



Digital Intelligence and Sustainable Business Performance: A Systematic Literature Review of ESG Integration as a Strategic Pathway

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Abstract

This systematic literature review explores the role of digital intelligence in fostering sustainable business performance via ESG integration. While artificial intelligence, business intelligence dashboards, big data analytics, automation, blockchain traceability and predictive modelling are increasingly discussed as sustainability enablers, the existing literature is lacking in understanding the dynamics through which digital capabilities translate into responsible performance outcomes. Building on the perspectives of dynamic capabilities, stakeholder theory, institutional theory and socio-technical systems, this review synthesises literature on digital transformation, ESG integration, corporate accountability and sustainable business performance. Five thematic areas are identified: sustainability sensing, strategic ESG translation, data-driven accountability, stakeholder-responsive value creation and responsible digital governance. The review contends that digital intelligence is not a panacea for better sustainability; its value is determined by digital insights being incorporated into governance, operations, management control, reporting, assurance and stakeholder engagement. An integrated Digital Intelligence-ESG Integration-Sustainable Business Performance framework is proposed, and research propositions are formulated. This review makes a contribution by considering ESG integration as the strategic route of translating digital intelligence into environmental stewardship, social legitimacy, governance transparency, resilience and sustainable value creation.

Keywords: *Digital Intelligence; ESG Integration; Sustainable Business Performance; Corporate Social Responsibility; Systematic Literature Review; Corporate Sustainability*

1. Introduction

Digital transformation has become one of the key strategic concerns for organisations facing climate risks, regulatory pressures, requirements for greater transparency and increasing stakeholder activism. Artificial intelligence, analytics, automation, digital platforms, blockchain, IoT systems and business intelligence



dashboards offer faster decision-making, improved monitoring and predictions. However, the same technologies pose risks to ESG – from algorithmic bias and cyber vulnerability to surveillance, digital exclusion, increased energy consumption and symbolic sustainability reporting. Digital intelligence is thus not necessarily sustainable; its value depends on the way companies manage it and translate it into ESG decisions.

This review addresses a gap between three overlapping streams of literature. The first stream covers the study of digital transformation as a force changing strategy and operations (Bharadwaj et al., 2013; Vial, 2019), the second stream – the study of analytics and sustainability in information systems (Melville, 2010; Watson, Boudreau and Chen, 2010), and the third – CSR/ESG studies of accountability, legitimacy, materiality and performance (Aguinis and Glavas, 2012; Eccles, Ioannou and Serafeim, 2014; Khan, Serafeim and Yoon, 2016). Moreover, recent empirical literature provides additional support for the link between digital transformation and ESG performance via green innovation, absorptive capacity, resource efficiency, governance and information processing (Li, 2024; Zhang and Yang, 2024; Guo and Pang, 2025; Li et al., 2025; Wang, Zhang and Miao, 2025; Chen and Ge, 2025). Yet the way digital intelligence is translated into sustainable business performance has been insufficiently theorised.

Four contributions can be made by this review. First, the concept of digital intelligence is clarified as a firm-level capability rather than a general technological term. Second, ESG integration is defined as the strategic pathway through which digital intelligence is translated into sustainable performance. Third, a framework is developed linking digital intelligence capabilities, ESG integration and performance. Fourth, the importance of responsible digital governance is highlighted as a boundary condition since digital tools themselves are ESG issues requiring governance. Four research questions are addressed in this review: What is digital intelligence in relation to corporate sustainability? How does ESG integration link digital intelligence to sustainable performance? What are the governing, stakeholder and institutional factors shaping the relation? What is the research agenda following the review?

It is important to note that this review does not treat ESG integration as a statistical mediator because the review itself is qualitative and conceptual. Instead, ESG integration is defined as a strategic pathway – the organisational processes through which digital data are translated into sustainability-related decision, control, reporting, investments and stakeholder responses. This distinction helps to keep the methodological rigour but still explain the causal logic to allow further empirical testing.

2. Conceptual Background

2.1 Digital intelligence as a firm-level sustainability capability

Here digital intelligence is defined as the capability of a company to gather, integrate, analyse, interpret and take action based on digital data to make strategic and operational decisions. This involves AI, machine



learning, analytics, business intelligence, automation, digital platforms, IoT, blockchain traceability, natural language processing and dashboard-based control systems. From the sustainability perspective, this type of intelligence enables companies to sense emissions, energy use, waste, water consumption, biodiversity exposure, suppliers' activities, labour practices, community needs, customers' concerns about sustainability and diversity outcomes, disclosure quality and compliance.

This capability is ambivalent. Digital systems can help to enhance environmental monitoring, supply chain transparency, stakeholder analysis and the reliability of reporting. On the other hand, they can increase the digital carbon footprint of companies, reinforce the biases in decisions, intensify surveillance and produce unsustainable sustainability narratives. Therefore, digital intelligence should be studied in terms of organisational and governance processes determining whether this capability is transformed into the tool of substantive sustainability or a mere symbol of reporting.

This also means that digital intelligence should not be considered identical to digital adoption. Adoption refers to having the tool; intelligence refers to learning from the data and taking responsible actions based on the obtained knowledge. A company may have advanced systems but not possess digital intelligence due to the fragmentation of the data, low analytical capacities of the staff and the lack of linkages between sustainability decisions and operational data.

2.2 ESG integration and sustainable business performance

ESG integration is the process of incorporating environmental, social and governance aspects into the strategy, risk management, governance structure, operations, investments, reporting and stakeholder engagement. Environmental integration deals with climate risk, emissions reduction, circularity, pollution prevention and resource efficiency. Social integration refers to the treatment of employees, respect of human rights, diversity, responsible treatment of customers and communities. Governance integration means board oversight, transparency, risk controls, anticorruption measures, assurance and ethical digital governance. The ESG integration is different from corporate philanthropy and mere disclosure because it determines the resource allocation and decision processes.

Sustainable business performance is the ability of a firm to generate economic value while strengthening its environmental stewardship, social responsibility and governance. This includes resource efficiency, emissions reduction, social legitimacy, employee well-being, resilience, innovation, transparency and value creation. Resource-based view implies that valuable and organisationally embedded capabilities lead to competitive advantage (Barney, 1991), and natural-resource-based view expands this idea to pollution prevention, product stewardship and sustainable development (Hart, 1995).



Table 1. Core constructs and working definitions

Construct	Working definition	Indicative dimensions
Digital intelligence	A firm-level capability to collect, integrate, analyse, interpret and act on digital data for decision-making.	AI, analytics, automation, digital platforms, IoT, blockchain, dashboards, predictive modelling and data governance.
ESG integration	The embedding of environmental, social and governance priorities into strategy, governance, operations, reporting and stakeholder processes.	Materiality, board oversight, ESG KPIs, risk management, assurance, supplier accountability and responsible digital governance.
Sustainable business performance	The ability to create durable economic value while strengthening environmental, social and governance outcomes.	Resource efficiency, emissions reduction, social legitimacy, employee wellbeing, transparency, resilience and long-term value creation.

3. Theoretical Foundation

The multi-theoretical approach is necessary due to the fact that the link between digital intelligence and sustainable performance is technological, organisational, institutional and social. The review is grounded in dynamic capabilities theory which states the ways in which firms sense, seize and transform under changing conditions (Teece, 2007). Digital intelligence enhances ESG sensing through increasing the speed and extent of information processing; ESG integration is seen as seizing as an insight is put into practice in terms of investments, governance and resources allocation; and sustainable performance occurs when there is a transformation in routines, controls and stakeholder relationships.

According to the resource-based view and the natural-resource-based view, digital solutions do not necessarily generate competitive advantages for organisations due to the fact that many companies may obtain access to similar platforms but not all of them may combine it with knowledge about sustainability, high-quality data, proper incentives for managers and governance. It is important from the point of stakeholder theory that performance is assessed by investors, employees, regulatory bodies, customers, communities and civil society and therefore digital intelligence needs to be used not for reputation management but for transparency and remediation. Institutional theory shows how regulation, ESG ratings, mandatory reporting and benchmarking may push either integration or compliance (DiMaggio and Powell, 1983).

Table 2. Theoretical lenses and contribution to the framework

Theory	Core insight	Application to this review
Dynamic capabilities theory	Firms adapt by sensing, seizing and transforming in changing environments.	Digital intelligence enables ESG sensing; ESG integration converts sensing into strategic sustainability action.
Resource-based and natural-resource-based views	Strategic value arises from embedded resources and sustainability-oriented capabilities.	Digital tools create value when combined with governance, sustainability expertise and organisational routines.
Stakeholder theory	Firms create durable value by addressing stakeholder interests and legitimacy expectations.	Digital stakeholder intelligence supports trust when linked to transparency, inclusion and accountability.
Institutional theory	Regulation, norms and imitation shape organisational practices.	ESG pressures may drive either substantive digital integration or symbolic reporting.
Socio-technical systems thinking	Technology outcomes depend on alignment among people, processes and governance.	Responsible digital governance is necessary for sustainable use of AI, analytics and digital platforms.



4. Methodology

The study uses a qualitative systematic literature review design that is appropriate for fragmented management disciplines (Tranfield, Denyer and Smart, 2003; Snyder, 2019). PRISMA 2020 criteria were employed to structure the identification, screening, eligibility and inclusion process (Page et al., 2021), while thematic and framework synthesis were used for analysis (Braun and Clarke, 2006; Thomas and Harden, 2008). The literature review covers research on digital transformation, AI and analytics, ESG integration, CSR, sustainability reporting, corporate governance and sustainable business performance.

A search strategy was developed using Scopus and Web of Science Core Collection databases, as well as backwards and forwards citation chaining. Key search terms include various digital capabilities, such as digital intelligence, digital transformation, artificial intelligence, AI capability, big data analytics, business intelligence, digital platform, blockchain and predictive analytics, coupled with ESG and sustainability concepts, which include ESG, corporate sustainability, corporate social responsibility, sustainability reporting, sustainable business performance, environmental performance and corporate accountability. The main time frame considered is 2010-2026, while seminal theoretical research prior to this period is kept if directly related. Quality assessment was not hierarchical but rather fit-for-purpose. Theoretical papers were evaluated based on their theoretical clarity and relevance; empirical papers based on their conceptualization and data quality; and review papers based on their transparency and synthesis usefulness. This is appropriate because the research field uses various methodologies but focuses on mechanism development.

Table 3. Review protocol

Protocol element	Specification
Review type	Qualitative systematic literature review with thematic synthesis and framework development.
Databases	Scopus and Web of Science Core Collection, supplemented by backward and forward citation searching.
Time period	2010-2026 for database search; seminal earlier theoretical sources retained where directly relevant.
Document type	Peer-reviewed journal articles, systematic reviews, conceptual papers and high-quality empirical studies.
Subject focus	Business, management, CSR, ESG, sustainability, information systems, digital transformation and corporate governance.
Language	English.
Synthesis approach	Open coding, axial coding, thematic synthesis, framework integration and proposition development.
Quality criteria	Conceptual relevance, methodological transparency, theoretical contribution, ESG relevance and evidence quality.



Table 4. Inclusion and exclusion criteria

Criterion	Inclusion	Exclusion
Topical relevance	Studies linking digital intelligence, AI, analytics, digital transformation or digital capability with ESG, CSR, sustainability, accountability or business performance.	Purely technical AI studies with no organisational, ESG or sustainability relevance.
Context	Corporate, organisational, supply-chain, governance, reporting, strategy or stakeholder contexts.	Studies focused only on consumer behaviour without organisational sustainability implications.
Publication quality	Peer-reviewed journal articles and recognised scholarly reviews.	Editorials, opinion pieces, dissertations, trade articles and non-peer-reviewed reports, except when used only for contextual framing.
Theoretical relevance	Studies contributing to dynamic capabilities, stakeholder theory, institutional theory, responsible digitalisation or sustainability governance.	Studies lacking theoretical or explanatory relevance to the review questions.
Methodological relevance	Conceptual, qualitative, quantitative, mixed-methods and review papers with clear methods or arguments.	Studies with insufficient methodological transparency or unclear constructs.

The screening process took place using title and abstract reviews followed by full-text selection and evaluation of the quality of papers. Those that were considered purely technical, had no organizational sustainability application, applied ambiguous constructs and repeated stronger conceptual constructs were not included in the analysis. Finally, 86 papers were synthesized. The data extraction process involved the collection of information on authorship, publication year, name of the journal, context of the paper, theoretical perspective, construct applied, ESG dimension, performance construct and any limitations. Conceptual constructs generated from open coding included: ESG sensing, green innovation, automatic disclosure, stakeholder analytics, supply chain traceability and responsible AI.

Table 5. PRISMA-informed screening flow

Stage	Decision category	Records
Identification	Records identified from Scopus	742
Identification	Records identified from Web of Science Core Collection	618
Identification	Additional records identified through citation chaining and journal hand-searching	52
Deduplication	Duplicate records removed	386
Screening	Records screened by title and abstract	1,026
Screening	Records excluded at title/abstract stage	812
Eligibility	Full-text articles assessed for eligibility	214
Eligibility	Full-text articles excluded: weak relevance to digital intelligence and ESG	49
Eligibility	Full-text articles excluded: purely technical or non-corporate focus	31
Eligibility	Full-text articles excluded: insufficient methodological or theoretical contribution	26
Eligibility	Full-text articles excluded: duplicate conceptual contribution or peripheral relevance	22
Included	Studies included in qualitative thematic synthesis	86



5. Findings: Thematic Synthesis

5.1 Digital intelligence as sustainability sensing

The first theme characterises digital intelligence as the ability to sense risks and opportunities for sustainability. Companies are subject to climate uncertainty, changing regulations, complicated value chains, and increasing demand for transparency. Digital intelligence can make the information about environmental, social, and governance factors more granular and timely by leveraging operational systems, supply chain, stakeholder communications, reports and external data sources. Environmental sensing might include such activities as emissions forecasting, energy optimisation, predictive maintenance, water monitoring, waste management, and climate risk assessment. Business intelligence dashboards can incorporate ESG metrics into corporate control systems, while blockchain and traceability can increase accountability in supply chains. Natural language processing can track controversies, stakeholder sentiment, regulation, and sustainability narratives.

However, sensing is not transformation. Corporations might get more information on their ESG performance while failing to change decisions, incentives, and accountability. Thus, digital intelligence is strategically important only if ESG insights are embedded in organisational governance, control, and operations.

5.2 ESG integration as strategic translation

The second theme suggests that ESG integration is the mechanism of strategic translation between digital intelligence and sustainable business performance. Information about ESG is provided by digital systems, ESG integration transforms it into decisions. It involves embedding ESG indicators in board reporting, strategic planning, risk management, capital allocation, supplier evaluation, workforce management, assurance, and stakeholder engagement. This theme explains why similar digital technologies result in different outcomes: one company with advanced analytics and weak ESG governance can use these tools just for reporting, while another corporation with strong ESG integration will be able to apply the same tools for emission reduction, labour accountability, process reengineering, and governance transparency.

Strategic translation also requires cross-functional ownership. Sustainability department knows what ESG factors are material for a business, IT department manages data infrastructure, finance department is responsible for the metrics of corporate performance. When these departments have shared understanding, escalation procedures, targets and accountability mechanisms, sustainable performance gets better.

5.3 Data accountability and reporting credibility

The third theme is ESG data accountability. Digital intelligence can help to improve sustainability reporting through data integration, anomaly detection, audit trail, and real-time monitoring. At the same time, reporting might become ceremonial if it is dissociated from operational performance (Boiral, 2013; Delmas and



Burbano, 2011). Technology can accelerate the accountability processes, but at the same time it can make greenwashing easier using nice-looking dashboards or machine learning-generated narratives to hide poor data quality, fragmented ownership or selective measurements. The credible digital ESG reporting thus requires data lineage, verification, quality management, audit readiness, and accountability for both data and decisions.

5.4 Stakeholder-responsive value creation

The fourth theme concerns the stakeholder value. Digital intelligence can detect such information about employees' needs and concerns, labour problems with suppliers, customer feedbacks, community sentiments, diversity outcomes, controversies, and reputation threats. These capabilities can improve corporate social responsibility and legitimacy when coupled with transparent stakeholder engagement and remediation activities. However, stakeholder analytics can become corporate surveillance and reputational manipulation if applied without stakeholders' informed consent, inclusivity, interpretability, and human judgement. Thus, ESG integration must ensure that stakeholder intelligence serves the purpose of accountability and not just perception control.

5.5 Responsible digital governance as boundary condition

The fifth theme considers responsible digital governance as a boundary condition for performance. Algorithms, analytics and platforms create risks for ESG related to privacy, bias, cybersecurity, digital exclusion, dependence on technology suppliers, and energy consumption. Responsible digital governance must include algorithmic accountability, human in the loop, interpretability, bias testing, data protection, cybersecurity, responsible procurement and measurement of digital infrastructure's environmental impact. This theme turns the common assumption upside down – digital systems do not just measure ESG, they themselves are the ESG issue.

Table 6. Thematic synthesis and strategic implications

Theme	Core insight	Strategic implication
Sustainability sensing	Digital intelligence increases visibility of ESG risks, opportunities and stakeholder signals.	Firms should use digital systems to anticipate sustainability issues, not merely report them after the fact.
Strategic translation	ESG integration converts digital insight into governance, operational and stakeholder action.	Digital sustainability initiatives should be embedded into board oversight, KPIs, risk management and management control.
Data-driven accountability	Digital systems can strengthen ESG reporting quality but may also enable symbolic disclosure.	ESG data require ownership, verification, audit trails, data lineage and assurance readiness.
Stakeholder-responsive value creation	Digital intelligence can improve stakeholder trust when linked to inclusive and transparent engagement.	Stakeholder analytics should support accountability, not surveillance or reputational manipulation.
Responsible digital governance	AI, analytics and digital platforms create ESG risks that must be governed.	Responsible AI, cybersecurity, privacy and digital inclusion should be incorporated into ESG governance.



6. Conceptual Framework

Digital Intelligence-ESG Integration-Sustainable Business Performance is a framework that connects digital intelligence capability in an upstream manner to sustainable business performance in a downstream manner via ESG integration. This concept comprises of data integration, predictive analysis, automation, traceability, dashboarding, and AI-enabled decision making. All these capabilities will enhance ESG sensing capabilities by increasing visibility regarding risks, opportunities, and stakeholder expectations.

Table 7. Digital Intelligence-ESG Integration-Sustainable Business Performance Framework

Digital intelligence capability	ESG integration pathway	Sustainable business performance outcome
AI-enabled predictive analytics	Environmental risk monitoring, scenario planning and emissions forecasting.	Improved environmental performance, risk anticipation and climate resilience.
Business intelligence dashboards	Material ESG KPI integration into strategic planning and management control.	Improved transparency, strategic alignment and decision quality.
Big data analytics	Stakeholder insight, controversy detection and social accountability.	Improved stakeholder trust, social responsiveness and reputational resilience.
Automation and IoT systems	Operational resource optimisation and process monitoring.	Improved energy efficiency, waste reduction and cost-effective sustainability.
Blockchain and digital traceability	Supplier ESG monitoring, provenance tracking and compliance verification.	Improved supply-chain accountability and responsible sourcing.
Natural language processing	Analysis of reports, regulation, stakeholder sentiment and ESG controversies.	Improved risk detection, reporting quality and strategic responsiveness.
Responsible AI governance	Bias testing, explainability, privacy, cybersecurity and human oversight.	Improved governance quality and reduced digital ESG risk.

Six propositions can now be drawn. Proposition 1: Digital intelligence amplifies organisational sustainability sensing capacity through speedier, wider and more predictive processing of ESG information. Proposition 2: ESG integration serves as the channel through which digital intelligence translates into sustainable business performance. Proposition 3: The greater the degree to which ESG metrics have become entrenched into board oversight, materiality assessment, risk management, management control and decision-making, the more the sustainability potential of digital intelligence. Proposition 4: Data governance and assurance readiness differentiate credible digital accountability from symbolic digital ESG reporting. Proposition 5: Social and reputational performance can be enhanced through stakeholder-responsive digital intelligence in cases where the latter includes transparent, inclusive and remedial analytics. Proposition 6: Responsible digital governance enhances ESG integration by addressing risks associated with algorithms, privacy, cybersecurity, digital exclusion and digital carbon.

It is argued within the framework that responsible digitalisation is an ESG issue in and of itself. While digital tools can help ESG performance, ESG principles should govern digital tool procurement, deployment and evaluation. This reciprocal relationship is key to sustainable digital transformation.

The framework could also be applied to diagnose the state of digital ESG performance in any organisation. Managers can check whether digital ESG initiatives are confined to data gathering, whether they are integrated into organisational governance and management control, whether the evidence gathered is assurance ready, whether stakeholder signals lead to necessary corrective actions, and whether the digital system itself is



governed responsibly. These questions turn the framework into a practical audit of digital sustainability maturity.

7. Discussion and Implications

This review makes theoretical contributions by reinterpreting digital intelligence from the perspective of a technical resource to a sustainability capability. The extant literature presumes that digital maturity improves ESG performance; however, the present synthesis demonstrates that technology becomes important only when organisational processes translate the insights derived from data into action. The framework adds to the body of knowledge in dynamic capabilities theory by distinguishing between sensing and translation/transformation. The theory of stakeholders can be expanded in that digital stakeholder intelligence generates legitimacy only when it is transparent, inclusive and corrective. The institutional theory gains by revealing that ESG pressures can lead to either substantive integration or symbolic digital reporting based on the quality of governance.

Managers learn from the review that digital intelligence should be organised around material ESG issues rather than deployed as a technology upgrade. Organisations should first determine ESG indicators relevant for decision-making and then identify the digital systems capable of capturing, analysing and acting upon those indicators. Digital and sustainability functions should be combined since separation of IT, strategy, ESG, investor relations and compliance prevents data from being translated into actions. ESG data should also be managed as a strategic asset through explicit definitions, ownership, quality standards, verification, privacy protections and audit trails. Dashboards do not guarantee accountability unless decision rights and responsibilities are assigned to them.

Responsible AI and digital governance should be incorporated into ESG programs. The firms should develop policies on the following matters: algorithmic impact assessment, explainability, bias testing, cybersecurity, supplier technology standards, human supervision and digital carbon accounting. This becomes especially important when digital systems are used in recruitment, procurement, credit assessment, client acquisition, stakeholder engagement and ESG reporting.

Thus, the managerial challenge lies not only in technical capabilities but organisational coherence. ESG targets, digital architecture, reporting controls, incentives and stakeholder engagement should be aligned. If the former elements are left separated, companies are at risk of developing a sophisticated digital layer on top of their weak sustainability practices. With proper alignment, digital intelligence accelerates the transition from episodic sustainability reporting to sustainable management.

For policy-makers and regulators, the framework calls for the attention to interoperability of sustainability data, assurance readiness and standards of digital ESG reporting. Investors should assess not only ESG maturity but also digital maturity of a company; the firm may possess advanced analytics and a poor ESG



integration. Assurance professionals should be prepared for the future in which ESG assurance requires them to understand data pipelines, automated controls, algorithms and traceability systems.

8. Future Research Agenda

Future research should explore how organisations actually incorporate digital intelligence into ESG governance and management control. Qualitative case studies can reveal translation mechanisms that would be missed by quantitative proxies. Researchers should develop indicators of digital intelligence for sustainability that will separate data integration, analytics maturity, AI governance, traceability, decision integration and responsible digital governance. Sectoral differences need to be considered as digital intelligence enables ESG performance differently in energy, manufacturing, finance, logistics, retail, healthcare, construction and education industries. Finally, scholars should examine the dark side of digital ESG, including greenwashing enabled by AI, algorithmic bias, surveillance, cyberattacks, platform dependence, digital exclusion and environmental costs of digital infrastructure.

Table 8. Future research agenda

Research area	Illustrative research question	Recommended method
Operationalising digital intelligence	How can digital intelligence for ESG be measured beyond generic digital transformation proxies?	Scale development, Delphi study, expert interviews and survey validation.
ESG integration maturity	What routines distinguish symbolic digital ESG reporting from substantive integration?	Multiple case studies, process research and comparative qualitative analysis.
Responsible digital governance	How do firms govern AI, privacy, bias, cybersecurity and digital carbon footprint within ESG systems?	Case studies, governance audits and policy analysis.
Sectoral variation	How does the digital intelligence-ESG pathway differ across high-emission and service sectors?	Cross-sector comparative studies.
Investor and assurance use	How do investors and assurance providers evaluate digital ESG data quality?	Interviews, archival analysis and experimental designs.
Emerging markets	How do infrastructure gaps, regulatory transitions and digital divides shape ESG integration?	Comparative emerging-market studies and institutional analysis.

9. Limitations

The review faces several limitations. First, it relies on the current literature, which is uneven geographically, industrially, and methodologically. Being a qualitative review, it does not provide any estimates of effect sizes. Second, construct variation hinders comparison since digital intelligence, ESG integration, and sustainable business performance are quantified differently. Third, the research area changes fast because of generative AI developments, emergence of ESG data providers, and new regulation on sustainability reporting. These limitations suggest framework-building approach and call for empirical testing.



10. Conclusion

The review indicates that digital intelligence enhances sustainable business performance via ESG integration. Indeed, digital intelligence contributes to a better ability to sense sustainability opportunities and threats but only makes sense when translated to governance, strategy, operations, reporting, and stakeholder actions. Thus, this work proposes a framework where digital intelligence is considered a capability, ESG integration – a strategic pathway, and sustainable business performance – a complex result. Moreover, responsible digital governance is important since digital technologies can be both a source and solution to ESG challenges. This means that the key finding is as follows: organizations should shift from digital ESG reporting to digitally-enabled ESG integration and value creation that is accountable, responsible, and sustainable. In other words, sustainable business performance in the future will depend not so much on technology adoption but rather on quality of governance systems translating digital insights into sustainable performance.

Declarations

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Appendix A. Included-study extraction matrix

Table A1. Extraction matrix structure

Field	Information extracted
Bibliographic details	Author(s), year, title, journal, volume, issue, pages and DOI.
Study type	Conceptual, qualitative, quantitative, mixed-methods, case study or review.
Context	Country, sector, organisation type and unit of analysis.
Digital intelligence construct	AI, analytics, digital transformation, business intelligence, automation, traceability or digital capability.
ESG dimension	Environmental, social, governance, integrated ESG, CSR, accountability or reporting.
Performance outcome	Environmental performance, social performance, governance quality, innovation, resilience, reputation or financial performance.
Mechanism identified	Sensing, strategic translation, reporting credibility, stakeholder responsiveness or responsible digital governance.
Quality appraisal note	Strength of theoretical fit, methodological transparency and relevance to review questions.

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