

Digital Transformation and ESG Strategy in Global Markets: A Systematic Literature Review of Competitive and Environmental Outcomes

Ananda Rauf Nurhidayah Isnaini^{1*}

¹Department of Management, Universitas Terbuka, Tangerang Selatan, Banten, Indonesia

*Corresponding author: 057627834@ecampus.ut.ac.id

ARTICLE INFO

Article history:

Submitted 28 February 2026

Revised 09 April 2026

Accepted 09 June 2026

DOI: <https://doi.org/10.54250/h7ag6162>

KEYWORDS:

Competitive advantage, Digital transformation, ESG performance, Green innovation, Sustainability strategy

HIGHLIGHTS

- ❖ Digital transformation enhances ESG performance through multiple organizational mechanisms
- ❖ Green innovation serves as a key pathway linking digital transformation and sustainability outcomes
- ❖ Governance transparency strengthens ESG disclosure quality and stakeholder trust.
- ❖ Operational efficiency contributes to the sustainability benefits generated by digital transformation
- ❖ ESG performance functions as a strategic driver of long-term competitive advantage



Copyright (c) 2026@ author(s).

ABSTRACT

Digital transformation and environmental, social, and governance (ESG) strategies have become critical for organizational sustainability and competitiveness. Although previous studies indicate that digital transformation can improve ESG performance, existing evidence remains fragmented across industries and contexts. This study synthesizes the literature on the relationship between digital transformation and ESG strategy and develops an integrative framework explaining how digital capabilities support sustainability and competitive outcomes. Using a systematic literature review (SLR) based on PRISMA 2020, 25 Scopus-indexed peer-reviewed articles published between 2023 and 2026 were analyzed through a structured screening process. The findings identify four key themes: digital transformation and ESG performance, green innovation, governance transparency, and competitive advantage. Digital transformation acts as a strategic enabler of ESG performance by promoting green innovation, enhancing governance transparency, and improving operational efficiency, thereby strengthening sustainability outcomes and competitiveness. The study proposes a conceptual framework linking digital transformation, ESG performance, and competitive advantage while emphasizing the influence of digital maturity, institutional pressure, and regulatory support.

INTRODUCTION

Digital transformation and business sustainability

In recent years, digital transformation has become a defining feature of modern business strategy, reshaping how organizations operate, compete, and create value in an increasingly interconnected economy (Ding et al., 2024). Advances in technologies such as artificial intelligence (AI), big data analytics, cloud computing, blockchain, and the Internet of Things (IoT) have accelerated organizational change across industries and are increasingly recognized as strategic resources rather than merely operational tools (Kwilinski et al., 2023). These technological developments have transformed the way firms manage information, coordinate activities, and respond to market dynamics. By leveraging these technologies, firms can enhance innovation, improve efficiency, strengthen competitiveness, and increase adaptability to environmental changes, thereby supporting long-term organizational performance (Ding et al., 2024; Kwilinski et al., 2023).

The widespread adoption of digital technologies has encouraged firms to redesign business processes, improve decision-making through real-time information, streamline operations, and strengthen interactions with customers and partners. Digital capabilities also facilitate organizational learning, knowledge sharing, and cross-functional collaboration, enabling firms to respond more effectively to uncertainty and market disruptions (Kwilinski et al., 2023). Beyond these operational benefits, digital transformation is increasingly linked to sustainability objectives because it enhances transparency, optimizes resource utilization, reduces waste, and supports value creation beyond short-term financial performance (Kong et al., 2024). Consequently, digital transformation is widely regarded as a key foundation for sustainable development and future competitiveness.

Alongside the rise of digital transformation, environmental, social, and governance (ESG) considerations have become central to corporate strategy and stakeholder evaluation. ESG reflects organizational performance in terms of environmental stewardship, social responsibility, and governance quality, responding to growing concerns about climate change, social inequality, ethical conduct, and corporate accountability (Yan, Gong, et al., 2025). Firms are increasingly assessed not only by financial outcomes but also by their contributions to sustainable and inclusive development. Strong ESG performance can enhance stakeholder trust, corporate reputation, investor confidence, and long-term resilience while reducing reputational and operational risks (Sun et al., 2025; Yan, Gong, et al., 2025). Furthermore, expanding sustainability regulations and disclosure requirements have transformed ESG from a voluntary practice into a strategic necessity for maintaining competitiveness and legitimacy in global markets (Sharma & Radhika, 2026).

Digital transformation and ESG performance

The growing strategic importance of both digital transformation and ESG has stimulated extensive research on their interrelationship. Emerging evidence suggests that digital transformation facilitates ESG implementation by strengthening sustainability management capabilities through advanced data collection, analytics, and monitoring systems (Guo et al., 2025; Su et al., 2023). These technologies improve the measurement of environmental and social performance, support evidence-based decision-making, and enhance transparency and accountability through more effective sustainability reporting and stakeholder communication (Huang, 2025; Su et al., 2023). Improved transparency can strengthen governance practices, regulatory compliance, and stakeholder confidence, thereby contributing to better ESG outcomes.

From an environmental perspective, technologies such as AI, IoT, and big data analytics enable firms to optimize resource use, monitor energy consumption, improve production efficiency, and reduce waste generation (Wang et al., 2023). Digital transformation also promotes innovation by facilitating knowledge exchange, collaboration, and the development of new products, services, and business models that address sustainability challenges (Guo et al., 2025). These capabilities allow organizations to integrate sustainability

considerations into innovation processes more effectively. In particular, green innovation has been identified as an important mechanism linking digital transformation to ESG performance because it simultaneously generates environmental benefits and strengthens organizational competitiveness (Guo et al., 2025).

Several theoretical perspectives help explain these relationships. From the Resource-Based View (RBV), digital technologies can be considered valuable strategic resources that enhance organizational performance when effectively deployed (Huang, 2025). Dynamic Capability Theory emphasizes firms' ability to adapt and reconfigure resources in response to changing sustainability demands, while Institutional Theory highlights the role of regulations, investor expectations, and societal pressures in encouraging both digital and sustainability-oriented practices. Together, these perspectives suggest that ESG outcomes are shaped by the interaction between internal capabilities and external institutional forces.

Despite growing scholarly attention, important gaps remain. Existing studies are fragmented across industries, countries, and theoretical perspectives, resulting in an incomplete understanding of the digital transformation–ESG relationship (Luo et al., 2025). Although positive associations are frequently reported, key mechanisms such as green innovation, governance transparency, operational efficiency, and stakeholder engagement are often examined separately rather than within an integrated framework (Cheng, 2026; Guo et al., 2025). Furthermore, the influence of contextual factors—including digital maturity, organizational readiness, institutional pressure, and regulatory support—remains inconsistent across empirical findings (Luo et al., 2025; Zhao et al., 2023). The literature, therefore, lacks a comprehensive framework capable of explaining how digital transformation contributes to ESG performance and sustainable competitive advantage across different organizational settings.

To address these gaps, this study conducts a systematic literature review (SLR) on the relationship between digital transformation and ESG strategy in global markets. Previous studies have highlighted the need for integrative investigations that identify major research themes and clarify the mechanisms connecting digital transformation with sustainability outcomes (Wang et al., 2026). Accordingly, this review aims to identify major research themes, examine the mechanisms through which digital transformation influences ESG performance, and develop an integrative conceptual framework linking digital capabilities, sustainability outcomes, and competitive advantage. By synthesizing fragmented evidence, this study contributes to the literature by providing a clearer theoretical understanding of the digital transformation–ESG nexus, proposing an integrated framework of key mechanisms and contextual factors, and offering practical insights for managers and policymakers seeking to align digital initiatives with sustainability objectives in an increasingly digital and sustainability-oriented business environment (Cheng, 2026).

MATERIALS AND METHODS

Materials

This study employed a systematic literature review (SLR) approach to synthesize and critically evaluate existing knowledge regarding the relationship between digital transformation and environmental, social, and governance (ESG) performance. A systematic literature review was considered appropriate because it provides a transparent, replicable, and structured procedure for identifying, evaluating, and synthesizing evidence from prior studies. Compared with traditional narrative reviews, SLR enables researchers to reduce selection bias and develop a more comprehensive understanding of emerging research domains. Given the rapid growth of studies examining digital transformation and sustainability-related outcomes, a systematic review approach offers an effective means of consolidating fragmented findings and identifying dominant research patterns. The review process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines to ensure

methodological rigor, transparency, and reproducibility throughout the study selection and synthesis process.

The literature search was conducted using the Scopus database, which is widely recognized as one of the most comprehensive sources of peer-reviewed scholarly publications in business, management, and sustainability research. Scopus was selected because of its extensive journal coverage, high-quality indexing standards, and strong representation of international research related to digital transformation and ESG. The search process was conducted in June 2026 using combinations of keywords associated with digital transformation and ESG-related concepts. The search string incorporated terms such as “digital transformation,” “digitalization,” “environmental social governance,” “ESG performance,” “green innovation,” “sustainability,” and related constructs. The search was restricted to journal articles published between 2023 and 2026 in order to capture the most recent developments in this rapidly evolving field. The initial search yielded 233 records for further screening and evaluation.

To ensure consistency and relevance, only peer-reviewed Scopus-indexed journal articles published in English, available in full text, and directly addressing digital transformation and ESG-related outcomes in business, management, sustainability, or strategic contexts were included. Studies focusing solely on digital technologies or ESG dimensions, as well as conference papers, book chapters, editorials, review papers, and publications outside the specified period, were excluded. The detailed inclusion and exclusion criteria are presented in **Table 1**.

Table 1. Inclusion and exclusion criteria for considering studies

Criteria	Inclusion Criteria	Exclusion Criteria
Publication Source	Peer-reviewed journal articles indexed in Scopus	Conference papers, book chapters, editorials, review papers
Publication Period	Published between 2023 and 2026	Published outside the specified period
Language	English language	Non-English publications
Accessibility	Full-text available	Unavailable full text
Research Focus	Studies examining digital transformation and ESG-related outcomes	Studies focusing only on digital transformation or only on ESG without examining their relationship
Research Context	Business, management, sustainability, and strategic management contexts	Studies outside the relevant research contexts
Data Quality	Empirical and conceptual studies with clear relevance to the research objectives	Studies with insufficient relevance or unclear contribution to the research objectives

As shown in **Table 1**, the study adopted clearly defined inclusion and exclusion criteria to ensure methodological consistency and relevance to the research objectives. The review focused exclusively on peer-reviewed journal articles indexed in Scopus and published between 2023 and 2026, reflecting the recent and rapidly evolving nature of digital transformation and ESG research. Restricting the review to English-language journal articles helped ensure a minimum standard of academic quality and comparability across studies. Furthermore, only studies explicitly examining the relationship between digital transformation and ESG-related outcomes were retained, thereby enhancing conceptual coherence within the final sample. These criteria were designed to minimize selection bias while ensuring that the included studies provided robust evidence for understanding how digital transformation contributes to sustainability

and competitive performance in contemporary business contexts.

Methods

The screening process followed several sequential stages in accordance with PRISMA 2020 recommendations. First, 233 records were identified through the Scopus database. No duplicate records were detected because the search was conducted within a single database and duplicate verification was performed using bibliographic metadata. Subsequently, 37 records were excluded through automation-assisted filtering based on predefined search restrictions, document characteristics, and relevance indicators. An additional 28 records were removed because they did not satisfy the predefined inclusion criteria, including document type limitations and topic mismatch. The remaining records underwent title and abstract screening, resulting in the exclusion of studies that lacked a clear focus on digital transformation or ESG-related outcomes. A total of 32 articles proceeded to full-text assessment, during which seven studies were excluded because they did not adequately address the research objectives or lacked sufficient empirical relevance. Ultimately, 25 studies were retained for final analysis and synthesis.

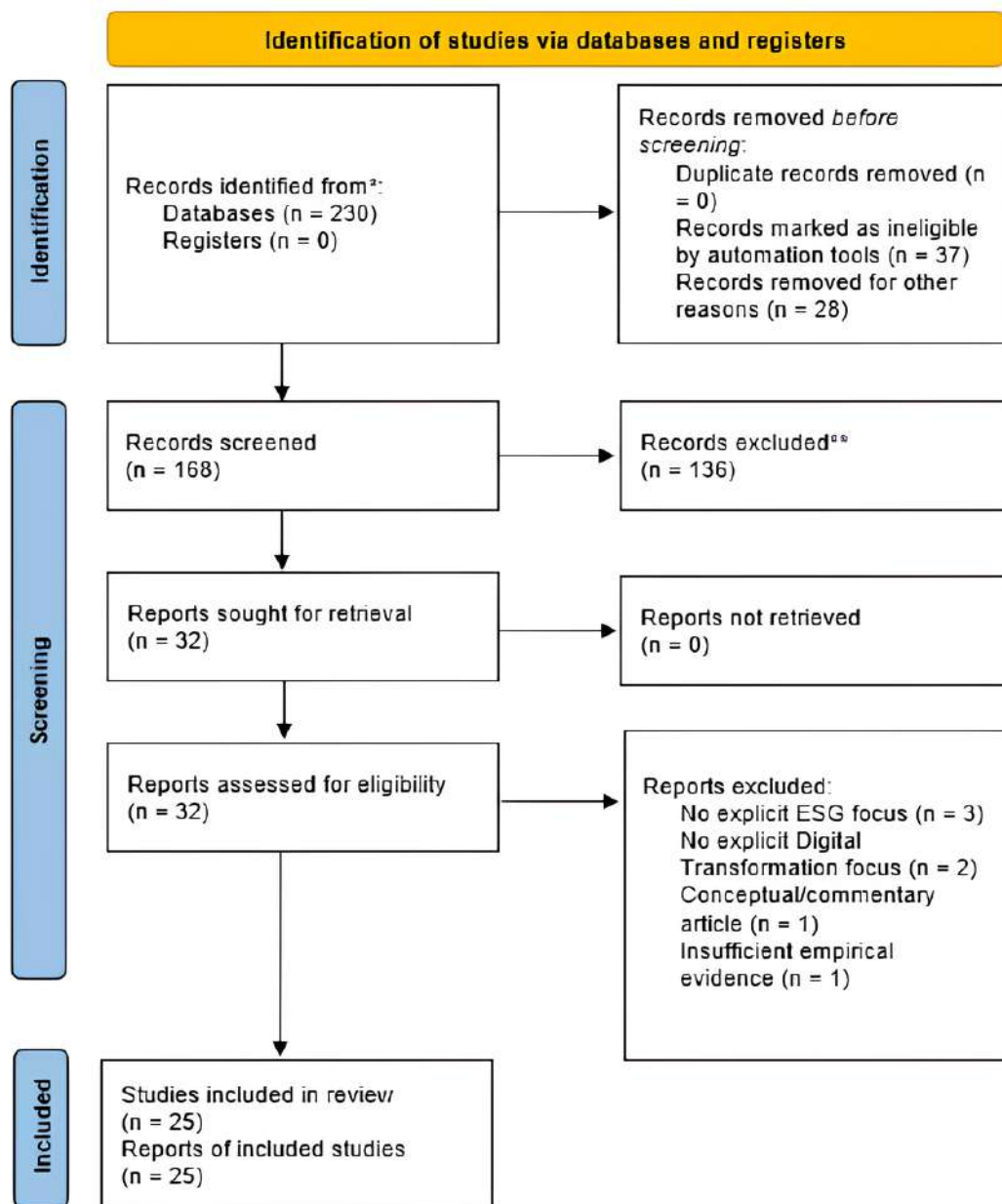


Figure 1. PRISMA flow diagram outlining search strategy for review

Figure 1 presents the systematic screening process undertaken in accordance with the PRISMA 2020 framework. The initial search identified 233 records from the Scopus database, indicating a growing scholarly interest in the intersection of digital transformation and ESG strategies. Following automation-assisted filtering and preliminary eligibility checks, a substantial number of studies were excluded due to limited relevance to the review objectives. Subsequent title, abstract, and full-text screening further refined the sample by removing studies that lacked a clear focus on either digital transformation or ESG outcomes. The final inclusion of 25 studies reflects a rigorous and transparent selection process aimed at balancing comprehensiveness with relevance. By documenting each stage of screening and exclusion, the review enhances reproducibility and directly addresses recent calls for greater transparency in systematic literature review methodologies.

To improve the reliability of the synthesized evidence, all included studies were subjected to a quality assessment procedure. The assessment focused on five dimensions: relevance to the research objectives, methodological rigor, data transparency, theoretical contribution, and practical contribution. Each dimension was evaluated using a structured scoring approach, resulting in an overall quality classification ranging from low to high quality. The purpose of this assessment was not to exclude additional studies but to evaluate the strength of the evidence base supporting the review findings. The overall results of the quality assessment are presented in **Table 2**.

Table 2. Quality assessment of included studies

Quality Level	Number of Studies	Percentage (%)
High	18	72
Moderate	7	28
Low	0	0
Total	25	100

The quality assessment results demonstrate that the evidence base underpinning this review is generally strong. A substantial majority of the included studies were classified as high quality, indicating that they exhibited robust research designs, transparent analytical procedures, and meaningful theoretical and practical contributions. The absence of low-quality studies further strengthens confidence in the reliability of the synthesized findings. This result is particularly important given the interdisciplinary nature of digital transformation and ESG research, where methodological inconsistency often poses challenges for literature synthesis. The predominance of high-quality studies suggests that the conclusions drawn in this review are supported by a credible and well-developed body of evidence. Consequently, the subsequent thematic analysis can be interpreted with a relatively high degree of confidence regarding its validity and applicability.

Following study selection and quality assessment, data were systematically extracted from each included article. The extraction process focused on key study characteristics, including authors, publication year, research context, research objectives, theoretical foundations, methodologies, and principal findings. To facilitate synthesis, a thematic analysis approach was employed. Initially, relevant findings were coded and categorized according to recurring concepts and relationships identified across the literature. These codes were subsequently grouped into broader thematic categories through an iterative process of comparison and refinement. The thematic synthesis ultimately resulted in four major themes: digital transformation and ESG performance, digital transformation and green innovation, digital transformation and governance transparency, and digital transformation and competitive advantage. These themes formed the basis for the results, discussion, and development of the proposed conceptual framework presented in the subsequent sections.

RESULTS**Characteristics of included studies**

Following the screening and quality assessment procedures, a total of 25 studies were included in the final review. These studies represent the current body of empirical evidence examining the relationship between digital transformation and ESG-related outcomes within business and management contexts. The selected studies vary in terms of research focus, industrial setting, and analytical perspective, but collectively contribute to understanding how digital capabilities influence sustainability performance and organizational competitiveness. **Table 3** summarizes the characteristics of the included studies, including publication year, research context, and primary thematic focus.

Table 3. Characteristics of included studies

No.	Author(s) and Year	Research Context	Main Focus
1	Ding et al. (2024)	China	Digital Transformation, ESG Performance, and Total Factor Productivity
2	Su et al. (2023)	China	Digital Transformation and ESG Performance
3	Zhao et al. (2023)	Manufacturing Sector	Green Innovation and ESG Performance
4	Wang et al. (2023)	Manufacturing Sector	Digital Transformation and ESG Development
5	Zhong et al. (2023)	China	Enterprise ESG Development
6	Kwilinski et al. (2023)	International Context	Sustainable Value Creation and ESG
7	Kong et al. (2024)	China	Digital Economy and ESG Performance
8	Sang et al. (2024)	China	ESG Performance and Corporate Risk-Taking
9	Huang (2025)	China	Dynamic Capabilities and ESG
10	Liu & Wang (2025)	China	Innovation and ESG Performance
11	Guo et al. (2025)	Manufacturing Sector	ESG Performance Enhancement
12	Sun et al. (2025)	China	ESG Performance
13	Sun & Qin (2025)	Manufacturing Sector	Financial Performance and ESG
14	Wang (2025)	China	Environmental Regulation and ESG
15	Zhao et al. (2025)	China	Technology Empowerment and ESG
16	Yan et al. (2025)	China	Digital Transformation–ESG Synergy
17	Yi et al. (2025)	Manufacturing Sector	Green Innovation and ESG Governance
18	Wu et al. (2025)	China	ESG Transformation and Green Innovation
19	Luo et al. (2025)	China	Governance, Innovation, and ESG
20	Liu et al. (2025)	Logistics Sector	Green Innovation and ESG Ratings
21	Ding et al. (2026)	Construction Sector	Open Innovation and ESG

No.	Author(s) and Year	Research Context	Main Focus
22	Sharma & Radhika (2026)	India	Digital Transformation and ESG Performance
23	Wang et al. (2026)	International Context	ESG Rating Divergence
24	Zhang et al. (2026)	Agriculture Sector	ESG Performance
25	Cheng (2026)	Energy Sector	Carbon Performance and Competitiveness

Table 3 reveals a substantial increase in scholarly attention toward digital transformation and ESG research during the review period. While a limited number of studies were published in 2023, publication activity increased considerably in 2024 and accelerated further in 2025 and 2026. This trend suggests that the integration of digital transformation and sustainability has become an increasingly important area of inquiry in response to technological advancements, evolving ESG regulations, and growing stakeholder expectations. The rapid expansion of research also reflects the recognition of digital transformation as a strategic mechanism for addressing sustainability challenges and enhancing long-term business performance.

The geographical distribution of the reviewed studies indicates a strong concentration of research within China. Most empirical investigations examined Chinese listed companies, manufacturing firms, logistics enterprises, and industrial organizations. Additional evidence was derived from India, international comparative settings, and selected sector-specific contexts such as construction, agriculture, and energy industries. The dominance of Chinese studies reflects the country's active promotion of digitalization and sustainability initiatives. However, this concentration also suggests that current knowledge may be influenced by specific institutional, regulatory, and economic conditions, highlighting opportunities for future research in broader geographical contexts.

Digital transformation and ESG performance

The first and most prominent theme identified in the literature concerns the direct relationship between digital transformation and ESG performance. Across the reviewed studies, digital transformation was consistently associated with improvements in environmental, social, and governance outcomes. Digital technologies enable organizations to collect, process, and utilize information more efficiently, thereby supporting sustainability management and strategic decision-making. Empirical evidence consistently demonstrates that firms implementing digital transformation initiatives tend to achieve better ESG outcomes and sustainability performance (Su et al., 2023; Sun et al., 2025; Wang et al., 2023; Zhong et al., 2023).

A common pattern emerging from the literature is that digital transformation enhances ESG performance through improved organizational capabilities. Digital platforms facilitate data-driven management, strengthen stakeholder communication, improve transparency, and support more effective sustainability monitoring systems. Firms with stronger digital capabilities generally achieve higher ESG ratings and demonstrate superior sustainability outcomes, indicating that digital transformation serves not merely as a technological upgrade but also as a strategic capability that enhances organizational responsiveness to sustainability challenges (Guo et al., 2025; Yan et al., 2025). Similar conclusions were also reported by Sharma and Radhika (2026), who argued that digitalization contributes to long-term sustainability by improving organizational adaptability and governance effectiveness.

Despite the predominance of positive findings, several studies reported variations in the magnitude and effectiveness of digital transformation outcomes. The effectiveness of digital transformation appears to depend on contextual factors beyond technological adoption alone. For example, environmental regulations were found to strengthen the positive relationship between digital transformation and ESG performance

(Wang, 2025), while the development of broader digital ecosystems was identified as an important enabling condition for sustainability improvements (Kong et al., 2024). These findings indicate that organizational and institutional contexts influence the extent to which digital transformation contributes to sustainability outcomes. Consequently, the relationship between digital transformation and ESG performance appears to be shaped by the interaction between internal capabilities and external environmental conditions.

Digital transformation and green innovation

The second major theme concerns the role of digital transformation in facilitating green innovation. Several studies identified innovation-related mechanisms as critical pathways through which digital technologies contribute to sustainability objectives. By enhancing firms' ability to acquire knowledge, integrate information, and process large volumes of data, digital transformation creates favorable conditions for the development of innovative solutions addressing environmental challenges. Empirical evidence suggests that organizations undergoing digital transformation are more likely to engage in green innovation activities and develop environmentally responsible products, services, and production processes (Yi et al., 2025; Zhao et al., 2023).

The reviewed literature further indicates that green innovation serves as an important intermediary mechanism linking digital transformation to ESG performance. Through strengthened innovation capabilities, digital technologies enable firms to improve resource efficiency, reduce environmental impacts, and create sustainable value over the long term. Studies examining this relationship consistently found that organizations adopting advanced digital technologies are more likely to implement environmentally oriented innovations that contribute directly to sustainability objectives (Liu et al., 2025; Wu et al., 2025). Similar findings were reported by Ding et al. (2026), who highlighted the role of digital transformation in accelerating the adoption of green innovation practices and enhancing environmental performance.

Overall, the evidence suggests that green innovation functions not only as an outcome of digital transformation but also as a strategic mechanism through which digitalization translates into broader ESG improvements. This finding highlights the importance of innovation capabilities in converting digital investments into tangible environmental and sustainability benefits, thereby strengthening firms' long-term competitive and sustainable development objectives.

Digital transformation and governance transparency

A third theme emerging from the literature relates to governance transparency and information disclosure. Several studies emphasized that digital transformation enhances governance quality by improving access to information, strengthening monitoring systems, and facilitating stakeholder communication. Through advanced data management and reporting capabilities, digital technologies enable organizations to collect, process, and disseminate information more efficiently, thereby increasing transparency and accountability. Research has shown that firms undergoing digital transformation tend to develop stronger governance structures and more effective sustainability reporting practices (Luo et al., 2025; Zhao et al., 2025).

The literature further highlights the role of digital technologies in strengthening ESG disclosure and stakeholder trust. Enhanced reporting systems allow organizations to communicate sustainability performance more effectively while reducing information asymmetry between firms and stakeholders. Greater transparency not only improves the credibility of sustainability information but also supports more informed stakeholder decision-making. Evidence suggests that digital transformation contributes to higher-quality ESG disclosure and greater consistency in sustainability evaluations across organizations (Wang et al., 2026). Likewise, Kwilinski et al. (2023) argued that digital technologies facilitate transparent governance practices that ultimately support sustainable value creation.

Overall, the findings indicate that governance transparency serves as a key pathway through which digital transformation contributes to ESG performance. By improving information disclosure, strengthening accountability mechanisms, and fostering stakeholder trust, digital technologies enhance organizational governance while reinforcing broader sustainability objectives. These results underscore the strategic importance of transparency and disclosure systems in maximizing the ESG benefits of digital transformation.

Digital transformation and competitive advantage

The final theme concerns the relationship between digital transformation, ESG performance, and competitive advantage. Several studies indicate that the benefits generated through digital transformation extend beyond environmental and governance improvements to influence broader organizational performance outcomes. By enhancing operational efficiency, productivity, innovation capability, and strategic adaptability, digital technologies enable firms to strengthen their competitive position in increasingly dynamic business environments. Evidence from the literature suggests that organizations integrating digital transformation with sustainability-oriented strategies tend to achieve superior organizational and financial performance (Ding et al., 2024; Sun & Qin, 2025).

The thematic synthesis further reveals that competitive advantage represents the ultimate strategic outcome of the digital transformation–ESG relationship. Improved ESG performance can strengthen stakeholder confidence, enhance corporate reputation, increase resource efficiency, and support continuous innovation, all of which contribute to long-term value creation. Rather than functioning as independent objectives, digital transformation and ESG initiatives appear to operate synergistically in generating sustainable competitive benefits. This argument is supported by Cheng (2026), who found that digital transformation simultaneously improves environmental performance and strategic competitiveness.

Overall, the reviewed studies suggest that competitive advantage is achieved through a sequence of interconnected mechanisms in which digital transformation enhances organizational capabilities, supports ESG performance, and ultimately strengthens long-term business success. The overall findings of this review are summarized in Table 4, which presents the key mechanisms and outcomes linking digital transformation, ESG performance, and organizational competitiveness.

Table 4. Conceptual synthesis of digital transformation and ESG outcomes

Theme	Key Mechanism	ESG Outcome	Strategic Outcome
Digital Transformation and ESG Performance	Data-driven decision making, sustainability monitoring, and organizational adaptability	Improved environmental, social, and governance performance	Enhanced organizational sustainability and resilience
Digital Transformation and Green Innovation	Knowledge integration, technological innovation, and resource optimization	Reduced environmental impact and improved environmental performance	Innovation capability and sustainable value creation
Digital Transformation and Governance Transparency	Digital reporting systems, information disclosure, and stakeholder communication	Improved governance quality and ESG disclosure	Increased stakeholder trust and legitimacy
Digital Transformation and Competitive Advantage	Integration of digital capabilities with sustainability strategies	Stronger ESG performance and operational effectiveness	Long-term competitive advantage and firm performance

The thematic synthesis reveals a coherent pattern across the reviewed literature. Rather than exerting a direct influence on organizational outcomes alone, digital transformation appears to generate value through a series of interconnected mechanisms. Green innovation emerged as a critical pathway through which firms convert digital capabilities into environmental and sustainability benefits. Similarly, governance transparency was consistently associated with improved information disclosure, accountability, and stakeholder trust. Operational improvements also played an important role by enhancing resource efficiency and supporting more sustainable business processes. Together, these mechanisms contribute to stronger ESG performance, which in turn is linked to broader organizational outcomes such as productivity growth, firm value enhancement, and competitive advantage. These findings provide the empirical foundation for the conceptual framework developed and discussed in the following section.

DISCUSSION

Digital transformation as an ESG enabler

The findings of this review indicate that digital transformation functions as a critical enabler of ESG performance across various organizational contexts. Although the reviewed studies differ in terms of industry, methodology, and geographical setting, a consistent pattern emerges in which digital technologies facilitate the achievement of environmental, social, and governance objectives. This finding supports the growing view that digital transformation should not be understood solely as a technological modernization initiative but rather as a strategic capability that enables organizations to respond more effectively to sustainability challenges. The evidence synthesized in this review suggests that firms adopting advanced digital technologies are generally better positioned to improve ESG performance through enhanced information processing, organizational learning, and strategic adaptability (Guo et al., 2025; Su et al., 2023; Wang et al., 2023).

From a Resource-Based View (RBV) perspective, digital technologies can be interpreted as valuable organizational resources that contribute to sustained competitive advantage when effectively integrated into business operations. Digital transformation enables firms to generate, analyze, and utilize information more efficiently than competitors, thereby strengthening strategic decision-making and sustainability management. This interpretation is consistent with findings reported by Yan et al. (2025) and Sharma & Radhika (2026), who observed that firms with stronger digital capabilities generally achieve superior ESG outcomes. Consequently, digital transformation appears to provide organizations with a strategic foundation for creating both economic and non-economic value.

The synthesis further suggests that the influence of digital transformation on ESG performance is neither direct nor uniform. Rather, digital transformation operates through multiple organizational mechanisms that convert technological capabilities into sustainability outcomes. This observation helps explain why some studies report stronger effects than others and why contextual differences frequently emerge across industries and countries. By emphasizing the intermediary processes through which digital technologies create value, the findings contribute to a more nuanced understanding of the digital transformation–ESG relationship and help address the fragmentation identified in previous research (Kong et al., 2024; Wang, 2025).

Mechanisms linking digital transformation and ESG

One of the most important findings of this review concerns the role of green innovation as a mechanism linking digital transformation and ESG performance. The reviewed studies consistently indicate that digital technologies enhance firms' ability to generate environmentally responsible innovations through improved knowledge integration, data utilization, and technological experimentation. Digital platforms facilitate collaboration, accelerate innovation processes, and support the development of sustainable

products and production systems. Consequently, green innovation emerges as a key pathway through which digital transformation contributes to environmental sustainability and broader ESG objectives (Yi et al., 2025; Zhao et al., 2023).

The second mechanism identified in the literature is governance transparency. Digital transformation improves the quality, accessibility, and reliability of organizational information, thereby strengthening governance practices and ESG disclosure processes. Enhanced transparency reduces information asymmetry between firms and stakeholders while increasing accountability and legitimacy. The findings reported by Luo et al. (2025), Zhao et al. (2025), and Wang et al. (2026) suggest that digital technologies play an increasingly important role in facilitating transparent governance structures capable of supporting long-term sustainability objectives. In this regard, governance transparency serves not only as a reporting mechanism but also as a strategic resource that enhances stakeholder confidence.

A third mechanism emerging from the synthesis is operational efficiency. Although operational efficiency received less explicit attention than green innovation and governance transparency, several studies indicate that digital transformation contributes to sustainability outcomes through process optimization, resource utilization improvements, and productivity enhancement. Digital technologies enable organizations to streamline operations, reduce waste, improve energy efficiency, and optimize resource allocation. These improvements contribute indirectly to ESG performance while simultaneously strengthening organizational competitiveness (Cheng, 2026; Ding et al., 2024; Sun & Qin, 2025). Taken together, these findings suggest that green innovation, governance transparency, and operational efficiency represent complementary pathways through which digital transformation generates sustainability value.

Boundary conditions influencing the DT–ESG relationship

Although the reviewed literature generally supports a positive relationship between digital transformation and ESG performance, the findings also indicate that this relationship may be influenced by several contextual conditions. One important factor is digital maturity. Organizations differ substantially in their ability to integrate digital technologies into strategic and operational processes. Firms possessing higher levels of digital maturity are more likely to leverage digital investments effectively and convert technological capabilities into measurable sustainability outcomes. This observation aligns with the Dynamic Capability perspective, which emphasizes the importance of organizational readiness and capability development in generating strategic value from digital transformation (Huang, 2025).

Institutional pressure represents a second important boundary condition. Regulatory agencies, investors, industry associations, and broader societal expectations increasingly encourage firms to adopt sustainability-oriented practices. The effectiveness of digital transformation in improving ESG performance may therefore depend partly on the institutional environment within which organizations operate. Studies examining regulatory influences suggest that stronger institutional pressures often reinforce the strategic importance of both digital transformation and ESG initiatives, thereby amplifying their combined effects on organizational outcomes (Wang, 2025).

A third contextual factor concerns regulatory support and broader ecosystem development. Digital transformation initiatives often require supportive regulatory frameworks, technological infrastructure, and access to innovation networks. In environments characterized by strong policy support and advanced digital ecosystems, organizations may encounter fewer barriers to implementing digital technologies and sustainability initiatives simultaneously. Findings reported by Kong et al. (2024) indicate that ecosystem-level conditions can significantly influence the extent to which digital transformation contributes to ESG performance. These observations suggest that future research should pay greater attention to contextual moderators when examining the DT–ESG relationship.

Proposed conceptual framework

Building upon the thematic synthesis and theoretical perspectives identified throughout the review, this study proposes an integrated conceptual framework explaining how digital transformation contributes to ESG performance and competitive advantage. The framework is presented in Figure 2 and synthesizes the dominant mechanisms and relationships emerging across the reviewed studies.

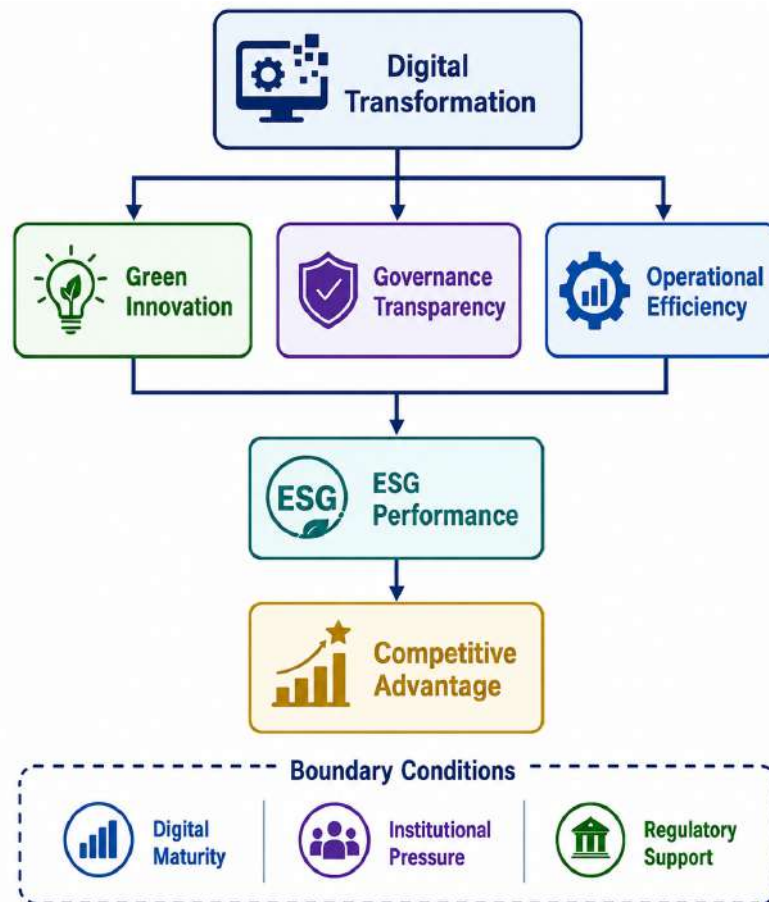


Figure 2. Proposed conceptual framework

The framework positions digital transformation as a foundational strategic capability that influences ESG performance through three primary mechanisms: green innovation, governance transparency, and operational efficiency. Green innovation facilitates environmental improvement and sustainable value creation, governance transparency enhances accountability and stakeholder trust, and operational efficiency improves resource utilization and organizational performance. These mechanisms collectively contribute to stronger ESG performance, which subsequently strengthens competitive advantage through improved reputation, stakeholder relationships, innovation capability, and long-term organizational resilience. Furthermore, the framework recognizes the moderating influence of digital maturity, institutional pressure, and regulatory support, thereby providing a more comprehensive explanation of the variability observed across empirical studies.

Future research implications

The findings of this review highlight several opportunities for future research. Existing evidence remains heavily concentrated within specific geographical contexts, particularly China, limiting the generalizability of current knowledge. Future studies should therefore examine the DT–ESG relationship across a wider range of countries, industries, and institutional environments. Longitudinal research designs may also provide deeper insights into the dynamic processes through which digital transformation influences sustainability outcomes over time. In addition, further investigation is needed regarding the

moderating roles of digital maturity, institutional pressure, and regulatory support, as well as the development of more standardized ESG measurement frameworks. Such efforts would contribute to a more integrated understanding of how digital transformation can support sustainable competitiveness in increasingly complex global markets.

CONCLUSION

This systematic literature review examined the relationship between digital transformation and ESG strategy in global markets by analyzing 25 studies published between 2023 and 2026. The findings indicate that digital transformation has become a critical strategic capability that enhances ESG performance across various organizational contexts. Four major themes emerged from the literature: digital transformation and ESG performance, green innovation, governance transparency, and competitive advantage. The evidence suggests that digital technologies support sustainability objectives by improving information management, innovation capacity, governance practices, and operational efficiency. These findings highlight the increasing importance of integrating digital transformation and ESG strategies to achieve sustainable organizational development and long-term competitive advantage.

This review contributes to the literature by synthesizing fragmented evidence and providing a comprehensive understanding of the digital transformation and ESG relationship. Drawing on the Resource-Based View, Dynamic Capability Theory, Institutional Theory, and the Technology Organization Environment framework, the study conceptualizes digital transformation as a strategic capability that generates sustainability-related value. The findings also suggest important practical implications for managers and policymakers, emphasizing the role of digital transformation in strengthening ESG performance and organizational competitiveness. However, this review is limited by its focus on Scopus-indexed English-language publications from 2023 to 2026. Future research should expand geographical coverage, adopt longitudinal approaches, and investigate contextual factors influencing the digital transformation and ESG relationship.

REFERENCES

- Cheng, X. (2026). Digital Transformation as a Competitive Intelligence Mechanism in ESG-Driven Carbon Performance: Evidence From Energy Firms. *Journal of Sustainable Competitive Intelligence*, 16, e0612. <https://doi.org/10.37497/eaglesustainable.v16i.612>
- Ding, X., Sheng, Z., Appolloni, A., Shahzad, M., & Han, S. (2024). Digital transformation, ESG practice, and total factor productivity. *Business Strategy and the Environment*, 33(5), 4547–4561. <https://doi.org/10.1002/bse.3718>
- Ding, Zheng, Y.-T., Liu, F., Tsang, Y. P., Xiong, S.-H., Chen, Z.-S., & Skibniewski, M. J. (2026). ESG, OPEN INNOVATION, AND FIRM PERFORMANCE IN CONSTRUCTION FIRMS: EXPLORING THE MEDIATING ROLE OF DIGITAL TRANSFORMATION. *Journal of Civil Engineering and Management*, 32(4), 513–533. <https://doi.org/10.3846/jcem.2026.26552>
- Guo, P., Wang, X., Jiang, H., & Meng, X. (2025). Does Digital Transformation Improve Manufacturing ESG Performance: Evidence from China. *Sustainability (Switzerland)*, 17(16). <https://doi.org/10.3390/su17167278>
- Huang, C. (2025). Digital transformation and corporate ESG performance: Research based on a capability-motivation dual framework. *PLOS ONE*, 20(6 JUNE). <https://doi.org/10.1371/journal.pone.0325295>
- Kong, J., Goh, M., & Cao, Y. (2024). Can Digital Economy Development Facilitate Corporate ESG Performance? *Sustainability (Switzerland)*, 16(10). <https://doi.org/10.3390/su16103956>
- Kwilinski, A., Lyulyov, O., & Pimonenko, T. (2023). Unlocking Sustainable Value through Digital Transformation: An Examination of ESG Performance. *Information (Switzerland)*, 14(8). <https://doi.org/10.3390/info14080444>
- Liu, Sun, N., & Zhu, X. (2025). ESG ratings empower high-quality development of logistics enterprises through digital transformation and green innovation. *Scientific Reports*, 15(1).

<https://doi.org/10.1038/s41598-025-06029-2>

- Liu, X., & Wang, L. (2025). Digital transformation, ESG performance and enterprise innovation. *Scientific Reports*, 15(1). <https://doi.org/10.1038/s41598-025-08850-1>
- Luo, Z., Yip, P. S., & Brooks, R. (2025). Bridging Digital Finance and ESG Success: The Role of Financing Constraints, Innovation, and Governance. *International Journal of Financial Studies*, 13(2). <https://doi.org/10.3390/ijfs13020109>
- Sang, Y., Loganathan, K., & Lin, L. (2024). Digital Transformation and Firm ESG Performance: The Mediating Role of Corporate Risk-Taking and the Moderating Role of Top Management Team. *Sustainability (Switzerland)*, 16(14). <https://doi.org/10.3390/su16145907>
- Sharma, M., & Radhika, R. (2026). Digital Transformation as a Structural Driver of ESG Performance: Empirical Evidence from Indian Capital Markets. *Journal of Applied Economic Sciences*, 21(Special Issue 1), 203–215. [https://doi.org/10.57017/jaes.v21.si.1\(91\).10](https://doi.org/10.57017/jaes.v21.si.1(91).10)
- Su, X., Wang, S., & Li, F. (2023). The Impact of Digital Transformation on ESG Performance Based on the Mediating Effect of Dynamic Capabilities. *Sustainability*, 15(18), 13506. <https://doi.org/10.3390/su151813506>
- Sun, J., Ran, L., & Wang, B. (2025). ESG Performance and Digital Transformation: Evidence from Chinese A-Listed Companies. *Sustainability (Switzerland)*, 17(18). <https://doi.org/10.3390/su17188517>
- Sun, & Qin, R. (2025). Enterprise Digital Transformation, ESG and Financial Performance: Evidence From Chinese A-Share Listed Manufacturing Firms. *SAGE Open*, 15(4). <https://doi.org/10.1177/21582440251401310>
- Wang, J. (2025). Digital transformation, environmental regulation and enterprises' ESG performance: Evidence from China. *Corporate Social Responsibility and Environmental Management*, 32(2), 1567–1582. <https://doi.org/10.1002/csr.3029>
- Wang, J., Hong, Z., & Long, H. (2023). Digital Transformation Empowers ESG Performance in the Manufacturing Industry: From ESG to DESG. *SAGE Open*, 13(4). <https://doi.org/10.1177/21582440231204158>
- Wang, Zhao, L., Wang, B., Luo, J., & Jiang, Y. (2026). Digital Transformation of Firms and ESG Rating Divergence: An International Context. *Research in International Business and Finance*, 88. <https://doi.org/10.1016/j.ribaf.2026.103432>
- Wu, Y., Ivashkovskaya, I., Besstremyannaya, G., & Liu, C. (2025). Unlocking Green Innovation Potential Amidst Digital Transformation Challenges—The Evidence from ESG Transformation in China. *Sustainability (Switzerland)*, 17(1). <https://doi.org/10.3390/su17010309>
- Yan, Baihui, & Su. (2025). Unveiling the Synergy Between ESG Performance and Digital Transformation. *Systems*, 13(9). <https://doi.org/10.3390/systems13090786>
- Yan, Y., Gong, C., & Zhang, H. (2025). Corporate ESG performance, digital transformation and climate risk disclosure. *Sustainable Futures*, 9. <https://doi.org/10.1016/j.sftr.2025.100661>
- Yi, J., Shiji, L., Ren, M., Yang, X., & Dhar, B. K. (2025). Green innovation, ESG governance, and digital transformation: Evidence from China's high-end manufacturing sector. *Oeconomia Copernicana*, 16(3), 977–1020. <https://doi.org/10.24136/oc.3755>
- Zhang, Q., Wei, L., Feng, X., & Xu, W. (2026). A Systems Lens on Digitalization and ESG Performance: Empirical Evidence from Chinese Agricultural Firms. *Systems*, 14(4). <https://doi.org/10.3390/systems14040387>
- Zhao, Q., Li, X., & Li, S. (2023). Analyzing the Relationship between Digital Transformation Strategy and ESG Performance in Large Manufacturing Enterprises: The Mediating Role of Green Innovation. *Sustainability (Switzerland)*, 15(13). <https://doi.org/10.3390/su15139998>
- Zhao, Zhou, Y., Yang, Q., & Gong, Y. (2025). Technology empowerment, digital transformation, and enhancing corporate ESG performance. *International Review of Economics and Finance*, 101. <https://doi.org/10.1016/j.iref.2025.104239>
- Zhong, Y., Zhao, H., & Yin, T. (2023). Resource Bundling: How Does Enterprise Digital Transformation Affect Enterprise ESG Development? *Sustainability (Switzerland)*, 15(2). <https://doi.org/10.3390/su15021319>