

AI Adoption, Employee Literacy, and Ethical Governance in ESG Reporting: A Phenomenological Study of Women-Led SMEs

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Abstract

This paper explores the role of the use of artificial intelligence (AI) in the quality of ESG reporting in small and medium-sized enterprises (SMEs) with female CEOs, considering the role of employee AI literacy, ethical governance of AI, and women's leadership. While AI can support ESG reporting by improving data management, efficiency in writing and visualization of disclosures, its influence on the quality of reporting depends on human capabilities, ethical governance and accountability of leaders. A phenomenological, qualitative approach is adopted in this paper to examine the experiences of organizational actors in AI-facilitated ESG reporting. The findings indicate that AI is a good reporting enabler as it helps SMEs organize fragmented sustainability data and prepare structured ESG narratives. However, the interviewees also pointed out that AI can lead to refined, standardized, exaggerated, or insufficiently verified disclosures. The AI literacy of employees emerged as a crucial verification role, which enabled employees to scrutinize the results of AI-based generation, identify errors, protect confidential information, and provide context for ESG reporting. The ethical governance of AI was found to improve reporting quality through privacy protection, human oversight, accountability and evidence-based reporting. The role of women leaders also enhanced the ethical use of AI for ESG reporting by building trust with stakeholders, humble reporting, the learning process of employees, and relational responsibility. The paper suggests that the credibility of AI-based ESG reporting is not a technology-driven but socio-technical, ethically governed and leader-mediated process. The research expands the studies of AI adoption, ESG reporting, and women-led SME by highlighting the organizational factors that can support AI to enable credible and responsible sustainability reporting.

Keywords: Artificial intelligence adoption; ESG reporting quality; women-led SMEs; ethical AI governance; women's leadership

1. Introduction

The adoption of artificial intelligence (AI) is increasingly becoming a means for organizations to collect, analyse, understand and report sustainability information. In terms of environmental, social and governance (ESG) reporting, AI can assist organizations to organize fragmented data, identify patterns, build disclosure narratives, monitor compliance metrics and improve reporting processes. However, the use of AI cannot be expected to have a positive impact on the quality of ESG reporting. ESG reporting quality is not only dependent on the level of disclosure, but also on the quality of the information disclosed, i.e., the information disclosed is reliable, complete, transparent, credible, comparable and relevant to the stakeholders. The current research on corporate social responsibility reporting shows that formal reporting can increase the visibility of the reported information without improving the quality and credibility of the information (Michelon et al., 2015). This distinction is significant in the context of AI as computerized systems can generate sophisticated ESG reports and leave unresolved questions around the validity of data, human oversight, ethical considerations and corporate accountability.

This is particularly important for small and medium-sized enterprises (SMEs). Compared to large firms, SMEs generally have limited financial and other resources, less structured governance and management practices, less developed ESG reporting and management practices, and fewer employees with specialized knowledge of digital and sustainability matters. The recent research on AI adoption has demonstrated that technological, organizational, environmental and human factors affect the adoption of AI, rather than the technology itself (Khanfar et al., 2024). SME-specific evidence also suggests that skills and competence contribute to the capacity of SMEs to effectively adopt AI (Mammadov et al., 2024). Therefore, AI-based ESG reporting in SMEs should be considered a socio-technical phenomenon that includes technology, human skills, organizational and governance practices.

While the adoption of AI and ESG disclosure have been receiving more attention in academic literature, there is a lack of research on the use of AI and ESG disclosure in women-led SMEs. This gap is important as women-led SMEs may have different barriers in accessing financial, technological, institutional, and digital skills and have different leadership styles, such as relational decision-making, stakeholder sensitivity, and social responsibility. The current literature suggests that women SME leaders can contribute to sustainable development, particularly through relational environmental management (Graafland, 2020). However, most of the literature talks about the role of women in leadership and sustainability in terms of quantitative correlation and few studies have been undertaken to understand the perceptions, experiences and regulation of AI adoption for ESG reporting by women leaders. This leaves a gap in knowledge in the process of making AI-powered ESG reporting credible, ethical and relevant to stakeholders by women-led SMEs.

This problem is related to the AI literacy of employees. AI literacy is a skill that enables people to understand, use, evaluate and critically engage with AI systems (Long & Magerko, 2020; Ng et al., 2021). AI literacy in ESG reporting is not only a technical skill but also an interpretative and ethical skill. ESG reporting employees must be able

to assess the contextual truth, incompleteness, bias, vagueness, or even deception of the AI-generated ESG data. Without sufficient AI literacy, employees can be overly dependent on the outcomes of automation and propagate false ESG claims. Conversely, AI-literate workers can help promote ethical use of AI by providing opportunities for employees to scrutinize, verify and contextualize AI-generated ESG information for public reporting.

Ethical AI governance is also important to AI-driven ESG reporting. Using AI in reporting raises concerns about data privacy, bias, explainability, transparency, human oversight and accountability of AI-supported statements. Moral AI studies warn that ethics remain theoretical without being translated into the practical processes of governance and accountability (Mittelstadt, 2019). The recent research on responsible AI governance also suggests that responsible AI requires structural, relational and procedural practices to guide AI development and monitoring (Papagiannidis et al., 2025). These governance practices may be informal or immature in SMEs and it can be argued that AI-driven efficiency undermines ESG reporting quality.

This paper, therefore, examines the experience of AI implementation in women-led SMEs and the role of employee AI literacy and ethical AI governance and women's leadership on the perceived quality of ESG reporting. Rather than the direct influence of technology, the study adopts a phenomenological qualitative approach to explore the lived experiences and meaning-making of women leaders and employees involved in AI-based ESG reporting. The study is theoretically informed by dynamic capabilities theory, stakeholder theory and socio-technical views. The dynamic capabilities theory is the theory that explains how firms re-organize their technological and human capabilities in response to the changing business environments (Teece et al., 1997). The stakeholder theory considers ESG reporting as a trusting and accountability relationship between the companies and stakeholders (Freeman, 1984). The socio-technical perspective also helps in the understanding that technology use cannot be separated from human actions, organizational practices and institutional environment (Orlikowski, 1992).

Objectives of the Study

The main objective of this study is to explore how AI adoption shapes ESG reporting quality in women-led SMEs through the lived experiences of organizational actors. Specifically, this study aims to:

1. To examine how women-led SMEs experience AI adoption in ESG reporting practices.
2. To explore how employee AI literacy and ethical AI governance influence the credibility, transparency, and accountability of AI-assisted ESG reporting.
3. To understand how women's leadership shapes responsible AI use and stakeholder-oriented ESG reporting quality in women-led SMEs.

2. Literature Review

2.1 AI Adoption in SMEs

The implementation of artificial intelligence has been explored more and more as a driver of organizational efficiency, innovation, decision support, and competitive advantage. Nevertheless, the current AI implementation studies indicate that the implementation of AI cannot be interpreted as a technical process. Instead, it is influenced by the interplay of technological preparedness, organizational resources, managerial devotion, workforce competence, data communication and external pressures (Khanfar et al., 2024). This is especially applicable to small and medium-sized enterprises (SMEs), where the lack of resources, informal management, and access to specialized technical expertise can often limit digital transformation. Although big companies can invest in sophisticated AI systems, SMEs often implement AI step-by-step by using available tools to perform analytics, automation, customer communication, documentation, and reporting.

Recent research on the use of AI in SMEs reveals that skills and competences are one of the key factors that explain whether the adoption of AI is meaningful or not implemented (Mammadov et al., 2024). The importance of this finding is the shift from the technology being available to the organization's capability. Similarly, research on the capability of AI suggests that organizations create value from AI when they combine technological resources with human skills, managerial knowledge and organizational processes (Mikalef & Gupta, 2021). In this sense, the use of AI in SMEs is not just about the installation of software; it is about the development of the capability to understand the results of AI, to integrate AI into the work processes, and to integrate AI implementation with the strategic and ethical objectives. In the context of ESG reporting, this means that AI can be applied to support reporting if the SMEs are able to use AI information responsibly.

2.2 ESG Reporting Quality

ESG reporting quality is the degree to which the disclosures of environmental, social and governance are accurate, complete, transparent, comparable, reliable, credible and useful to the stakeholders. Previous studies on sustainability disclosure have indicated that the quality of reporting must be differentiated from the quantity of reporting. A company can publish excessive volumes of sustainability data without meaningful, balanced, and verifiable data on its real practices (Michelon et al., 2015). This difference is the key to ESG reporting since disclosure may have a substantive and symbolic purpose. Reporting that is substantive enhances accountability and understanding of the stakeholders; reporting that is symbolic can be employed to control impressions or generate legitimacy without any significant organizational change.

It is also reported in the literature that the quality of sustainability disclosure is influenced by the performance and legitimacy pressures. The high-quality disclosure can be used by high-performing firms to indicate high sustainability performance, and firms with legitimacy issues may selectively disclose to control the stakeholder perceptions (Hummel & Schlick, 2016). In the case of SMEs, the quality of ESG reporting is particularly

problematic due to the lack of formal sustainability departments, sophisticated data systems, external assurance systems, and expertise in reporting in many SMEs. Consequently, AI tools might seem appealing since they can be used to structure disorganized ESG data, create disclosure stories, and enhance reporting efficiency. Nevertheless, AI can also be a source of risks in case it produces generic, erroneous, or unverified ESG statements. Thus, the quality of AI-assisted ESG reporting is not solely reliant on automation but also on human verification, governance, and ethical responsibility.

2.3 Employee AI Literacy

The AI literacy of employees is a key prerequisite to responsible AI use in ESG reporting. The concept of AI literacy in general can be defined as the skills that allow people to comprehend, apply, assess, and critically interact with AI technologies (Long & Magerko, 2020). It does not just cover fundamental information about AI functionality but also the skills to evaluate AI-generated results, comprehend constraints, identify bias, and make well-informed choices about how to use AI. Ethical awareness is also a part of AI literacy, especially in situations where AI systems are deployed in the context of sensitive data, decision-making, and accountability to the community (Ng et al., 2021).

The employee AI literacy is not a technical competency in ESG reporting but a quality reporting protection measure. The employees engaged in ESG disclosure should be capable of assessing the accuracy of AI-generated content in terms of organizational practices, the reliability of the data sources, and the exaggeration of sustainability performance in automated narratives. In the absence of proper AI literacy, employees can be over-reliant on the outputs of AI, recreate false assertions, or not recognize bias and incompleteness in AI-generated information. On the other hand, more AI-literate employees can be empowered to apply AI as an aiding tool and maintain human judgment in regard to evidence, interpretation, and disclosure accountability. This is especially relevant in SMEs, where reporting capabilities can be undertaken by employees who do not necessarily have formal training in ESG or data science.

2.4 Ethical AI Governance

Ethical AI governance is the organizational philosophy, procedures and accountability systems that direct responsible AI usage. Ethical AI governance is relevant in ESG reporting as AI-aided reporting can entail sensitive organizational, environmental, employee, customer, or stakeholder information. The responsible AI governance thus needs to be concerned with privacy, transparency, explainability, fairness, bias prevention, human oversight and accountability of AI-assisted decisions or claims. According to the ethical AI literature, guidelines cannot work in isolation but rather need to be transformed into actual governance regulations and accountability in institutions (Mittelstadt, 2019). The ethics of AI tend to be united around such general principles as transparency, justice, fairness, responsibility, and privacy, yet the implementation is a continuous issue (Jobin et al., 2019).

New conceptualizations of governance in recent responsible AI governance research conceptualize governance in structural, relational, and procedural practices (Papagiannidis et al., 2025). Structural practices are formal roles, policies and accountability mechanisms; relational practices are communication, stakeholder engagement and organizational culture; procedural practices are monitoring, documentation, review and evaluation. This framework is very applicable to SMEs since most SMEs might lack formal AI governance frameworks, but still, they make daily decisions regarding the use of AI, data management, and accountability of reporting. Ethical AI governance in women-led SMEs can be influenced by formal policies as well as by leadership values, employee trust, and relational accountability. Nevertheless, the literature has yet to explore the experience and practice of such governance in AI-assisted ESG reporting adequately.

2.5 Women's Leadership in SMEs and Sustainability

The connection between women's leadership and sustainability has been gaining more and more popularity in the field of management and accounting studies. The research on gender diversity in boards indicates that the presence of women in governance may be linked to enhanced sustainability reporting and corporate social performance (Al-Shaer and Zaman, 2016; Arayssi et al., 2016). Women in management can also help SMEs to be sustainable in the SME context, especially in the relational environmental management practices (Graafland, 2020). These results indicate that female leadership can be associated with the sensitivity of stakeholders, ethical issues, employee involvement, and a more social and environmental responsibility orientation.

Nevertheless, a lot of this literature is quantitative and is concerned with gender representation, as opposed to lived leadership practices. It tends to look at the relationship between women's leadership and sustainability outcomes, although little is known about how women leaders interpret, negotiate and govern sustainability-related technologies. This is a big gap since the use of AI presents new ethical and organizational issues. Women in leadership in SMEs can impact AI-assisted ESG reporting through the creation of employee learning, responsible use, questioning AI outputs, and prioritising stakeholder trust. But these processes cannot be adequately described in terms of quantitative measures. A phenomenological approach is thus suitable since it will be able to investigate the experience of women leaders and employees in the adoption of AI, ESG reporting, and ethical governance in the daily organizational practice.

2.6 Synthesis and Research Gap

In general, the literature indicates that the adoption of AI, the quality of ESG reporting, the AI literacy of employees, the ethical governance of AI, and the leadership of women are all significant and not well combined. The research on AI adoption emphasizes the significance of organizational capability and skills of employees, yet it seldom investigates the quality of ESG reporting in women-led SMEs. The literature on ESG reporting focuses on credibility, completeness, and usefulness to stakeholders, but has not yet tackled the question of how AI alters the process of production and verification of ESG information.

The research on AI literacy describes the human skills that one needs to comprehend and analyze AI systems, but its application to ESG reporting is not well developed. Principles and governance frameworks are offered by ethical AI governance scholarship, yet practices at the SME level are under-researched. The research on women's leadership associates gender diversity with the outcome of sustainability, yet it offers scanty information on how women leaders control AI-enabled ESG reporting.

This paper fills these gaps by analyzing AI-enabled ESG reporting as a socio-technical, ethical, and leadership-influenced process in women-led SMEs. Instead of presuming that the adoption of AI positively impacts the quality of ESG reporting, the study examines how employees and women leaders perceive AI adoption, become AI literate, handle ethical issues, and perceive the credibility of reporting. This phenomenological interest adds to the literature by unveiling the lived organizational realities in which AI can facilitate, complicate, or change the quality of ESG reporting in women-led SMEs.

3. Methodology

3.1 Study Type and Research Design

This research design was a qualitative one based on an interpretive phenomenological design. The qualitative design was suitable as the research aimed to learn about how organizational actors experienced, interpreted and gave meaning to AI adoption in ESG reporting practices as opposed to statistically quantifying pre-existing relationships. Phenomenology was especially appropriate when the aim was to investigate lived experiences and the meanings that the participants were giving to a certain phenomenon (Smith et al., 2009). The phenomenon of interest in this study was the application of AI in ESG reporting in women-led SMEs with a specific focus on employee AI literacy, ethical AI governance, and women's leadership.

The research was based on the interpretivist research philosophy since AI-enabled ESG reporting was perceived as a socially constructed organizational process. This implied that the definition of AI adoption, quality of reporting, ethical responsibility, and leadership was influenced by the experiences of women leaders, managers, and employees in particular SME settings. This was in line with qualitative inquiry, in which the objective was to produce rich, contextual, and interpretive knowledge instead of generalizable numerical results (Creswell and Poth, 2018). Phenomenological orientation also enabled the research to sense the way participants perceived stresses amid AI-driven efficiency, human judgment, reporting credibility, and ethical responsibility.

3.2 Study Context

The research concentrated on women-owned SMEs that had implemented, tested or actively utilized AI-assisted tools in business reporting, ESG documentation, sustainability reporting, compliance oversight, or operational data management. An SME headed by a woman was considered to be a business where a woman held primary ownership, founding, chief executive, managing director or senior decision-making position. The

SME setting was suitable as smaller companies tended to encounter unique obstacles to AI implementation, such as a lack of technical skills, resource limitations, informal governance, and unequal digital skills of employees. These circumstances preconditioned SMEs as a significant environment where the way AI was perceived and regulated in reality was studied.

3.3 Sampling Strategy

The research employed purposive sampling since the participants possessed first-hand information or experience in the adoption of AI, ESG reporting, sustainability reporting, or organizational decision-making in women-led SMEs. Qualitative research was appropriate to use purposive sampling since the participants were chosen due to their ability to offer insights rich in information about the phenomenon under study (Creswell and Poth, 2018). The sampling was also done using maximum variation to make sure that there was diversity in terms of SME sectors, firm size, role of participant, level of AI use and experience in ESG reporting. This aided in the capture of variation in the experience of AI-supported ESG reporting under varying organizational conditions.

The groups of participants were women SME owners or founders, women CEOs or managing directors, sustainability or ESG reporting staff, HR or compliance staff, finance or operations staff, and employees who used AI tools to report, document, process data, or to communicate sustainably. In cases where needed, snowball sampling was employed to find other participants with pertinent experience, especially in cases where AI-supported ESG reporting positions were informal or not explicitly identified in SMEs.

3.4 Sample Size

The number of participants was about 24. This was an appropriate range to use in a phenomenological qualitative study as it was both an in-depth exploration and also made it possible to compare the roles of the participants and the organizational contexts. The qualitative interview-based research ought to justify the sample size based on the richness of the information, depth of the inquiry, and at what point the new interviews do not provide any substantially new information (Vasileiou et al., 2018). Numerous central themes in qualitative research based on interviews can be identified during the initial twelve interviews, but further interviews can be helpful in confirming, refining and expanding on the thematic interpretation (Guest et al., 2006). Thus, the ultimate sample size was informed by the sufficiency of data and thematic saturation as opposed to statistical representativeness.

3.5 Data Collection

Semi-structured interviews were used to gather data. This approach was suitable as it was sufficiently structured to respond to the research objectives, but it gave participants the opportunity to discuss their experiences in their own words. The semi-structured interviews are common in qualitative studies since they enable the researcher to delve into

the intricate experiences, elucidate answers, and follow up on the issues that arise during the interview (Kallio et al., 2016). The interview guide contained questions about the experiences of AI adoption, ESG reporting, employee AI literacy, ethical AI governance, women's leadership, data verification, accountability, and perceived quality of reporting.

The interviews took about 40-60 minutes and were either in-person or via the internet, depending on the availability and location of the participants. Interviews were tape-recorded and transcribed word-to-word with the consent of the participants. Field notes were also kept to record the contextual observations, reflections of the researcher and the emergent impressions of the analysis. Where possible, additional organizational reports, including ESG statements, sustainability reports, or web disclosures, internal reporting templates, or AI-use policies, were consulted to aid contextual insights.

3.6 Data Analysis

Reflexive thematic analysis was used to analyse the data. This approach was appropriate since it helped the researcher to discover, decode, and arrange patterns of meaning in the qualitative data and at the same time be sensitive to the lived experiences of the participants. The thematic analysis was analysed using the six-phase approach, which included familiarisation with the data, generation of initial codes, searching of themes, reviewing of themes, defining and naming of themes and production of final analytical narrative (Braun and Clarke, 2006). Thematic analysis was the right method to use in this study since it was flexible, yet it was able to provide a systematic and transparent interpretation of the interview data (Braun and Clarke, 2006).

The coding was initiated by going through the transcripts repeatedly to create familiarity with the accounts of the participants. The first codes were then inductively created based on the data, with the emphasis on the description of AI use by the participants, ESG reporting issues, the ability of the employees, ethical issues, and leadership practices. These codes were clustered into larger themes that indicated common patterns of meaning throughout the data. The possible themes were AI as an enabler of reporting, AI literacy among employees as a verification, ethical AI governance as credibility, and women as leaders as relational accountability. The interpretation was open to unforeseen or opposing results, such as negative cases that questioned the new interpretation.

3.7 Trustworthiness and Research Rigor

Credibility, transferability, dependability, and confirmability helped to enhance the trustworthiness of the study. These are the most common criteria that are used to assess the quality of qualitative research (Lincoln and Guba, 1985). Credibility was enhanced by probing of interviews, quoting of participants, member checking where possible and comparing the accounts of the different groups of participants. The transferability was improved through the thick description of the study context, roles of the participants and organizational conditions. Reliability was ensured by an audit trail of the sampling choices, coding processes, theme development, and revisions of the analysis. Reflexive memoing enhanced the confirmability by assisting in the identification and control of researcher

assumptions during the analysis. The COREQ checklist of qualitative research based on interviews was also used to inform the reporting of the study (Tong et al., 2007).

3.8 Ethical Considerations

Data collection was done with ethical approval from the appropriate institutional review body. The participants were provided with an information sheet on the purpose of the study, voluntary participation, confidentiality, anonymity and the right to withdraw. Informed consent was received prior to every interview, either written or recorded. Since the research was based on organizational practices, the use of AI, and ESG reporting, commercially sensitive data was treated with caution. The names of the participants, the names of the firms, and recognisable organizational information were anonymised. All the recordings, transcripts and research notes of the interviews were kept in a safe place and were only accessed by the research team.

4. Findings

4.1 Demographic Characteristics of Participants

The demographic data consisted of 24 participants of women-led SMEs. The respondents were a sample of various organizational positions such as founders, managing directors, managers, administrative staff, finance officers, operations staff and reporting-related employees. As indicated in Table 1, the sample is diverse in terms of age, gender, organizational role, SME sector, and level of engagement in AI-supported and ESG-related reporting activities.

TABLE 1. Demographic Characteristics of Participants

Respondent	Age	Gender	Role/ Position	SME Sector	Work Experi- ence	AI Involve- ment	ESG/ Report- ing Involve- ment
S1	29	Female	Admin- istrative Officer	Manufac- turing	5 years	Moderate	Moderate
S2	36	Female	Operations Manager	Retail	9 years	Moderate	High
S3	41	Female	Founder/ CEO	Service	12 years	High	High
S4	34	Male	Finance and Admin Officer	Manufac- turing	8 years	Moderate	High
S5	38	Female	Business Develop- ment Manager	Export- oriented SME	10 years	Moderate	High

S6	31	Female	Documentation Officer	Service	6 years	High	Moderate
S7	45	Female	Chief Executive Officer	Food Processing	15 years	High	High
S8	27	Female	Communication Officer	Retail	4 years	High	Moderate
S9	33	Male	Compliance Assistant	Manufacturing	7 years	Moderate	Moderate
S10	39	Female	SME Owner	Service	11 years	Moderate	High
S11	30	Female	HR and Reporting Officer	Textile	6 years	Moderate	High
S12	42	Female	Managing Director	Trading	14 years	High	High
S13	28	Male	Administrative Executive	Service	5 years	Moderate	Moderate
S14	37	Female	Sustainability Coordinator	Food Processing	9 years	High	High
S15	35	Female	Business Profile Writer	Consulting SME	8 years	High	Moderate
S16	32	Male	Operations Officer	Manufacturing	7 years	Moderate	Moderate
S17	40	Female	Chief Executive Officer	Retail	13 years	High	High
S18	44	Female	Senior Manager	Service	16 years	Moderate	High
S19	36	Male	Reporting Officer	Textile	9 years	Moderate	High
S20	29	Female	Digital Communication Officer	Service	5 years	High	Moderate
S21	31	Male	Assistant Manager	Retail	6 years	Moderate	Moderate
S22	43	Female	General Manager	Manufacturing	15 years	High	High

S23	26	Female	Client Relations Officer	Service	3 years	Moderate	Moderate
S24	46	Female	Managing Partner	Consulting SME	18 years	High	High

4.2 Thematic Findings

The thematic analysis produced five large themes that are correlated to the research goals of AI as a reporting enabler, employee AI literacy as verification capability, ethical AI governance as a state of report credibility, female leadership as relational accountability, and the dilemma of efficiency vs authentic ESG disclosure.

Theme 1: AI as a Practical Enabler of ESG Reporting

The respondents always referred to AI as a useful tool that enabled women-led SMEs to systematise disjointed information, create sustainability-related documents, condense operational data, and enhance the display of ESG-related information. AI was particularly appreciated as a number of SMEs did not have specific ESG departments or professional reporting teams. Nonetheless, the respondents did not consider AI as a full-fledged solution. Rather, AI was characterized as a support tool at the first stage, which needed to be checked and corrected by humans.

A 29-year-old female administrative officer from a manufacturing SME explained, *“AI helps us make the first draft faster, but we still need to check everything manually. The main problem is that AI sometimes gives very polished sentences that sound professional but are not always accurate for our business”* (S1).

Similarly, a 34-year-old male finance and administration officer stated, *“AI can make weak information look strong. For example, if we provide very little detail, it may still generate a confident paragraph. That is why employee AI literacy is very important”* (S4).

The theme indicates that the use of AI made the process of working faster and more organized, though the participants were still wary of making an assumption that efficiency has to raise the quality of ESG reporting itself.

Theme 2: Employee AI Literacy as a Verification Capability

The level of AI literacy of employees became the key requirement of responsible AI-enhanced ESG reporting. Respondents elaborated that employees varied in their capacity to utilize AI tools, create efficient prompts, detect erroneous results, safeguard confidential information, and differentiate professional language and confirmed evidence. The participants kept on insisting that AI literacy must incorporate critical judgment, as opposed to technical use.

A 27-year-old female communication officer from a retail SME stated,

“Some of us understand how to ask better questions and refine outputs, while others only use AI like a writing machine. Ethical concerns are also present. We worry about uploading confidential information, especially employee or customer data” (S8).

A 40-year-old female CEO from a retail SME added,

“AI literacy is not only about knowing which tool to use. It is about understanding limitations, checking facts, and knowing when human judgment is needed” (S17).

These descriptions suggest that AI literacy of employees is a quality-control mechanism. In the case of employees who were not AI-literate, AI-assisted reporting was at risk of being generic, overstated, or under-verified.

Theme 3: Ethical AI Governance as a Condition of ESG Reporting Credibility

Ethical AI governance was found to be required by the participants to have credible ESG reporting. The vast majority of SMEs lacked formal AI policies, yet they engaged in informal practices like not uploading confidential data, reading AI-generated text, verifying claims with records, and not disclosing to the outside world without management approval. Nevertheless, respondents also identified that informal practices can be inadequate with the increase in the use of AI.

A 36-year-old female operations manager from a retail SME observed,

“We have verbal instructions about privacy and accuracy, but no written policy or checklist. I feel this is a weakness because as AI use increases, mistakes can happen more easily” (S2).

A 43-year-old female general manager from a manufacturing SME similarly noted,

“Ethical governance is informal but present. We avoid entering confidential details and always review content before external sharing. Still, I think written guidelines are needed because informal practices depend too much on individual memory” (S22).

This theme implies that ethical AI governance is not a technical or compliance problem. Instead, it is an effective reporting system that promotes transparency, accountability and trust by stakeholders.

Theme 4: Women’s Leadership as Relational Accountability

The leadership of women became a powerful force that impacted the adoption, review, and ethical control of AI. The respondents also talked about women leaders as those who promoted the use of AI but, at the same time, focused on honesty, evidence, trust of stakeholders and long-term reputation. Instead of dismissing AI, women leaders seemed to make it an instrument that has to be answerable to actual organizational activities.

A 41-year-old female founder and CEO from a service SME explained,

“Our woman founder is very concerned about reputation and stakeholder trust. She often says that small businesses cannot afford to lose credibility. Because of that, she asks us to verify AI-generated information before using it” (S3).

A 35-year-old female business profile writer from a consulting SME stated,

“Our owner, who is a woman, is very careful with such wording. She prefers modest but accurate reporting. I think this reflects her leadership style. She is practical, relational, and concerned about long-term trust” (S15).

These results suggest that the influence of women on leadership was responsible for AI use, which promoted verification, facilitated employee learning, and placed trust over impression management.

Theme 5: Tension Between Reporting Efficiency and Authentic ESG Accountability

There was a common conflict throughout the dataset related to contrasting the polishing reporting and the real reporting. The respondents liked the idea of AI enhancing clarity and organization, yet they were also worried that AI might help to make poor ESG practices look better than they were. This issue was especially significant since ESG reporting was considered to be an issue of responsibility and not solely of communication.

A 42-year-old female managing director from a trading SME stated,

“AI can increase that pressure because it makes everything sound polished. Employee AI literacy is therefore very important. We need to understand prompts, outputs, limitations, and ethical risks” (S12).

A 29-year-old female digital communication officer from a service SME similarly explained,

“AI does not know the difference between aspiration and achievement. It may write about what a company should ideally do, but our report should describe what we actually do” (S20).

This theme brings to the fore a key conclusion of the research: AI has the potential to enhance the display of ESG information, but the quality of ESG reporting requires that AI-generated information be based on proven organizational evidence.

4.3 Synthesis of Findings

On the whole, the results indicate that the use of AI in women-owned SMEs is perceived as an opportunity and a duty. AI helps ESG reporting to be faster, more structured, clearer, and more confident. Nevertheless, the respondents did not consider AI as a replacement for human judgment, ethical governance, or accountability of leadership. The AI literacy of employees turned out to be a crucial tool for authenticating AI-produced information, and the ethical AI governance offered the circumstances that were required to safeguard privacy, avoid exaggeration, and uphold credibility. The leadership of women enhanced the responsible use of AI by encouraging a careful review, sensitivity of stakeholders, modest reporting, and evidence-based disclosure. The key themes, their meanings and how they relate to the study objectives are summarised in Table 2.

TABLE 2. Summary of Thematic Findings

Theme	Core Meaning	Link to Study Objective
AI as a practical enabler of ESG reporting	AI helped SMEs organize information, draft reports, and improve reporting structure, but did not guarantee quality.	Objective 1

Employee AI literacy as a verification capability	Employees needed the ability to question, validate, and contextualise AI-generated ESG information.	Objective 2
Ethical AI governance as a condition of credibility	Formal or informal governance practices were needed to ensure privacy, accountability, accuracy, and human review.	Objective 2
Women’s leadership as relational accountability	Women leaders encouraged responsible AI use, evidence-based disclosure, employee learning, and stakeholder trust.	Objective 3
Tension between efficiency and authentic ESG accountability	AI improved reporting presentation, but participants feared polished narratives could misrepresent actual practices.	Objectives 1, 2, and 3

Overall, the results suggest that the quality of AI-assisted ESG reporting in female-led SMEs is determined by the interplay of technology, employee skills, ethical governance, and leadership values. AI was found to be helpful, but not automatic in its contribution to the quality of ESG reporting.

5. Discussion

This paper examined the role of AI adoption in the quality of ESG reporting in women-led SMEs in terms of employee AI literacy, ethical AI governance and women’s leadership. The results indicate that the adoption of AI is not an autonomous technological solution but a conditional organizational capability. The participants considered AI as helpful in sorting out disjointed data, drafting ESG-related documents, enhancing reporting format, and decreasing documentation stress. Nevertheless, they also pointed out that the outputs of AI should be verified by humans, put into context, and ethically controlled. This observation is consistent with the literature on AI adoption that posits that the implementation of AI relies on technological, organizational, environmental, and human factors and not on the availability of technology (Khanfar et al., 2024). It also endorses SME-specific evidence that competencies and skills are key to meaningful AI adoption (Mammadov et al., 2024). Nevertheless, this research goes beyond previous investigations by demonstrating that in the realm of ESG reporting, AI capability is not only technical but also interpretive, ethical, and credibility-related.

The results are also consistent with the socio-technical views, which imply that the use of technology cannot be isolated from human agency, organizational practices and institutional environment (Orlikowski, 1992). AI assisted the participants in organising ESG information, although the validity of the final report was determined by the ability of the employees and leaders to confirm the claims with real organizational practices. This aligns with the dynamic capabilities theory, since the women-led SMEs seemed to leverage AI to address evolving reporting demands and redesign internal documentation practices (Teece et al., 1997). However, the research demonstrates that this ability cannot be full-fledged without the assistance of employee AI literacy, ethical guidelines, and evidence-based reporting.

One of the key results is that AI can enhance the reporting of ESG information, as well as the risk of symbolic or exaggerated reporting. The participants cautioned that AI can give a polished, professional or more advanced look to weak ESG practices than what they are. This observation is in line with sustainability disclosure studies that reveal that the amount or quality of disclosure presentation is not always a good indicator of substantive reporting quality (Michelon et al., 2015). It is also consistent with the legitimacy-based explanations of sustainability reporting, in which disclosure can be employed to control the perception of the stakeholders instead of offering complete accountability (Hummel & Schlick, 2016). This risk was exacerbated in this study due to the fact that AI facilitated the use of professional ESG language despite the fact that the evidence behind it was minimal.

The AI literacy of employees proved to be a major protective factor for the quality of ESG reporting. Participants mentioned that employees should be aware not only of how to use AI tools, but also of how to challenge, authenticate, and put AI-generated outputs into perspective. This justifies the definition of AI literacy as the capacity to comprehend, apply, assess, and critically interact with AI systems (Long & Magerko, 2020; Ng et al., 2021). The paper adds to the literature on AI literacy by demonstrating that AI literacy in ESG reporting has technical, interpretive, and ethical aspects. The employees should be aware of how to operate AI, whether the results are a true reflection of what is going on in the organisation, and what the risks are connected to privacy, bias, exaggeration, and unsubstantiated claims.

It also seemed that ethical AI governance was necessary to have credible AI-assisted ESG reporting. The majority of the participants talked about informal practices, including not uploading confidential data, reading AI-generated content, and verifying claims prior to external use. These measures contributed to minimizing risk, yet participants also acknowledged that informal regulations can prove inadequate with the increase in AI use. This result is in line with the ethical AI scholarship, which states that principles should be converted into organizational practices and accountability mechanisms (Mittelstadt, 2019). It also promotes responsible AI governance literature, emphasizing the significance of structural, relational, and procedural practices of governance (Papagiannidis et al., 2025). Thus, the women-led SMEs require straightforward yet formal AI-use policies, privacy policies, review checklists, and approval processes for ESG-related disclosure.

The leadership of women influenced AI-assisted ESG reporting in the form of relational accountability, support of employees, and sensitivity to stakeholders. The respondents characterized women leaders as those who promoted the use of AI and at the same time demanded evidence, humble language, human inspection, and honesty. This observation confirms the studies that indicate that women in SME management can help in sustainable development by practicing relational environmental management (Graafland, 2020). It also builds on the research that connects the involvement of women in governance with greater sustainability reporting (Al-Shaer and Zaman, 2016; Arayssi et al., 2016) by demonstrating the role of women leaders in responsible reporting in the daily organizational practice. The implication of this, based on the stakeholder theory is to understand that the quality of ESG reporting is not only a technical disclosure predicament but rather a relational accountability and trust process (Freeman, 1984).

In general, the paper adds to the literature on AI adoption, ESG reporting, and women-led SMEs by demonstrating that the quality of AI-enabled ESG reporting is determined by the interplay of technology, AI literacy of employees, ethical governance, and leadership values. In practice, AI-generated ESG content should not be considered the final product by women-led SMEs. Rather, they ought to integrate the use of AI with training of employees, human oversight, evidence-based verification, privacy protection, and leadership. The research thus redefines AI adoption in ESG reporting as a process of humanisation and mediation by leaders as opposed to a technological by-product.

6. Conclusion

This paper explored the impact of AI adoption on the quality of ESG reporting in women-led SMEs in terms of employee AI literacy, ethical AI governance, and women's leadership. The results show that AI can be helpful in organising fragmented information related to ESG, enhancing the structure of reports, supporting documentation, and decreasing the workload of reporting. Nevertheless, the use of AI does not necessarily ensure an increase in the quality of ESG reporting. Its contribution is based on how well employees can critically assess AI-generated outputs, whether there are ethical governance practices, and whether the leadership is committed to transparency, accountability, and trust by stakeholders.

The research met its goals by demonstrating, first, that women-led SMEs find AI to be a viable yet flawed reporting support tool. Second, AI literacy and ethical AI governance among employees affect the credibility, transparency, and accountability of AI-assisted ESG reporting as they assist employees in questioning, verifying, and contextualising AI-generated information. Third, the leadership of women influences the responsible use of AI through promoting evidence-based reporting, cautious human inspection, humble disclosure, and stakeholder-focused decision-making. The main lesson is that the quality of AI-enabled ESG reporting is not a technological phenomenon; it is a human-focused, ethically regulated, and mediated by leaders process.

The results provide valuable practical and pedagogical suggestions. The implementation of AI and employee training, awareness of ESG reporting, data privacy guidance, and transparent review processes should be integrated by women-led SMEs. Managers are not supposed to take AI-generated ESG content as the final product, but they must make sure that all claims are checked against the real organizational practices. The SME employee training programmes ought to combine AI literacy and ESG reporting competence to enable employees to apply AI in a responsible, critical, and ethical manner.

This research has certain limitations. Its qualitative and context-specific design implies that the results might not be applicable to all SMEs, sectors, and national contexts. The research also pays particular attention to women-led SMEs, which restricts the ability to directly compare it with male-led or mixed-leadership companies. Moreover, the results are grounded in the narratives of participants, and thus, further studies can be enhanced with the help of document analysis, observational evidence, or longitudinal data.

Mixed-methods or quantitative designs can be used in future research to verify the relationships found in this study. A comparative study of women-led and non-women-led SMEs would help to gain a better understanding of the differences in leadership in AI-assisted ESG reporting. Longitudinal studies may also be conducted to investigate the development of AI literacy and ethical AI governance as SMEs get more digitally mature. In general, the work is useful to the adoption of AI, ESG reporting, and women-led SME scholarship by proving that the credibility of AI-assisted ESG reporting is based on the alignment of technology, employee competence, ethical governance, and responsible leadership.

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