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Artificial intelligence and sustainability reporting in practice: projections from an intellectual capital perspective

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Abstract

Purpose – This paper aims to explore the possible interactions between artificial intelligence (AI), intellectual capital (IC) dimensions – human, organizational and relational – and sustainability reporting practices. While AI is increasingly recognized as a transformative technology with the potential to reshape decision-making, knowledge management and reporting processes, limited empirical research has examined how it influences the human, organizational and relational resources underpinning sustainability disclosure.

Design/methodology/approach – This study adopts a qualitative case study approach focusing on two Italian medium-sized manufacturing firms that prepare sustainability reports and are initiating AI adoption. Data were collected through semi-structured interviews with those responsible for sustainability reporting and triangulated with additional interviews, corporate documents and sustainability reports to ensure a comprehensive analysis.

Findings – The results show that AI adoption in sustainability reporting is perceived to reshape human, organizational and relational capital, generating both opportunities and tensions. Dual pathways of human capital development emerge, while the evolution of organizational capital is expected to depend on the degree of information system integration and, particularly in medium-sized enterprises, on the responsiveness and timeliness of external technology providers. AI is envisaged to enhance sustainability reporting accuracy and comparability but may undermine contextual interpretation and the interactive use of sustainability reporting as a space for dialogue and learning. Finally, it expands stakeholder engagement, though it carries the risk of challenging authenticity and trust.

Originality/value – This study contributes to the growing literature on AI in sustainability reporting by providing empirical evidence of how AI adoption may influence the configuration and development of IC. It further extends research on IC management by illustrating how AI can redefine the knowledge resources implicated in sustainability disclosure practices.

Keywords Artificial intelligence, AI, Intellectual capital, Sustainability reporting, Case study

Paper type Research paper

1. Introduction

Artificial intelligence (AI) is emerging as a disruptive innovation that is significantly transforming traditional management processes (Liebowitz, 2001), inherently reshaping decision-making, business models and knowledge management (Bagnoli *et al.*, 2019;

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Oppioli *et al.*, 2023). In this context, intellectual capital (IC) – traditionally conceptualized as human, organizational and relational aspects (Bontis, 1998; Edvinsson and Malone, 1997; Sveiby, 1997) – is being significantly influenced by digitalization and the emergence of AI (Rezaei, 2025). AI technologies can automate complex tasks, analyze large volumes of data and generate predictive insights, being particularly relevant to how knowledge is produced, managed and shared within organizations (Duan *et al.*, 2019; Jarrahi *et al.*, 2023; Korayim *et al.*, 2025). Specifically, AI technologies can affect human capital by automating routine or analytical tasks, thus modifying required skills, competencies and professional roles (Rezaei, 2025). AI can also enhance the process of articulating tacit knowledge into explicit knowledge in a more systematic and standardized manner, which can then be disseminated across the organization, improving the codification, integration and accessibility of organizational capital (Böhm and Durst, 2025). Furthermore, AI can influence relational dynamics by enabling new forms of social interaction and collaboration, thereby expanding the boundaries of knowledge exchange and trust formation (Jarrahi *et al.*, 2023). These developments suggest that AI adoption may reshape the composition and management of IC by redefining human competencies, organizational routines and external relationships (Böhm and Durst, 2025; De Bem Machado *et al.*, 2022).

These transformations become particularly significant when considering knowledge-intensive processes – such as sustainability reporting – which rely on integrating various forms of IC (Nakyeyune *et al.*, 2023). Sustainability reporting implies leveraging specific skills and abilities, integrating heterogeneous and fragmented data from different departments, aligning with mixed and evolving standards (e.g. GRI, ESRS, TCFD) and engaging with multiple stakeholders (Adams and Abhayawansa, 2022). Adopting sustainability reporting therefore has implications beyond mere technical aspects and requires the integration of people, processes, routines and relationships (Appiah-Kubi *et al.*, 2025).

Previous studies have begun to investigate both the role of AI in sustainability reporting (e.g. De Villiers *et al.*, 2024; Loureiro *et al.*, 2021) and the implications of AI technologies for IC and knowledge management (e.g. Jarrahi *et al.*, 2023; Rezaei, 2025). However, how AI adoption may influence IC components in the sustainability reporting domain remains largely unexplored. These aspects merit further investigation as introducing AI technologies may transform how organizations collect, manage, measure and communicate sustainability information, offering opportunities for improved reporting efficiency, data integration and organizational knowledge creation (Loureiro *et al.*, 2021). At the same time, AI poses questions about knowledge loss, data reliability and the ethical use of automated systems in sustainability reporting practices, raising concerns about the implications of delegating judgment-based tasks to machines (De Villiers *et al.*, 2024).

Against this background, this paper aims to explore the possible interactions between AI, IC and sustainability reporting practice, i.e. if and how such technologies may interact with the human, organizational and relational resources that underpin the sustainability reporting process. In particular, it aims to investigate how managers perceive AI's potential to transform the IC resources that support sustainability reporting practices, responding to the call for research on "the views of managers on AI and the embedded changes, challenges and opportunities in their working practices" in the context of sustainability reporting (De Villiers *et al.*, 2024, p. 106). To achieve this aim, we examine two Italian medium-sized manufacturing firms currently preparing sustainability reports and initiating the adoption of AI technologies to support this process. Understanding how AI can transform the IC resources implicated in sustainability reporting practices offers meaningful insights into the

current challenges and future opportunities associated with integrating AI into sustainability management and disclosure.

The remainder of the paper is structured as follows: Section 2 presents the conceptual background, examining prior literature on AI and IC as well as the role of AI in sustainability reporting. Section 3 describes the research design. Sections 4 and 5 present and discuss the empirical findings. Finally, Section 6 provides concluding remarks and highlights the main contributions.

2. Conceptual background

2.1 Artificial intelligence and intellectual capital

As AI systems are becoming increasingly embedded in production (Gashenko *et al.*, 2020), decision-making (Oppioli *et al.*, 2023) and knowledge management (Brescia *et al.*, 2025), they are reshaping the configuration and nature of IC (Harlow, 2018), stimulating reflections on the human–AI dichotomy (Caputo, 2024). Over the past decades, IC has been recognized as a key driver of organizational value creation, encompassing the intangible resources that support knowledge creation and diffusion, innovation development and competitive differentiation (Edvinsson, 2000; Guthrie *et al.*, 2012; Petty and Guthrie, 2000). IC is traditionally articulated in three fundamental and interrelated components: human capital, organizational capital and relational capital (Bjurström and Roberts, 2007; Bontis, 1998; Edvinsson and Malone, 1997). Human capital refers to employees' knowledge, skills, capabilities and experience. Although it resides in individuals and is not directly owned by the company, it is essential for fostering innovation, solving problems and supporting strategic decision-making (Sveiby, 1997). Organizational capital encompasses the codified knowledge embedded in organizational processes, systems, databases, routines and culture. Unlike human capital, it is owned by the organization and is transferable, providing the infrastructure that supports continuity, efficiency and knowledge retention over time (Roos and Roos, 1997). It is closely linked to human capital, enabling and amplifying individual competencies. Relational capital refers to organization's relationships with its stakeholders such as customers, suppliers, regulators, investors, employees and society (Roos *et al.*, 1997). This capital is co-created with stakeholders and is critical in fostering collaboration, legitimacy and competitive positioning.

Recognizing the potential of IC to create sustainable competitive advantage, a consolidated body of research has underscored the need for IC to be measured, managed and reported (Dumay and Guthrie, 2019; Guthrie *et al.*, 2001; Guthrie *et al.*, 2012; Paoloni *et al.*, 2023; Petty and Guthrie, 2000). Several studies have examined the internal use of IC measurement and management, particularly their impact on decision-making, strategy implementation and knowledge management (Dumay, 2011; Giuliani, 2016; Mouritsen *et al.*, 2001; Mouritsen, 2009). From a managerial perspective, these studies emphasize that the potential effect of measuring and reporting IC is the unsettling of organizational practices (Mouritsen and Roslender, 2009; Skoog, 2003). The measurement of IC represents an input that can mobilize actions referred to it, leading to changes in existing organizational practices or the emergence of new ones. The literature has focused on the use of IC measurement and its interplay with IC mobilization and management (Catasús and Gröjer, 2006; Catasús *et al.*, 2007; Chiucchi *et al.*, 2014; Giuliani *et al.*, 2016). Some scholars have highlighted that to translate IC measurement results into tangible actions, it is crucial to establish an organizational learning routine, such as a measurement routine, mobilizing attention or dissemination of measurement results (Chiucchi, 2013; Johanson *et al.*, 2001a, 2001b): in other words, it is crucial not only to measure but also to talk about the measurement to move

from measurement to management (Chiucchi and Dumay, 2015; Giuliani, 2016; Giuliani and Chiucchi, 2019).

In recent years, the emergence of technological developments – particularly AI – has transformed how IC is understood, used and managed (Caputo, 2024). According to Russell and Norvig (2009), AI refers to systems replicating cognitive functions typically associated with human behaviour, such as learning, problem-solving and language use. It encompasses various technologies, including natural language processing, large language models, computer vision and machine learning (Zhang, 2019). A common aspect across these technologies is the increasing ability of machines to perform tasks traditionally carried out by humans (Dwivedi *et al.*, 2021).

Recent studies have investigated how AI contributes to the redefinition of individual and collective competencies, the transformation of organizational routines and processes and the evolution of internal and external relationships (Loureiro *et al.*, 2021). For instance, moving beyond the traditional human–machine dichotomy, Caputo (2024) proposes a systemic view of IC where human and AI are interdependent and complementary components of a single adaptive system. Korayim *et al.* (2025) provide empirical evidence on how generative AI shapes learning and creativity within managerial practices. Furthermore, some scholars have begun to examine how AI intersects with sustainability through the lens of IC and the concept of Green Intellectual Capital (Dinh and Tran, 2025). Scholars have shown that AI positively influences the categories of green human capital and green structural capital (i.e. referring respectively to the knowledge, skills and abilities that organizations develop to support environmental sustainability, and to the processes, systems and infrastructures that facilitate sustainability activities) (Bin-Nashwan and Li, 2025). Similarly, Zhang *et al.* (2025) show that AI capabilities can enhance sustainability-oriented innovation performance, particularly when mediated by green intellectual capital and supported by a strong learning orientation.

In sum, existing studies have highlighted AI's transformative potential in reshaping IC components, particularly the human and organizational aspects (Bin-Nashwan and Li, 2025; Korayim *et al.*, 2025). The sustainability domain is emerging as a promising area of inquiry. Specifically, scholars have suggested that AI can enhance ESG practices by strengthening the underlying knowledge, capabilities and infrastructures that support environmental and social value creation (Dumay, 2016). Among these practices, sustainability reporting represents a critical field where the interplay between AI and IC deserves deeper investigation (Secinaro *et al.*, 2022). Drawing on these insights, the following section reviews previous studies on the role of AI in sustainability reporting, highlighting current applications, emerging opportunities and critical challenges.

2.2 Artificial intelligence and sustainability reporting

Sustainability report represents a fundamental tool through which organizations, on a voluntary or mandatory basis, communicate their ESG performance to stakeholders (Camilleri, 2015; Erkens *et al.*, 2015). The primary focus of sustainability reporting is meeting stakeholder expectations by addressing transparency, accountability, and aligning corporate practices with external sustainability demands. Sustainability reporting has experienced substantial growth in recent years, becoming an integral component of corporate reporting, driven by increasing regulatory requirements, stakeholder pressures for greater corporate transparency and accountability and intense competitive dynamics (Arkoh *et al.*, 2024; Christensen *et al.*, 2021; Lee and Tajudeen, 2020). Although large companies have traditionally been the primary targets of sustainability disclosure requirements, the current

context witnesses a broader embrace of sustainability reporting across diverse business sectors (Lisi *et al.*, 2024; Martins *et al.*, 2022).

While sustainability reporting is predominantly seen as a means for communicating with external stakeholders, a growing stream of research emphasizes its internal relevance, positing it as a tool that influences management control processes and that plays a role in supporting decision-making (Adams and Frost, 2008; Chiucchi *et al.*, 2025; Herremans and Nazari, 2016; Traxler *et al.*, 2020). Specifically, recent studies have examined how sustainability reporting structures interact with the broader constellation of cultural, administrative and cybernetic controls that jointly influence how sustainability is embedded within organizations (Crutzen *et al.*, 2017; Traxler *et al.*, 2025). In this context, multiple levels of integration, i.e. technical, organizational and cognitive, are considered fundamental for embedding sustainability into organizational strategy (Gond *et al.*, 2012). Technical integration refers to the connection between financial and sustainability data infrastructures; organizational integration concerns cross-functional collaboration and shared accountability among managers; cognitive integration relates to developing a shared mindset and values supporting sustainability objectives (Beusch *et al.*, 2022; Edirisinghe *et al.*, 2024). Cognitive and organizational integration have proven to be particularly important as they can activate an interactive use of sustainability reporting (i.e. promoting discussion among organizational actors and fostering change and innovation) rather than merely a diagnostic one (i.e. monitoring performance to ensure that the objectives are met and the corrective actions taken) (Battaglia *et al.*, 2016). For instance, by increasing the awareness of sustainability issues among employees and top management, sustainability reporting can foster organizational learning and internal communication (Traxler *et al.*, 2025).

Despite its relevance for both external and internal purposes, preparing a sustainability report represents a complex and demanding task (Farooq *et al.*, 2024). These reports combine quantitative and qualitative, monetary and non-monetary, as well as backward- and forward-looking information. They are often structured according to a mix of evolving standards and frameworks (e.g. those of GRI, ESRS, SDGs and TCFD) and require careful data collection (Adams and Abhayawansa, 2022), which is often fragmented across different departments or business units. Furthermore, these reports demand the involvement of multiple external and internal stakeholders, particularly in the identification and prioritization of material topics. Accordingly, preparing sustainability reporting has become knowledge-intensive, requiring extensive collaboration and integrating people, knowledge and information systems (Broccardo *et al.*, 2025; Naveed *et al.*, 2025). This complexity is further amplified by recent regulatory initiatives such as the Corporate Sustainability Reporting Directive which push companies to enhance their sustainability disclosure quality, coverage and reliability.

For these reasons, digitalization is increasingly attracting the attention of both scholars and practitioners as a potential solution to the challenges associated with sustainability reporting. Scholars have underscored that digitalization reshapes accounting information systems and supports sustainability disclosures (Broccardo *et al.*, 2025; De Villiers *et al.*, 2021, 2024; Pham and Vu, 2022). Digital tools, such as big data analytics, blockchain, the Internet of Things, cloud computing, AI and social media, have the potential to improve the measurement, collection, analysis, communication and assurance of sustainability data, addressing common issues of credibility and comparability in sustainability reports (Leitner-Hanetseder and Lehner, 2023; Lombardi and Secundo, 2021). For instance, De Villiers *et al.* (2021) show how advanced digital technologies such as the Internet of Things and blockchain can significantly improve the transparency and accuracy of data, providing innovative solutions for sustainability reporting. Similarly, Pizzi *et al.* (2024) highlight the

enabling role of digital features such as Sustainable Enterprise Resource Planning systems in increasing the reliability and quality of sustainability reporting.

AI is gaining particular attention in academic and professional debates among these digital innovations. In the context of sustainability reporting, AI has been associated with improvements in data quality, standardization, efficiency and accuracy (De Silva *et al.*, 2025; Li *et al.*, 2025; Miglionico, 2022; Naveed *et al.*, 2025). Along similar lines, scholars have highlighted risks and challenges associated with using AI for sustainability reporting. For instance, De Villiers *et al.* (2024) discuss how generative AI could be misused to produce misleading narratives, amplifying the risk of greenwashing. The reliance on incomplete or biased data may lead to inaccurate or unfair predictions, compromising the credibility and fairness of AI-assisted reporting processes (De Villiers *et al.*, 2024). In addition, the use of AI in sustainability reporting is also shaped by a complex interplay between technological innovation and internal organizational and governance mechanisms. For instance, the presence and focus of sustainability committees can significantly shape how AI contributes to disclosure practices, enabling or constraining its potential benefits (Naveed *et al.*, 2025). These considerations highlight the need to understand how and to what extent AI can influence the sustainability reporting process and the underlying resources and activities that support it (Mustafa *et al.*, 2025). In doing so, it becomes relevant to explore how organizations interpret and manage the integration of AI within their sustainability reporting practices, balancing its opportunities with the associated challenges and risks.

3. Research design

3.1 Case selection

This study adopts a qualitative multiple case study approach to explore the possible interactions between AI and IC in sustainability reporting. The design follows Eisenhardt's (1989) systematic process for building theory from case study research, which explicitly addresses the value of multiple case designs. This approach is complemented by Yin's (2018) framework for ensuring rigor and design logic. Case studies are widely used for exploratory purposes and theory development in corporate sustainability (Guidi *et al.*, 2025; Pizzi *et al.*, 2021).

The study examines two Italian manufacturing companies, hereafter referred to as Firm 1 and Firm 2. The two companies were selected through maximum variation sampling (Patton, 2002), aimed at identifying key dimensions of variation and selecting cases that differ from each other as much as possible to capture diverse perspectives and contextual (see Table 1). In this study, the maximum variation specifically refers to the different strategic postures of the two firms toward sustainability reporting and the integration of emerging technologies such as AI. Both companies are medium-sized manufacturing firms with revenues between €50 million and €100 million, and they have already prepared sustainability reports and are initiating AI adoption to support this process. They share key contextual similarities – being run by owner-managers, regional embeddedness and operation in the Italian manufacturing sector – while differing in their levels of AI literacy, digital maturity and organizational approaches to sustainability reporting. This combination ensures comparability on structural characteristics while providing variation in technological readiness, thereby enabling the identification of common patterns and divergent practices. The selection is coherent with purposeful sampling, which aims to capture cases that exemplify the phenomenon of interest and maximize learning rather than statistical representativeness.

As already mentioned, the two companies selected for this study operate within similar industrial ecosystems yet differ significantly in their strategic posture toward sustainability reporting and integrating emerging technologies such as AI. Their contrasting approaches

make them particularly suitable for a comparative case study exploring how organizational characteristics and strategic orientations shape the adoption and development of AI-enabled sustainability reporting practices. Italy's medium-sized manufacturing firms offer an ideal context for this study because they combine traditional production models with increasing technological sophistication, operating under growing regulatory and stakeholder pressures to enhance sustainability disclosure. Their size and organizational flexibility enable them to experiment with innovative reporting practices, making them particularly insightful cases for exploring how AI is integrated into sustainability reporting.

Firm 1 is a leading manufacturer of high-quality shoe soles that combines deep-rooted artisanal expertise with advanced industrial production processes. Over the years, the company has evolved from a local supplier into an international player, serving a broad and diversified global client base in the footwear industry. Its competitive advantage lies in the ability to integrate traditional craftsmanship with cutting-edge manufacturing technologies, allowing it to respond effectively to the quality and scalability demands of major global brands. Sustainability reporting is overseen directly by the Chief Financial Officer (CFO), who plays a pivotal role in aligning environmental, social and governance disclosure with the firm's broader corporate strategy. This strategic integration is accompanied by the company's increasingly proactive approach to innovation and digital transformation in sustainability practices.

Firm 2 is specialized in the design and production of high-end luxury footwear, merging traditional craftsmanship with sophisticated technological solutions throughout its production processes. Its products are positioned in the market premium segment and are distributed globally through partnerships with some of the most renowned fashion houses.

Table 1. Main characteristics of the selected companies

Category	Firm 1	Firm 2
Industry and core business	Manufacturing of high-quality shoe soles, combining artisanal expertise with advanced industrial processes	Design and manufacturing of high-end luxury footwear, merging traditional craftsmanship with sophisticated technological solutions
Market positioning	Key supplier to a wide global client base in the footwear industry	Premium segment, products distributed globally through renowned fashion brands
Company size	250	600
Geographical scope	International presence with extensive client portfolio	Strong international market presence and brand partnerships
Approach to innovation	Focuses on process innovation and industrial scaling while maintaining artisanal quality	Combines artisanal know-how with advanced technology to maintain luxury positioning
Responsibility for sustainability reporting	CFO	CFO
Start of sustainability reporting	2022	2021
Approach to AI in sustainability reporting	Demonstrates a more open and proactive approach, actively exploring the potential of AI to support the integration, analysis and communication of ESG data within sustainability reporting processes	Adopts a more conservative and incremental approach, focusing first on broader digitalization efforts before gradually considering the integration of AI into sustainability reporting

Source(s): Authors' own work

As with Firm 1, the CFO holds primary responsibility for sustainability reporting, ensuring coherence between nonfinancial disclosure and corporate strategy. However, the company has adopted a more cautious and incremental approach to digital transformation and the integration of AI into reporting processes, consistent with its emphasis on brand heritage and artisanal tradition.

3.2 Data collection and analysis

Data were collected from March 2024 to August 2025 from multiple sources (Langley and Abdallah, 2011). First, data were collected through semi-structured interviews. Semi-structured interviews allow for an interactive dialogue that captures respondents' views and interpretations, while offering the flexibility to explore relevant topics in depth and adapt questions to the specific context (Qu and Dumay, 2011). Eight interviews were conducted; each lasted, on average, about one hour. The interviews were recorded and immediately transcribed. The general aim of the interviews was to collect information about perceived opportunities and challenges across different phases of the sustainability reporting processes by focusing on the potential impacts on human, organizational and relational issues (see Table A1 in the Appendix). Interviews were semi-structured, but informants were free to "narrate" their stories (Czarniawska, 2000) on their experiences and perceptions of the topic. Informal conversations during follow-up calls and visits complemented the formal interviews by providing additional context and clarifying emerging issues.

The documentary analysis included internal and external sources, such as sustainability reports, internal presentations, ESG data collection templates, company websites and publicly available media content. These documents were reviewed to better understand each firm's sustainability reporting practices, organizational structures and technological context, and to corroborate or contrast the information obtained through (see Table 2 for all details on data collection).

The analysis followed an inductive, iterative process. Interview transcripts and documents were examined independently by the researchers, who identified key themes and subthemes related to the research aim. The independent coding was followed by collaborative discussions to compare interpretations, resolve discrepancies and refine the thematic framework, achieving investigator triangulation (Patton, 1999). Data reduction, display and interpretation (O'Dwyer, 2004) were undertaken systematically, with representative quotations selected to illustrate salient findings and patterns. The combination

Table 2. Data sources

Sources	Firm 1	Firm 2
Interviews	60 min − CFO	60 min − CFO
	60 min − CFO	60 min − CFO
	45 min − Chief Operating Officer	60 min − Chief Operating Officer
	60 min − HR manager	45 min − HR manager
Documents	2023 Financial statement	2023 Financial statement
	2024 Financial statement	2024 Financial statement
	2023 Sustainability report	2023 Sustainability report
	2024 Sustainability report	2024 Sustainability report
	Management reports	Press review
	Company profile	Company profile
	Company website	Company website
	Sustainability reporting working documents	Sustainability reporting working documents

Source(s): Authors' own work

of interviews, informal conversations and documentary evidence allowed for source triangulation, strengthening the credibility and robustness of the findings. To enhance the reliability and rigor of the analysis, the coding framework was iteratively refined through multiple rounds of discussion among the research team. Two researchers independently coded a subset of the material, and the resulting coding schemes were compared and reconciled to ensure conceptual consistency. Any discrepancies were resolved through consensus, and the refined framework was then applied to the full data set.

4. Findings

The findings are organized around the three main categories of IC framework (Edvinsson and Malone, 1997; Dumay, 2009; Gröjer, 2001; Guthrie *et al.*, 2012), i.e. human capital, organizational capital and relational capital. By adopting a cross-case perspective, we identify the potential opportunities, challenges and impacts of AI adoption in sustainability reporting, highlighting how each component of IC may be influenced in the process.

4.1 Human capital, artificial intelligence and sustainability reporting

Human capital refers to employees' knowledge, skills, abilities and experiences. Across both cases, adopting AI in the sustainability reporting process is perceived as having relevant implications in reshaping employees' competencies and roles. A shared view across both organizations is that AI adoption is expected to redefine the skill set required throughout the reporting process. Specifically, AI is seen as capable of automating operational and low-value tasks, thereby freeing up time for activities that demand higher analytical and strategic capability levels. The companies' sustainability reports witness this orientation, highlighting significant investments in digital transformation and data-driven reporting processes. Despite this common understanding, the two organizations display distinct approaches. Firm 1 views AI as a mechanism to fully relieve employees from routine and repetitive tasks. Furthermore, beyond efficiency gains, delegating low-value activities to AI is also expected to enhance accuracy and precision in reporting processes. This, in turn, contributes to employee empowerment by enabling staff to concentrate on analytical, interpretative and strategic dimensions of work, supporting upskilling and progression into higher-level managerial and analytical roles. As the CFO of Firm 1 commented:

> I would like to completely relieve employees from repetitive tasks so they can focus on the critical analysis of information. Unfortunately, out of 100% of the work, around 80% is low-value manual activity and only 20% is the truly essential part. With AI, it would be ideal to invert these percentages. Ideally, operational activities should be fully delegated to these systems, which can perform them with greater accuracy and precision.

While acknowledging that AI can significantly enhance efficiency, Firm 2 adopts a more cautious approach, strongly emphasizing that human oversight remains essential throughout all stages of the sustainability reporting process – from operational tasks to the most strategic activities – to guarantee accuracy and reliability. AI is recognized as a helpful support tool capable of providing initial inputs, for instance, by facilitating benchmarking with other reports or generating preliminary data analyses. However, it is considered fundamental to preserve human control over the entire process, particularly in defining the scope and objectives of the report and in the phase of ESG data analysis and interpretation, i.e. activities that require critical thinking, contextual understanding and organizational alignment that AI cannot replicate. Furthermore, Firm 2 raises a specific concern about the risk of losing collective reflection and learning opportunities. Gathering, verifying, discussing and interpreting sustainability data are considered as important organizational moments that

foster internal dialogue and shared understanding. Excessive delegation to AI could, as the CFO of Firm 2 observed:

> […] erode that moment of reflection which I believe is fundamental and cannot be left to the machine.

The approach of Firm 2 is driven also by broader concerns related to discretion and confidentiality in sustainability reporting. According to the interviewees, unlike financial statements, where structures and principles are clearly standardized, sustainability disclosures still allow considerable room for interpretation and judgment in determining what information to include or omit. Consequently, Firm 2 remains skeptical about delegating such activities to AI systems, considering human validation essential to ensure accuracy, contextual sensitivity and alignment with organizational intent.

A further divergence concerns the future skill profiles required for sustainability reporting following the adoption of AI in such process. Firm 2 envisions a progressive transformation in the competencies demanded of accountants and sustainability professionals, driven by integrating AI technologies into sustainability reporting processes. The company's CFO foresees the emergence of hybrid professional roles that combine domain-specific expertise (e.g. accounting and sustainability management) with expertise in digital systems and AI tools, highlighting the need for cross-disciplinary competencies and signaling an evolution toward an "accountant/IT" profile. In this regard, AI is expected to become a core component of the professional "toolbox" for modern accounting and sustainability practitioners, who will need to understand how to use these technologies effectively and interpret their outputs. This view is also shared by the company's HR manager, who commented:

> I see the need for an accountant who knows how to use AI, definitely an engineer-accountant. An IT manager alone risks getting lost in the show; having economic sensitivity is still fundamental. However, it is important to have someone with a hybrid skill set.

Such expectations align with the firm's ongoing focus on cross-disciplinary competencies, as evidenced by training initiatives – reported in the 2024 Sustainability Report – integrating sustainability knowledge with technological literacy, preparing employees for more hybrid roles at the interface of accounting, ESG management and digital systems.

In contrast, Firm 1 places less emphasis on transforming professional roles to adapt to AI and more on ensuring that technological tools are *user-friendly* and can be easily integrated into existing workflows. In this view, AI tools are expected to adapt to the needs and routines of accounting and sustainability professionals, rather than requiring a transformation of their established skill sets and specialization, without redefining established professional boundaries toward IT-related competencies. As commented by the Chief Operating Officer of the company:

> Companies need user-friendly tools that are easy to use and not for technicians. The roles and specializations remain the same. After that, it depends on people's flexibility in using more advanced tools; some are more capable, and some are less.

Finally, both companies underscore the importance of capability development as a strategic pillar of their sustainability strategies. According to their 2024 sustainability reports, Firm 1 delivered 1,983 hours of training – including environmental management and safety programs – while Firm 2 provided over 4,300 hours of training, with 570 hours specifically focused on life cycle assessment and sustainability topics. These initiatives highlight a shared commitment to strengthening human capital as a key element of their sustainability strategies. Building on this emphasis, both firms recognize the importance of targeted training as a precondition for structured and effective AI adoption in sustainability reporting,

even though they show diverse levels of digital maturity. Firm 1 acknowledges a gap in internal competencies in digital and AI domains. The company positions itself as a "follower," relying on software providers to integrate AI features into user-friendly tools that nontechnical employees can easily adopt. Firm 2, by contrast, does not perceive a lack of competencies nor the need for substantial investments in digital skills. The company believes its current workforce already possesses adequate capabilities to effectively operate and manage AI tools.

4.2 Organizational capital, artificial intelligence and sustainability reporting

Organizational capital is related to codified knowledge embedded in organizational and informational structures, routines and procedures. From this perspective, the two companies display different perceptions of how AI influences organizational capital. Firm 1 views AI as a means to expand and structure the informational base that supports sustainability reporting. The company recognizes the usefulness of AI particularly in the initial stages of the reporting process, when the report's scope, content and structure are defined. In this phase, AI is perceived as especially valuable for benchmarking with other reports to identify best practices and reporting structure, as it enables the analysis of large volumes of publicly available sustainability reports from competitors, suppliers and customers. AI can support this activity by processing a larger volume of data and producing more accurate and comprehensive analyses than would be possible through manual methods. Differently, Firm 2 attributes limited value to the use of AI in these phases, as the early stages of report design benefit most from human reasoning and manual benchmarking, which foster contextual understanding and critical reflection that automated systems cannot replicate.

Both companies recognize the potential of AI to support the materiality assessment process, particularly in identifying emerging themes and sector-specific trends. However, differences arise in how this potential is interpreted. Firm 1 believes that AI can autonomously generate the list of material topics by analyzing extensive sets of publicly available sustainability information. Drawing on the same large-scale and accessible data sources, AI can foster standardization, enabling firms to operate on a common informational base and thereby enhancing the consistency and alignment of their analyses. In doing so, although it may produce "flat" outcomes, AI is nonetheless regarded as a key enabler of comparability in the materiality process and, consequently, in defining the content of sustainability reporting, helping to address what the CFO described as a "lack of methodological consistency and shared criteria that characterizes sustainability reporting if compared to financial statements."

Building on this view, Firm 1 identifies also a key role of AI in developing sectoral benchmarks as it can help identify common indicators, reference parameters and industry averages, that function as shared points of comparison across firms. Through the aggregation and cross-analysis of massive data sets, AI facilitates greater convergence in reporting practices and contributes to creating a common standard of comparison (for instance, emissions intensity or Scope 1 and 2 ratios) that allows companies to position their sustainability performance within their industry context. In this sense, AI acts as a mechanism for enhancing comparability and transparency in a field still characterized by methodological and narrative heterogeneity, such as sustainability reporting. According to the CFO of the company:

> AI would enable standardization that obviously may lead to similar or 'flat' reports, but honestly it is not bad, it is useful for comparison. Comparability and standardization are still missing elements in sustainability reporting. […] The real opportunity of AI lies in creating benchmarks within each industry. Today we immediately understand what it means when a company has a 10% or 25%

> EBITDA margin; it has become common sense. Sustainability indicators, such as emissions intensity or Scope 1 and 2 ratios, should reach the same level of comparability. AI could help us get there by contributing to the development of shared industry standards through cross-case analysis and the use of large datasets.

At Firm 2, by contrast, AI is regarded primarily as a preliminary support tool in the materiality assessment process, assisting in the initial organization and synthesis of information to identify material topics. However, the subsequent phases require human oversight and judgment. As observed by the Chief Operating Officer of the company:

> The materiality assessment is a difficult and collective moment, involving multiple functions such as operations, HR, and marketing, and requiring discussion and negotiation to capture the nuances of the material topics and the company's impacts.

Unlike Firm 1, Firm 2 adopts a more cautious stance toward the standardization effects that may result from using AI in the materiality stage. The company expresses concerns that excessive standardization could erode the interpretive and contextual richness of the human gaze in defining material issues. Moreover, such effects might flatten company-specific narratives and hinder the specification of contextual differences. This attention to contextual specificity is also reflected in Firm 2's reporting approach, which relies heavily on qualitative narratives to capture the company's distinctive impacts, priorities and strategies – dimensions that, according to the interviewees, automated systems may fail to represent fully.

The two organizations agree that the effective use of AI in sustainability reporting depends strongly on the existence of a standard and integrated information system, which is significant during the data collection phase of the reporting process. The sustainability reporting draws on a broad range of financial and nonfinancial information, encompassing aspects such as emissions, energy consumption, workplace safety and human resources. In both organizations, the information systems supporting sustainability reporting are fragmented, and data collection processes remain complex and lacking full integration, to the extent that Firm 1 has also established a dedicated ESG Committee responsible for coordinating cross-departmental data flows. The data required for sustainability reporting spans environmental, human resources, financial metrics and qualitative narratives, and is dispersed across multiple departments and platforms, making consolidation particularly challenging. This fragmentation limits the immediate potential of AI for automation, as centralized and harmonized data sets constitute a fundamental prerequisite for effective AI-based data processing. As the CFO of Firm 2 observed:

> It is difficult to find all this information within a single information system, unless we are talking about large corporations; this makes using AI more challenging in sustainability reporting.

Similarly, the CFO of Firm 1:

> First of all, there must be a standard and unified sustainability accounting system […] otherwise the jungle remains.

While both companies acknowledge this structural limitation, Firm 2 further notes that, particularly during the data collection phase, the added value of AI remains limited. From Firm 2's perspective, improvements in data collection could be effectively achieved by adopting a well-designed business intelligence system, without necessarily relying on AI-based solutions.

Additional insights from Firm 1 highlight a challenge specific to the information systems of medium-sized enterprises. In such organizations, AI adoption is closely tied to the pace at

which software vendors integrate AI functionalities into existing ERP systems. Medium-sized companies often lack the resources to develop bespoke technological solutions and depend on the external technological supply chain to embed AI tools within their platforms. In so doing, the diffusion of AI in sustainability reporting is shaped not only by the internal readiness of organizations but also by the extent to which software suppliers offer platforms that incorporate AI tools and functionalities.

Finally, concerning organizational culture, both companies exhibit a generally positive orientation toward AI adoption, supported differently by their respective governance structures. At Firm 2, AI is perceived as an opportunity to enhance work efficiency, with a governance approach that actively encourages employees to explore its potential applications. The company's sustainability report highlights a digital governance framework incorporating cybersecurity protocols, GDPR compliance and data governance policies, collectively implemented to foster an organizational environment conducive to AI adoption. Firm 1, instead, demonstrates a strong top-down commitment: the founder's personal vision and curiosity toward AI act as a key cultural driver and led to the appointment of an AI expert to the board tasked with guiding AI exploration and evaluating how emerging technologies can generate concrete value across all business functions, from the accounting function to core operations.

4.3 Relational capital, artificial intelligence and sustainability reporting

The relational capital regards the relationships an organization develops and maintains with stakeholders, including customers, suppliers, investors and the broader community. In the context of sustainability reporting, relational capital reflects how organizations engage with stakeholders, build trust and communicate their performance. From a relational capital perspective, both companies consider AI an opportunity to enhance stakeholder engagement by broadening participation and diversifying input sources, particularly during the materiality assessment phase. As one of the main challenges of stakeholder dialogue lies in reaching a sufficiently broad and representative audience, Firm 1 views AI as a valuable tool for scanning multiple sources, such as social media and online newspapers, to identify emerging issues, assess stakeholder sentiment and capture relevant market signals. For instance, by collecting and analyzing reactions, feedback or social media interactions, AI can make stakeholder consultation more inclusive and dynamic, broadening the scope of traditional stakeholder engagement methods such as surveys or interviews. This perspective is consistent with Firm 1's sustainability practices, which emphasize continuous dialogue with many stakeholders, including customers, suppliers, local communities and public institutions. Its 2024 report highlights initiatives aimed at expanding stakeholder consultation channels, opening the groundwork for more data-driven engagement processes in the future.

Similarly, Firm 2 identifies potential in AI to capture and interpret stakeholder perceptions – particularly those of customers – not only during the materiality assessment phase but also as an ongoing mechanism for collecting customer feedback on the sustainability report itself and monitoring how customers respond to disclosed ESG information. This is aligned with Firm 2's strong emphasis on customer-centered strategies; the company's sustainability report documents structured processes for collecting customer feedback and measuring satisfaction, supported by advanced customer relationship management (CRM) systems that aggregate and analyze client interactions – a technological base that, according to the CFO, could be leveraged for AI-driven stakeholder sentiment analysis.

Both companies face the problem of making the sustainability report more accessible to stakeholders, i.e. easier to navigate and interpret according to their informational needs. However, their views on how AI can be used vary considerably. Firm 2 proposes using AI to transform the sustainability report into a *dynamic document* tailored to the needs and interests of different stakeholder groups. For instance, AI could generate summaries, produce personalized infographics in response to user queries or implement chatbots capable of answering users' questions about the report's content.

By contrast, although acknowledging that AI could support communication by summarizing key messages of the report, Firm 1 also perceives a concrete risk of manipulation. The company emphasizes the importance of preserving the authenticity and coherence of sustainability messages by maintaining a single, official document that conveys the company's genuine voice. As the CFO remarked:

> The sustainability report is a very long document, sometimes difficult to navigate, but it has to remain a unique document; otherwise, it would border on manipulation.

This concern reflects Firm 1's broader orientation toward trust-building and reputational stewardship, which is repeatedly emphasized in its sustainability report. The company underscores the value of consistent, credible and unified communication with stakeholders as a means to reinforce legitimacy and accountability.

5. Discussion

The findings of this study show that the two organizations under investigation demonstrate different orientations toward the implementation of AI in sustainability reporting which can be interpreted from an IC perspective. Concerning human capital, adopting AI is seen as particularly influential in redefining required skills and professional roles. Consistent with prior research on AI's capacity to automate routine tasks and enhance analytical activities (Duan *et al.*, 2019; Korayim *et al.*, 2025), both firms expressed a clear intention to delegate repetitive, low-value operational tasks (e.g. preliminary benchmarking, data entry) to AI systems. This approach is motivated by the desire to free human resources for activities with higher strategic value, echoing the view that AI enables employees to focus on the strategic and creative dimensions of work, potentially enhancing intellectual productivity (Böhm and Durst, 2025; Rezaei, 2025). However, the findings also show notable differences in how this transformation can occur and its perceived consequences. Firm 1 adopts a more optimistic orientation in which automation is pursued to maximize efficiency and sustainability reporting accuracy and precision, positioning AI as a substitute for human input in routine and operational reporting phases. Differently, Firm 2 shows a more cautious approach that emphasizes complementarity rather than substitution, maintaining human oversight throughout all stages of the process. In this case, AI's role is primarily envisaged at the upstream stage, as a generator of inputs such as data analyses, benchmarks or early drafts, strictly under human supervision. This perspective resonates with Caputo (2024, p. 1033), who argues that "human and artificial dimensions are not separate domains but rather two parts of a continuum." The intention to preserve human reasoning, discretion and contextual sensitivity is also consistent with De Villiers *et al.* (2024), who highlight the risks associated with excessive delegation of judgment-based tasks to machines in the implementation of sustainability reporting.

Furthermore, Firm 2 underscores that reasoning about and discussing sustainability data, even in more routine and repetitive tasks, represents a valuable organizational moment that fosters internal dialogue and shared learning. This insight supports the interactive use of sustainability reporting systems highlighted in previous studies (Battaglia *et al.*, 2016;

Traxler *et al.*, 2025), whereby the reporting process becomes a platform for reflection, learning and internal communication rather than merely a diagnostic tool (Chiucchi *et al.*, 2025). In addition, the findings of this study suggest that automating these tasks may undermine such dynamics, reducing opportunities for dialogue, innovation and collective learning. When AI assumes greater control over data collection and processing, the risk is that employees becoming passive recipients of pre-structured information rather than active participants in its interpretation. This could weaken the interactive function of sustainability reporting, which is important for embedding sustainability within organizational strategy (Gond *et al.*, 2012; Traxler *et al.*, 2025). From an IC perspective, this shift may hinder the process of mobilization, through which the measurement and discussion of information translate into tangible actions, fostering changes into existing organizational practices (Mouritsen *et al.*, 2001; Catasús *et al.*, 2007; Chiucchi and Dumay, 2015; Giuliani, 2016).

The findings of this research extend prior studies on professional hybridization of accounting and sustainability roles. While Firm 2 recognizes the need for an "engineer-accountant" who integrates financial expertise with AI-related competencies, Firm 1 places greater emphasis on the technological usability of AI systems, expecting tools to adapt to users rather than vice versa. This divergence underscores two distinct pathways of competency development: one focused on human upskilling in AI-related capabilities and the formation of hybrid knowledge, and another concentrated on technological simplification and adaptation to users. These tensions reflect broader debates in the knowledge management literature regarding whether to extend human competencies or embed expertise within automated systems (Böhm and Durst, 2025; Jarrahi *et al.*, 2023; Rezaei, 2025). Furthermore, such finding resonates with prior evidence that different organizational approaches to corporate sustainability shape how reporting practices and technological innovations are integrated (Guidi *et al.*, 2025).

A further theme emerging from both cases concerns standardization and comparability of sustainability reporting, particularly within the materiality assessment. The evidence of this study shows a clear tension. On the one hand, Firm 1 views AI as a tool capable of standardizing the materiality assessment process by enabling organizations to operate on common large volumes of public sustainability data to identify recurring topics, benchmarks and sectoral indicators, that allow to enhance the alignment and consistency of their analysis. This finding aligns with studies that associate digital technologies, including AI, with improved data quality, standardization and comparability in sustainability reporting (De Silva *et al.*, 2025; Li *et al.*, 2025; Miglionico, 2022; Naveed *et al.*, 2025; Pizzi *et al.*, 2024). In this sense, AI has the potential to reshape organizational capital by expanding informational infrastructures and reconfiguring routines associated with sustainability reporting, particularly by consolidating common indicator sets and reference parameters that facilitate benchmarking across firms and over time. On the other hand, Firm 2 argues that excessive standardization may flatten sustainability reports' content, diluting contextual richness and organizational distinctiveness.

The analysis of the organizational capital dimension also reveals that the primary constraint to AI adoption in sustainability reporting lies in the current state of organizational information systems. Both organizations describe their sustainability data as fragmented across departments and technological platforms. This fragmentation limits the immediate potential for AI-based automation, as AI systems require structured, centralized datasets to operate effectively. In line with prior research on digital transformation (Brescia *et al.*, 2025; Broccardo *et al.*, 2025), the cases highlight that AI adoption in sustainability reporting is perceived to be contingent upon broader technological infrastructures, particularly the implementation of integrated ERP systems and business intelligence platforms. Overall, the

evidence suggests that, within the sustainability reporting domain, technical integration plays a crucial enabling role for the effective adoption of AI. While the three forms of integration – technical, organizational and cognitive – are mutually reinforcing (Beusch *et al.*, 2022; Edirisinghe *et al.*, 2024; Gond *et al.*, 2012), our findings indicate that the absence of integrated financial and sustainability data infrastructures represents a key practical constraint for AI adoption in sustainability reporting. This implies that achieving an adequate level of technical integration may constitute a necessary precondition for realizing AI's potential to support sustainability reporting practices.

Another relevant finding concerns the dependency on external technological providers. Medium-sized firms rarely develop proprietary AI solutions; instead, they rely on software vendors to embed AI functionalities into existing systems. This dependence introduces an external dimension to organizational capital, where the pace of AI adoption is partly contingent upon external technology providers (Böhm and Durst, 2025). This finding contributes to previous studies by illustrating that organizational capital development is intertwined with partners' capabilities in the technological supply chain.

From a relational capital perspective, the findings underscore AI's potential to broaden and deepen stakeholder engagement in sustainability reporting. Both firms acknowledge that AI can enhance the inclusiveness and responsiveness of stakeholder dialogue, broaden participation and diversify input sources by analyzing social media data or monitoring sectoral trends to identify emerging sustainability issues. This aligns with recent studies suggesting that AI can extend the boundaries of the stakeholder engagement process, enabling firms to engage with more dispersed and diverse stakeholder groups (De Bem Machado *et al.*, 2022; Jarrahi *et al.*, 2023). This finding extends studies that have primarily examined AI's implications for human and organizational capital (e.g. Bin-Nashwan and Li, 2025; Korayim *et al.*, 2025), by addressing the relatively overlooked dimension of relational capital and highlighting AI's role in strengthening it.

Nevertheless, differences emerge in how the two firms conceptualize the integration of AI into communication practices. Firm 2 envisions using AI to create "dynamic" and customized sustainability reporting content that adapts to the informational needs of different stakeholders (De Villiers *et al.*, 2021). Firm 1 argues that the sustainability report should remain a single, coherent document to preserve its integrity and credibility, as excessive customization could fragment the corporate message and undermine its authenticity. This approach is in line with De Villiers *et al.* (2024), who highlighted the potential misuse of AI to manipulate narratives, leading to risks of perceived greenwashing and a loss of trust if stakeholders notice the output as artificially generated or selectively curated.

6. Conclusion

Although AI is increasingly recognized as a disruptive innovation capable of reshaping decision-making, business models and knowledge management practices (Bagnoli *et al.*, 2019; Liebowitz, 2001; Oppioli *et al.*, 2023), empirical research examining how AI influences sustainability reporting – particularly the underlying human, organizational and relational resources – is still scarce. By examining the perspectives of two Italian medium-sized firms, our findings provide empirical insights into how human, organizational and relational capital are expected to evolve in response to AI adoption in sustainability reporting.

In doing so, this paper contributes to the growing body of research on AI and IC (Bin-Nashwan and Li, 2025; Caputo, 2024; Zhang *et al.*, 2025). Specifically, it adds to this literature by examining AI's role in shaping skills and professional competencies, showing that AI adoption in sustainability reporting might generate dual pathways for capability

building and the hybridization of professional roles. This paper also shows two distinct dynamics characterizing the development of organizational capital for AI adoption in sustainability reporting. Specifically, the evolution of organizational capital might be influenced by both the presence of integrated information systems and the responsiveness and timeliness of external technology providers, highlighting a form of "dependency," particularly in medium-sized enterprises, that has been largely overlooked in previous studies within the sustainability reporting domain (Li *et al.*, 2025; Naveed *et al.*, 2025). Moreover, this study advances understanding of relational capital, that is a dimension quite disregarded in the analysis of AI and IC (Bin-Nashwan and Li, 2025; Korayim *et al.*, 2025) by revealing a tension between expanding engagement and accessibility of sustainability reports and safeguarding authenticity (De Villiers *et al.*, 2024).

This study advances the emerging literature on AI in sustainability reporting, particularly the stream of research addressing data quality, accuracy and comparability (De Silva *et al.*, 2025; Leitner-Hanetseder and Lehner, 2023; Naveed *et al.*, 2025). The findings indicate that managers perceive AI as an enabler of higher sustainability reporting accuracy and precision, as well as comparability. However, the study also refines this view by showing that excessive automation may challenge contextual interpretation and analytical accuracy, suggesting that human oversight remains essential to ensure reliability and trust in AI-assisted disclosure processes (De Villiers *et al.*, 2024).

Furthermore, this research enriches the literature on the internal relevance of sustainability reporting, which points out its role as an interactive tool (Battaglia *et al.*, 2016; Gond *et al.*, 2012; Traxler *et al.*, 2025). The findings reveal that AI-driven automation may risk undermining this interactive function by reducing opportunities for dialogue and collective interpretation, both of which are critical for embedding sustainability within organizational strategy. In doing so, the study highlights the importance of balancing efficiency gains with the preservation of spaces for reflection and cross-functional discussion that sustain organizational dialogue and learning. Along similar lines, the study contributes to the stream on IC mobilization (Catasús and Gröjer, 2006; Catasús *et al.*, 2007; Chiucchi and Dumay, 2015; Giuliani, 2016) by illustrating how AI adoption may reshape the process through which sustainability information is translated into organizational action. The findings suggest that when AI assumes greater control over data collection, it may constrain the collective sense-making processes.

The study also offers practical implications. For managers, the findings highlight the importance of aligning AI adoption with existing human capabilities, governance mechanisms and technological infrastructures to ensure coherence between technological innovation and IC development. The results also suggest the relevance of investing in training programs and digital skills development to strengthen organizational absorptive capacity. For AI solutions providers, the results offer insights into managerial expectations, perceived challenges and potential opportunities, which can inform the design of AI solutions adaptable to medium-sized firms' resource constraints, seamlessly integrate with existing ERP and reporting systems and facilitate stakeholder engagement.

This study opens avenues for future research. First, future studies could extend the analysis to a larger sample or by adopting a longitudinal approach to examine how the relationship between AI and intellectual capital evolves over time during different stages of AI integration. Second, further research may focus on exploring the interrelations among the three IC components in the context of AI adoption, providing an integrated view of their possible reciprocal linkages. Quantitative studies might also examine causal relationships between AI adoption, IC development and reporting quality. Finally, future research could analyze the ethical and governance implications of AI in sustainability reporting, including potential risks of bias, opacity and greenwashing in AI-generated disclosures.

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Appendix

Table A1. Overview of interview themes

Theme	Focus of investigation	Examples of aspects explored
Definition of scope and objectives of sustainability reporting	Explore how companies define the scope, objectives and structure of their sustainability reports and how AI could support these processes	• Benchmarking against comparable firms; • Identification of emerging trends; • Selection of reporting standards; • Perceived risks of AI such as bias, lack of transparency or over-reliance on automated suggestions.
Materiality assessment and stakeholder engagement	Investigate the perceived potential of AI in identifying material topics and engaging stakeholders	• Use of AI for identifying impacts, risks and opportunities; • Prioritization of material topics; • Stakeholder sentiment analysis through social media or survey data; • Concerns regarding data privacy, interpretation and organizational implications.
ESG data collection and analysis	Examine challenges in ESG data collection and analysis and the role AI could play in enhancing data quality and integration	• Difficulties in integrating data from various sources; • Potential for AI to automate data collection, validation and analysis; • Risks related to data quality, system integration and error detection.
Communication and dissemination of the sustainability report	Understand current communication strategies and explore how AI can improve dissemination and stakeholder accessibility	• Use of AI to create summaries, visualizations, dynamic content or chatbots; • Risks related to authenticity, narrative coherence and stakeholder trust.

Source(s): Authors' own work