Act (2024) adds further dimension, classifying AI systems used in regulated financial reporting as “high-risk” and imposing transparency, explainability, and human oversight requirements (European Commission, 2024).

In the United States, the SEC’s Climate Disclosure Rules (2024) mandate quantitative climate-related disclosures for public companies, with third-party assurance requirements for larger filers. In Asia, Singapore’s SGX sustainability reporting framework and Hong Kong’s HKEX ESG reporting rules have incorporated limited AI guidance, while Japan’s Financial Services Agency has initiated a working group on AI in corporate disclosure.

In Indonesia, OJK’s regulatory framework for ESG reporting has strengthened significantly since 2020. POJK No. 18/POJK.04/2023 requires listed companies to disclose sustainability information aligned with GRI Standards as the minimum framework, with voluntary adoption of TCFD and ISSB encouraged. The regulation introduces limited assurance requirements for financial sector entities and mandates disclosure of the methodology used to calculate key sustainability metrics—a provision that has direct implications for AI-assisted reporting. Notably, OJK’s Roadmap for Sustainable Finance 2021–2025 explicitly acknowledges the role of financial technology and AI in advancing sustainable finance, but specific guidance on AI-assisted reporting remains absent (OJK, 2023).

This regulatory gap creates uncertainty for Indonesian corporations adopting AI reporting tools. Without explicit AI governance requirements, organizations face ambiguity about disclosure requirements regarding AI use, verification obligations for AI-generated content, and liability exposure for AI-related inaccuracies. The absence of specific auditor guidance from IAPI (Indonesian Institute of Certified Public Accountants) on evaluating AI-generated sustainability disclosures further compounds these challenges.

Proposed Governance Framework for AI-Assisted ESG Reporting in Indonesia

Based on the preceding analysis, this paper proposes a five-pillar governance framework for responsible AI-assisted ESG reporting, tailored to the Indonesian regulatory and institutional context, as illustrated in Figure 2.

The first pillar is AI Disclosure and Transparency. Organizations should be required to disclose when AI tools have been used in the preparation of ESG reports, specifying the type of AI application, the data

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sources used, and the extent of human oversight. This aligns with emerging global norms (EU AI Act, SEC guidance) and enables stakeholders to calibrate their reliance on AI-generated disclosures. OJK should issue formal guidance requiring disclosure of AI use in sustainability reporting, integrated into existing reporting frameworks.

The second pillar is Human Oversight and Editorial Accountability. AI-generated ESG content should be subject to substantive human review by qualified sustainability professionals who are accountable for the accuracy and balance of final disclosures. This review should not be merely perfunctory sign-off, but genuine critical evaluation of AI outputs against underlying operational data—a standard analogous to that applied to AI use in financial reporting (IASB, 2023). Professional accounting bodies, including IAPI and IAI (Ikatan Akuntan Indonesia), should develop competency frameworks and continuing professional education programs for AI-assisted sustainability reporting.

The third pillar is Algorithmic Auditing and ESG Verification. External assurance providers should develop competencies for evaluating AI-generated sustainability disclosures, including assessment of AI model bias, verification of factual accuracy against source data, and detection of systematic misrepresentation patterns. This requires investment in technical audit methodologies and potentially new assurance standards addressing AI-specific risks. OJK should work with IAPI and international audit standard-setters to develop Indonesian guidance on AI-related ESG audit procedures.

The fourth pillar is Regulatory Sandboxes for AI-ESG Innovation. Given the rapid evolution of AI capabilities and ESG standards, regulatory certainty is best achieved through adaptive governance mechanisms rather than prescriptive rules. OJK should establish a regulatory sandbox enabling pilot testing of AI-assisted reporting tools under supervisory oversight, generating evidence to inform proportionate and effective regulation while avoiding premature regulatory lock-in.

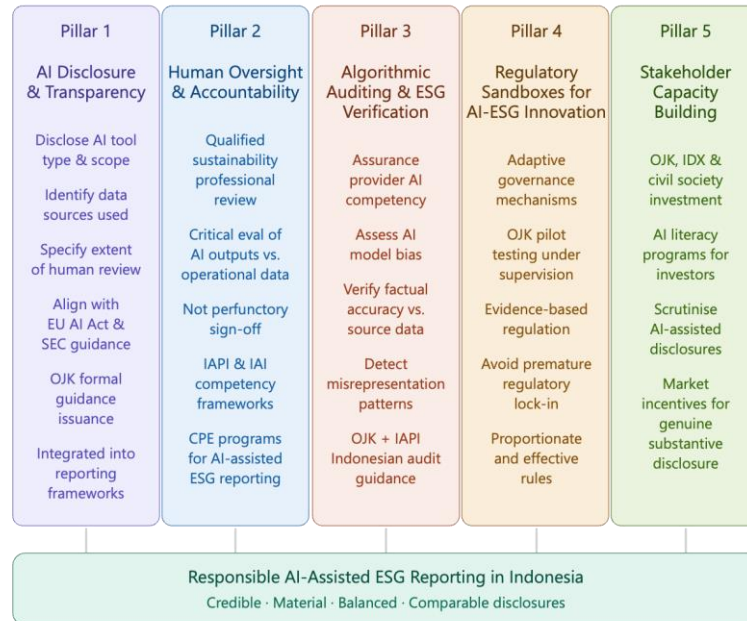
The fifth pillar is Stakeholder Capacity Building. The effectiveness of AI governance ultimately depends on the capacity of investors, civil society, and media to scrutinize AI-assisted disclosures. OJK, the Indonesia Stock Exchange (IDX), and civil society organizations should invest in stakeholder literacy programs on AI limitations in ESG reporting, enabling more sophisticated scrutiny of sustainability claims and creating market incentives for genuine, substantive disclosure.

FIGURE 2. Five-Pillar Governance Framework for Responsible AI-Assisted ESG Reporting in Indonesia

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FIGURE 2.
Five-Pillar Governance Framework for Responsible AI-Assisted ESG Reporting in Indonesia



Implications for Accounting Practice and Research

This analysis carries significant implications for accounting practice, regulation, and research. From a practice perspective, accountants and sustainability reporting professionals must rapidly develop competencies in AI literacy, including understanding of LLM capabilities and limitations, prompt engineering for reporting applications, and critical evaluation of AI-generated content. The expanding role of AI in sustainability reporting suggests a fundamental shift in the skillset required of sustainability professionals—from data gathering and narrative writing toward critical oversight and AI governance.

From a regulatory perspective, the analysis suggests that existing ESG reporting frameworks are insufficiently equipped to address AI-specific risks. The silence of major frameworks—GRI, ISSB, TCFD—on AI use in reporting creates normative uncertainty that may be exploited by organizations seeking symbolic legitimacy at low operational cost. Standard-setters should urgently develop specific guidance on AI-assisted reporting, covering at minimum disclosure requirements, accuracy standards, and audit expectations.

From a research perspective, this paper identifies a critical gap at the intersection of accounting, sustainability, and AI—particularly from developing country perspectives. Research priorities include: empirical assessment of greenwashing prevalence in AI-generated ESG reports; experimental studies of stakeholder perception of AI- versus human-authored sustainability disclosures; evaluation of AI governance framework effectiveness in emerging market contexts; and longitudinal analysis of the relationship between AI adoption in reporting and actual ESG performance.

CONCLUSIONS

This paper has examined the dual role of generative AI in ESG reporting: as an efficiency enabler that can democratize sustainability disclosure and as a potential facilitator of sophisticated greenwashing that threatens the integrity of ESG information systems. Grounded in Legitimacy Theory and the ESG Disclosure Framework, the analysis demonstrates that the same capabilities—fluency, scalability,

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framework alignment—that make generative AI a powerful reporting tool also render it a vehicle for impression management if insufficiently governed.

The Indonesian context illustrates these tensions acutely. As OJK’s strengthened ESG disclosure requirements drive adoption of AI reporting tools, the absence of explicit AI governance frameworks creates conditions in which symbolic legitimacy may be achieved at low cost, decoupled from substantive performance improvement. This creates systemic risks for the credibility of Indonesian capital markets’ sustainability information, with adverse consequences for sustainable finance flows and long-term environmental and social outcomes.

The five-pillar governance framework proposed—encompassing AI disclosure, human oversight, algorithmic auditing, regulatory sandboxes, and stakeholder capacity building—offers a practical roadmap for OJK, IAPI, IAI, and the investment community to harness AI’s efficiency benefits while mitigating greenwashing risks. Implementation requires coordinated action across regulatory, professional, academic, and civil society domains, and should be informed by ongoing empirical research and international regulatory learning.

This paper contributes to the literature by offering the first systematic analysis of AI-ESG greenwashing dynamics from an Indonesian accounting perspective, grounded in a dual theoretical framework that links organizational legitimization incentives to disclosure governance requirements. Future research should empirically test the greenwashing mechanisms identified, evaluate the effectiveness of governance interventions, and examine the differential impacts of AI adoption across firm sizes, industries, and regulatory environments within Indonesia.

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