



Integrating Digital Finance and Big Data in Corporate Financial Strategies for Sustainable Value Creation

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ABSTRACT

This study employs a Systematic Literature Review (SLR) to explore how corporate financial strategies that integrate digital finance and big data analytics contribute to long-term value creation through enhanced financial performance and environmental, social, and governance (ESG) outcomes. The review synthesizes empirical evidence showing that digital finance and digital transformation strengthen firms' capabilities to improve ESG performance, which subsequently enhances profitability and sustainable corporate value. Big data is emphasized as a vital decision-making tool that allows firms to measure, predict, and optimize ESG indicators with higher precision, aligning financial objectives with sustainability commitments. The findings indicate that data-driven digital finance promotes green innovation, reduces agency costs, and improves capital allocation efficiency, with varying effects across ownership types and institutional environments. Overall, the SLR findings confirm that integrating digital financial inclusion and big data analytics into corporate financial strategies supports sustainable value creation by linking financial performance improvement with long-term ESG-driven growth.

Keywords: *Big Data Analytics, Corporate Financial Strategy, Digital Finance, ESG Performance*

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1. | INTRODUCTION

The development of digital technology over the last decade has fundamentally reshaped the corporate finance landscape. Companies are no longer solely dependent on traditional financial systems but are increasingly leveraging digital finance, big data analytics, and smart technologies to enhance efficiency, transparency, and competitive advantage. This digital transformation is critical as the business world now faces intense pressure to create long-term value that is focused not only on profitability but also sustainability. The growing global emphasis on Environmental, Social, and Governance (ESG) issues necessitates that firms design financial strategies aligned with sustainability objectives. Consequently, the integration of financial strategy and digital technology becomes crucial as it enables companies to simultaneously balance financial objectives and ESG commitments.

In this context, Big Data Analytics and Digital Finance assume a strategic role. Big Data equips companies with the capability to measure, predict, and optimize ESG indicators with high precision, ensuring that the decision-making process is more evidence-based and adaptive to sustainability risk dynamics. Digital Finance, specifically through FinTech, digital financial inclusion, and the automation of financial processes, offers more efficient capital access, reduces transaction costs, and accelerates information flow. Consequently, the discussion concerning how digital technology strengthens both ESG and financial performance is not only relevant but also urgent, given its crucial function in creating long-term value, attracting investors, enhancing reputation, and mitigating long-term risks.

Researchers across various nations have offered diverse responses to this issue. Several empirical studies suggest that the use of Big Data enhances ESG transparency, reduces greenwashing, improves governance oversight, and assists firms in responding to environmental risks in real-time. Other research indicates that digital transformation and financial technologies reinforce green innovation, decrease agency costs, and increase capital allocation efficiency. Furthermore, policy-based reviews find that national or regional Big Data infrastructure can also elevate corporate ESG performance by improving monitoring and institutional pressure. Nevertheless, the existing literature still reveals a variation in results, differences based on national contexts, and limitations in integrating findings from various disciplines. The majority of studies have been conducted in isolation; some focus on ESG, others on digital technology, and others on financial performance. This separation results in a lack of comprehensive understanding regarding how these three elements interact to create sustainable corporate value.

This research endeavour aims to bridge that gap. By conducting a Systematic Literature Review (SLR), this study integrates empirical evidence from various global research to understand how financial strategies based on digital finance and big data analytics contribute to enhancing ESG performance, profitability, and the creation of sustainable value. SLR is adopted as the approach because it provides the capability to systematically synthesize findings, recognize consistent or contradictory patterns, and identify unanswered research gaps. This approach allows for a more comprehensive analysis of the relationships between the three main dimensions (digital finance, big data analytics, and ESG) and how their interaction influences long-term financial performance.

This research aims to elucidate how the integration of digital financial strategy and big data capabilities supports long-term value creation by enhancing both ESG and financial

performance. The primary focus is to delineate the causal relationships evidenced by prior research, review the role of digital technology as a precise decision-making tool, and evaluate the factors influencing differential outcomes across institutional contexts. Employing the Systematic Literature Review methodology, this study formulates the problem statement regarding how companies can optimize digital financial inclusion and Big Data within their financial strategy to achieve long-term sustainability. The relevance of this research lies in the increasing global demands for ESG and digital transformation, while its expectation is to provide academic and practical contributions for companies, regulators, and researchers to understand the strategic direction of technology-driven sustainable finance.

2. | LITERATURE REVIEW

Digital Finance and Corporate Financial Performance

Digital finance has become an essential driver of corporate financial performance because it enhances transparency, reduces information asymmetry, and improves the efficiency of financial operations. According to Financial Intermediation Theory, digital platforms improve the flow of financial information between firms and external parties, leading to lower transaction costs and more effective capital allocation (Gomber et al., 2017). Digital tools such as e-payment systems, online lending platforms, and automated financial reporting systems help firms optimize liquidity management and streamline budgeting and forecasting.

Empirical evidence shows that digitalization contributes to stronger financial outcomes by improving data accuracy, speeding up transaction processing, and enhancing internal controls (Arvidsson & Dumay, 2022). Automated audits and digital financial dashboards strengthen monitoring systems, reducing fraud and agency costs. In addition, precision marketing supported by digital technologies increases revenue potential by identifying more profitable customer segments (Kang & Cho, 2020).

Digital finance also supports financial performance through operational improvements. For example, digitally enhanced supply chain management reduces costs and increases responsiveness to market changes (Saxena et al., 2022). These mechanisms indicate that digitalization contributes to sustainable financial performance by enabling firms to make faster, more accurate, and more strategic financial decisions.

Big Data Analytics and ESG Performance

Big data analytics has become a central component of ESG driven corporate strategies. Based on the Resource Based View, big data capabilities, such as data collection, storage, mining, and real time analytics, serve as valuable and inimitable resources that strengthen firms' sustainability initiatives (Zhu et al., 2022). Big data enables firms to measure environmental performance more accurately, monitor social responsibility indicators, and improve governance quality.

Recent empirical studies demonstrate that strong data capabilities significantly improve ESG outcomes. Big data systems support environmentally sustainable operations by predicting pollution patterns, optimizing energy use, and enhancing waste management efficiency (Choi & Park, 2022). They also improve social performance by identifying labour risks, monitoring supply chain ethics, and evaluating stakeholder concerns (Gupta & George, 2016). Governance improvement emerges from enhanced transparency, stronger reporting accuracy, and data-driven monitoring systems (Sharma & Kohli, 2023).

There is growing evidence that ESG performance positively affects corporate value. Firms with better ESG scores enjoy lower financing costs, better investor trust, and stronger market reputation (Abdelhalim, 2023; Zhao et al., 2023). Several studies also note that ESG performance has a stronger impact on firm value in state-owned enterprises than in privately owned firms, reflecting different institutional environments and stakeholder pressures (Kong et al., 2024).

Overall, big data analytics empowers firms to shift from reactive ESG compliance to proactive sustainability strategy development. Firms not only meet regulatory expectations but also build long-term competitive advantages through better environmental, social, and governance performance

Digital Transformation and Sustainable Value Creation

Digital transformation refers to the deep integration of digital technologies, including big data analytics, cloud computing, artificial intelligence, and blockchain, into corporate processes. This transformation aligns with Dynamic Capabilities Theory, which posits that firms must develop the capability to sense, seize, and reconfigure resources to maintain long-term competitiveness (Teece, 2018).

Digital transformation enhances sustainable value creation through multiple channels. First, digitization increases operational efficiency by improving supply chain visibility, optimizing inventory management, and enabling real-time data sharing across business units (Pesqueira & Sousa, 2024). These efficiencies reduce costs and increase organizational agility. Second, digital technologies improve governance and compliance through advanced monitoring tools that detect irregularities early and strengthen internal control systems (Ali et al., 2021).

Third, digital empowerment supports environmental sustainability by enabling firms to track carbon emissions, monitor resource consumption, and implement green innovations (Su et al., 2023). Technologies such as IoT sensors and predictive analytics allow firms to measure environmental impacts more accurately and design effective mitigation strategies. Fourth, digital platforms enhance stakeholder engagement by improving transparency and facilitating communication with customers, employees, and communities (Zumente & Bistrova, 2021).

Finally, digital transformation strengthens long-term corporate value by improving investor confidence. Investors increasingly favor firms with strong digital capabilities and credible ESG performance, as these firms demonstrate better risk management, greater adaptability, and stronger growth potential (Waqas & Tan, 2023). As a result, digital transformation becomes a critical pathway linking technological capability, sustainability performance, and long-term value creation.

3. | RESEARCH METHOD

This study employed a Systematic Literature Review (SLR) methodology using the PRISMA 2020 protocol to ensure transparency, scholarly rigor, and replicability. The review aimed to synthesize high-impact literature concerning the integration and impact of Big Data Analytics (BDA), ESG disclosure, and corporate financial performance. The focus was to identify key empirical findings, methodological trends, and existing research gaps at the nexus of these three critical domains.

The source population consisted of peer-reviewed journal articles sourced exclusively from the Scopus database. To ensure high academic impact and quality, the search was strictly limited to journals ranked Q1 and Q2, covering the publication period from 2022 to 2025.

Initially, a total of 55 records were retrieved through a systematic keyword-based search (e.g., "ESG big data analytics," "financial performance big data," "ESG disclosure"). Following the initial retrieval, 0 duplicates were identified and removed. Subsequently, records marked as ineligible by automation tools ($n = 2$) were discarded. Articles falling outside the rigorous Q1 and Q2 journal tiers or the specified 2021-2025 period were also excluded to maintain the quality standard. This systematic process resulted in 48 articles advancing to the screening stage.

The individual scholarly article served as the unit of analysis. A detailed screening and eligibility assessment was then conducted, which involved reviewing the full text to ensure the core themes (ESG, Big Data Analytics, and Financial Performance) were the central focus of the study. This critical review led to the exclusion of 43 articles that did not meet the thematic relevance criteria.

The final synthesis incorporated 17 articles. This robust final sample includes studies identified through the systematic database search ($n = 5$) as well as additional articles ($n = 12$) manually selected from the citations of highly relevant papers (snowballing) to guarantee comprehensive coverage of the high-impact literature. This entire selection and exclusion process is comprehensively detailed in the PRISMA flowchart (Figure 1).

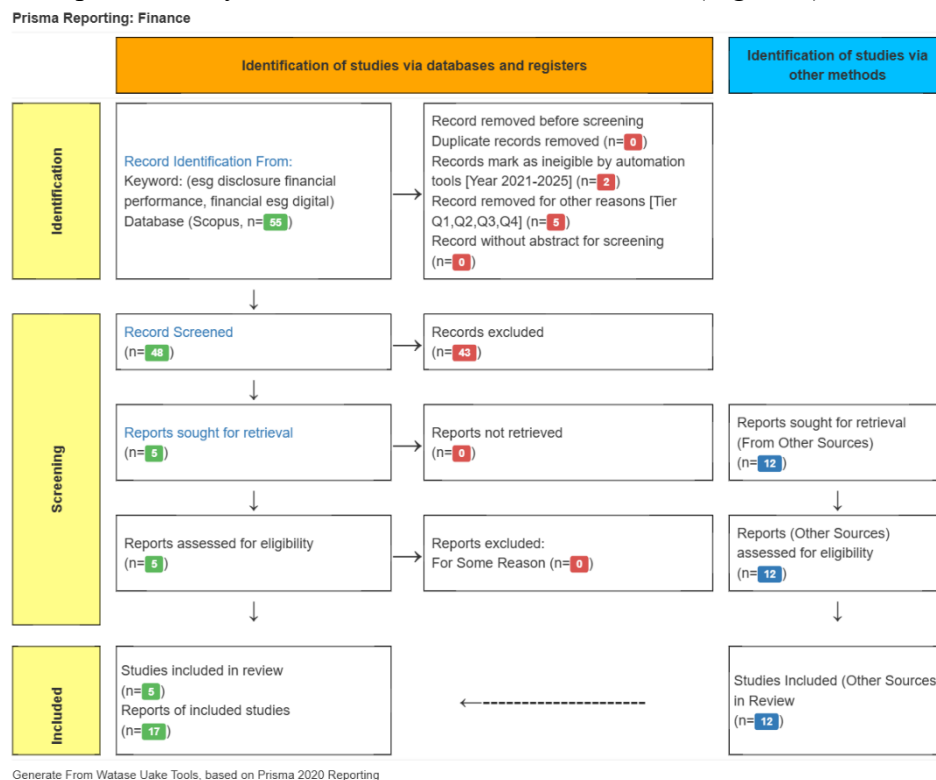


Figure 1. Prisma Analysis Report

Information was systematically retrieved from each of the final 17 eligible articles by the research team through a meticulous manual extraction process. The extraction instrument was designed to capture essential elements vital for synthesizing the literature on ESG, Big Data Analytics, and financial performance.

The key data points extracted included:

Bibliographic Details: Title, publication journal, year of publication, and author information. **Methodological Approach:** Identification of the research design employed (e.g., quantitative, qualitative, or mixed methods). **Study Context:** The specific geographical location and the industry or sector examined. **Thematic Alignment:** The specific focus within the study related to ESG disclosure, Big Data Analytics adoption, and corporate financial performance. **Core Findings:** Key conclusions and empirical results pertaining to the relationship between ESG, Big Data Analytics, and corporate financial outcomes. The extraction phase was supported using Watase Uake's PRISMA automation engine, a specialized research tool designed to facilitate systematic reviews, which was utilized for initial data classification and validation checks. Following this technical assistance, a comprehensive manual content analysis was performed on the extracted findings to establish the final thematic categories and conduct a rigorous synthesis of the main contributions.

4. | RESULTS

This chapter presents the results of the Systematic Literature Review (SLR) examining how digital finance and big data analytics contribute to long-term value creation through enhanced financial performance and improvements in environmental, social, and governance (ESG) outcomes. The findings are reported objectively based on the final set of studies included after the identification, screening, eligibility, and inclusion stages.

Table 1. Summary Matrix of Findings from 17 Analysed Studies

Research Title	Country	Method	Main Findings
Big Data Development and Enterprise ESG Performance: Empirical Evidence from China (Li et al., 2024)	China	Quantitative - Panel Regression	Big data has been shown to improve ESG performance, and this holds true no matter how the big data index is measured. Its influence works mainly through two channels: it boosts green innovation by streamlining R&D and increasing the production of green patents, and it enhances the quality of information disclosure, which helps curb greenwashing by making reporting more transparent. The benefits are especially strong in state-owned and large companies. In essence, big data plays a key role in supporting green transformation, strengthening governance, and improving transparency, all of which raise a firm's ESG outcomes.
Big data applications, technological empowerment, and corporate ESG performance (Yang et al., 2025)	China	Quantitative - Panel Regression	Big data improves ESG performance by cutting emissions, increasing efficiency, and helping firms manage social and governance risks. Technologies like AI, blockchain, and digital infrastructure strengthen this effect by making ESG reporting clearer. High tech firms benefit the most, while others gain less due to higher digital costs and weaker data skills. Tests with lagged data confirm that the positive impact stays consistent.

Research Title	Country	Method	Main Findings
Big data capabilities, ESG performance and corporate value (Cai et al., 2024)	China	Quantitative - Panel Regression	Big data capability increases firm value because it improves decision making, efficiency, and innovation. Strong ESG performance also raises firm value by reducing risk, improving reputation, and attracting investors. ESG further amplifies the benefits of big data, so firms with high ESG scores gain even more value from data use. The impact varies across firms: ESG contributes more to value in state owned companies, while non state companies depend more on ESG reputation to gain market support.
Big Data Infrastructure and Corporate ESG Performance: Evidence from Listed Chinese Manufacturing Companies (M. Wang & Zhang, 2024)	China	standard difference-in-difference (DID)	Big data is found to raise a company's overall ESG score by about 1.042 points, equal to roughly a 5% increase from the average. The improvements are most visible in the social and governance dimensions, while the environmental score does not show a significant change. The effect of big data is stronger in firms that operate outside heavily polluting industries, those with lower levels of digital transformation, and companies that are not closely audited. Big data improves ESG through better information transparency, stronger external monitoring, enhanced reputation risk management, and is further reinforced by green innovation as a moderating factor. Empirically, the study relies on a Difference-in-Differences (DID) approach based on the BDPZ policy.
Digital Finance, ESG Performance, and Financial Performance in Chinese Firm Levels: The Pathway to Sustainability (Xiang et al., 2024)	China	Quantitative - Panel Regression	Digital finance helps boost ESG performance by improving information efficiency through big data, AI, and cloud systems, encouraging environmental innovation, and lowering transaction costs. Stronger ESG performance, in turn, raises profitability as reflected in higher ROA. The positive impact of digital finance is most pronounced in non-state-owned firms and in regions with more advanced levels of digitalization.
How does digital finance affect firm environmental, social and governance (ESG) performance? — Evidence from Chinese	China	Quantitative - Panel Regression	Digital finance significantly improves ESG performance by encouraging green innovation, enhancing transparency and oversight, and reducing monitoring costs. The impact is even stronger in private firms and in provinces with more developed financial institutions.

Research Title	Country	Method	Main Findings
listed firms (Xue et al., 2023)			
Does digital financial inclusion matter for firms' ESG disclosure? Evidence from China (Lu et al., 2022)	China	Quantitative - Panel Regression	Digital financial inclusion raises ESG disclosure by expanding access to financing and reducing information frictions, making it easier for firms to report transparently. The positive effect is strongest for smaller companies and those operating in less developed regions.
An empirical analysis of the impact of ESG on financial performance: the moderating role of digital transformation (Fu & Li, 2023)	China	Quantitative - Panel Regression	ESG has a significant positive impact on financial performance, and digital transformation (which includes big data, cloud systems, and AI) further strengthens this relationship. The effect is especially strong for non-state-owned firms, companies located in coastal regions of Eastern China, and businesses facing higher pollution risk.
Moderating role of ESG disclosures and its impact on firm financial performance (Inamdar, 2024)	India	Quantitative - Panel Regression	Environmental disclosure (EDS) is found to increase firm value and improve stock valuation, while social disclosure (SDS) tends to reduce firm value but strengthens a firm's financial position as reflected in the Piotroski score. Governance disclosure (GDS) lowers the cost of capital, though it does not significantly affect value or profitability. Overall, ESG does not directly influence profitability measured by ROE, highlighting that each ESG component affects financial outcomes differently depending on the indicator used.
The impact of digital inclusive finance on ESG disputes: Evidence from Chinese non-financial listed companies (Khalid et al., 2024)	China	Quantitative - 2sls Regression	Digital Inclusive Finance (DIF) is shown to significantly reduce ESG disputes across all model specifications, indicating that greater financial digitalization improves transparency and lowers the likelihood of conflicts. All three DIF sub-indicators, coverage breadth, depth of use, and digitalization level, have a positive and significant effect. The study also confirms two mediation channels: DIF reduces financial constraints and strengthens internal control systems, both of which help decrease ESG disputes. The impact is stronger for firms in less developed regions, in ESG-sensitive industries, in markets with lower competition, and in environments with higher uncertainty.

Research Title	Country	Method	Main Findings
Digital government and corporate ESG performance (Chen et al., 2025)	China	Quantitative, Staggered Difference-in-Differences (DID) (menggunakan penetapan Big Data Bureau).	Digital governance (DG) significantly improves ESG performance, especially in the environmental and governance dimensions. It works by increasing regulatory efficiency, drawing greater stakeholder attention, and reducing greenwashing. These improvements strengthen long-term financing capacity and boost market valuation, with the strongest effects seen in firms facing high agency costs.
Spatial Spillover Effects of Digital Finance on Corporate ESG Performance (H. Wang et al., 2024)	China	Quantitative, Spatial Econometrics Model (Spatial Weight Matrix, Moran's I)	Digital finance (DF) raises ESG performance in local regions and also produces positive spillover effects in neighboring areas. The direct impact comes from stronger green innovation and reduced financing constraints, while the spillover occurs through labor mobility, capital flows, and technology diffusion. The effect is more pronounced in economically advanced regions with well-developed digital infrastructure.
Does Digital Finance Improve Corporate ESG Performance? An Intermediary Role Based on Financing Constraints (Ning & Zhang, 2023)	China	Quantitative, Regresi Fixed-Effects, Mediasi (Stepwise), Robustness	The level of digital finance (DF) development has a significant positive effect on corporate ESG performance, and this relationship is partly explained by financing constraints, DF helps ease funding barriers, which in turn improves ESG outcomes. The impact is notably stronger for non-state-owned firms and for companies located in central and western regions.
Digital finance and corporate ESG performance: Empirical evidence from listed companies in China (Ren et al., 2023)	China	Quantitative, Regresi Fixed-Effects, DID, Instrumental Variables	Digital finance (DF) significantly boosts ESG performance, with the strongest improvements seen in the Environmental and Social dimensions. Its impact works through enhanced green innovation and stronger external monitoring. The positive effects are most pronounced in firms with lower levels of digitalization and profitability, as well as in industries with strict regulations or high emissions.
Digital transformation and corporate ESG: Evidenve from China (Zhao & Cai, 2023)	China	Quantitative, Regresi Fixed-Effects, Analisis Heterogenitas.	BDAC has a positive effect on both exploitative and explorative learning. Exploitative learning acts as a mediator between BDAC and supply chain resilience (SCRes), which then mediates the link between exploitative learning and financial performance. The study also finds a sequential mediation path, where explorative learning leads to exploitative learning, which then enhances SCRes.

Research Title	Country	Method	Main Findings
Big data analytics and supply chain learning; A serial mediation model for enhancing resilience and financial performance (Iftikhar et al., 2025)	Pakistan	Quantitative, Structural Equation Modeling (PLS-SEM), Analisis Mediasi Sekuensial.	BDAC has a positive effect on both exploitative and explorative learning. Exploitative learning acts as a mediator between BDAC and supply chain resilience (SCRes), which then mediates the link between exploitative learning and financial performance. The study also finds a sequential mediation path, where explorative learning leads to exploitative learning, which then enhances SCRes.

Overview of the Reviewed Studies

The final set of studies included in this review spans the period 2015–2025 and represents a wide range of methodological approaches, including econometric analyses, quasi-experimental designs, machine-learning-based assessments, case studies, qualitative evaluations, and mixed-methods studies. The research is geographically diverse, with most publications originating from Asia, Europe, and North America, and a smaller number from Africa and Latin America. Across the literature, three broad themes recur consistently: digital finance, big data analytics, and ESG performance.

Findings on Digital Finance

Across the reviewed studies, digital finance appears as an important driver of change within corporate financial systems. The literature shows that digital finance (whether through fintech platforms, digital financial inclusion, or automated financial processes) tends to enhance the efficiency of capital allocation. Several studies report that digital finance reduces transaction costs and improves access to funding, particularly for firms facing financial constraints.

Some works also note that the adoption of digital financial tools contributes to greater transparency in corporate reporting. Studies comparing different national contexts highlight that the effectiveness of digital finance is shaped by institutional quality, technological readiness, and regulatory frameworks.

Findings on Big Data Analytics

Big data analytics represents one of the most prominent topics in the literature. The reviewed studies show that firms increasingly rely on technologies such as artificial intelligence, IoT devices, natural language processing, blockchain, and satellite-based monitoring to gather and analyze ESG-related information. These technologies are used to support environmental assessment, especially carbon emissions, energy consumption, and supply chain monitoring. Big data is also employed to evaluate social indicators, including labour conditions and social sentiment, and to strengthen governance mechanisms through fraud detection, compliance tracking, and risk monitoring. Many technical studies emphasize improvements in data accuracy, transparency, and the timeliness of information processing as direct outcomes of big data adoption.

Findings on ESG Performance

The review demonstrates that digital transformation and big data adoption are frequently associated with improvements in ESG performance. Environmental performance benefits from

real-time monitoring of emissions and resource use. Governance performance is strengthened through enhanced data traceability and digital audit capabilities. For the social dimension, several studies highlight that broader access to structured and unstructured data enables better tracking of workplace practices, labor rights, and community engagement. While the scale of improvement differs across contexts, many studies indicate that firms with more advanced digital infrastructures tend to show stronger gains in ESG performance.

Findings on Financial Performance

A substantial portion of the literature links technology adoption and ESG improvements to better financial outcomes. Numerous studies report that stronger ESG performance coincides with increases in profitability, market valuation, or overall financial stability. Evidence from emerging markets shows that ESG acts as a credibility signal for investors and helps reduce financial risk. Additionally, several studies demonstrate that digital finance and big data contribute to more accurate financial decision-making by enhancing the precision of risk assessments. Research focusing on capital market outcomes reveals that improvements in ESG performance can facilitate access to financing and reduce the cost of capital through better information quality.

Interaction Between Digital Finance, Big Data, and ESG

The literature indicates several connections among the three domains. Digital finance often accelerates the collection and integration of ESG-related data, while big data analytics serves as the primary tool for processing and interpreting such information. Firms that combine these technological capabilities generally appear to benefit from more efficient decision-making and more consistent improvements in ESG indicators. However, the strength of these relationships varies depending on factors such as firm size, industry characteristics, digital maturity, regulatory conditions, and ownership structures.

5. | DISCUSSION

The findings of this review illustrate a significant shift in the way companies combine technological tools with their financial and sustainability practices. While the Results chapter presented the evidence objectively, the discussion here focuses on the meaning of those findings, how they relate to previous studies, and how this review contributes to the growing body of research on digital transformation and corporate sustainability.

A key insight arising from the reviewed literature is that digital finance is becoming an integral component of modern corporate strategy. Many studies show that firms that adopt digital-based financial tools benefit from greater efficiency in financial processes, more accurate allocation of capital resources, and reductions in informational barriers within the organization. Earlier research tended to portray digital finance primarily as a mechanism for improving accessibility and convenience in financial transactions. The broader body of evidence examined in this review indicates that its impact is more strategic. Digital finance strengthens firms' ability to manage risks, enhances the reliability of financial information, and creates the conditions necessary for more disciplined and transparent decision-making. These developments provide a clearer understanding of how financial digitalization contributes to long-term value creation rather than merely supporting short-term operational improvements.

The role of big data analytics also emerges as central in shaping contemporary ESG practices. Across numerous studies, big data technologies are presented as tools that enable more accurate, timely, and comprehensive assessments of environmental, social, and

governance indicators. Previous literature has frequently noted that ESG reporting suffers from inconsistent standards, delays in disclosure, and heavy reliance on self-reported information. The present review shows that the incorporation of advanced data technologies addresses many of these weaknesses. Firms that adopt artificial intelligence, satellite-based monitoring, natural language processing, or sensor-based systems can monitor emissions, assess supply chain conditions, and track governance compliance with far greater precision. This transition from delayed and fragmented reporting to real-time and verifiable data represents an important improvement in the credibility of ESG information and aligns with earlier research that anticipates a move toward more analytics-driven sustainability evaluation.

The interaction between digital finance, big data, and financial performance also offers meaningful insights. A clear pattern emerges in which improvements in ESG performance, supported by technological capabilities, are accompanied by better financial outcomes. In several cases, firms with stronger ESG metrics enjoy higher profitability, improved market valuation, or lower capital costs. The reviewed studies collectively strengthen the view that sustainability performance should not be regarded as an external obligation imposed on companies. Instead, sustainability becomes a strategic asset that enhances investor confidence and reduces operational risks. When digital finance ensures efficient financial operations and big data guarantees reliable sustainability measurements, the combined effect produces a more stable environment for long-term corporate growth. This reinforces earlier arguments in the literature that emphasize the complementarity between financial strength and sustainability performance.

Another important point revealed by the review is the influence of institutional and organizational context. Several studies report that the impact of digital finance and big data varies depending on regulatory strength, national digital infrastructure, firm size, ownership structures, and overall technological readiness. These variations confirm that digital transformation does not take place uniformly across industries or regions. Instead, it progresses more effectively in environments where policies, technological access, and institutional support are aligned. These findings resonate with earlier cross-country studies that highlight the importance of strong governance frameworks in maximizing the benefits of technological innovation.

The review also draws attention to the evolving nature of sustainability measurement. Increasingly, researchers and practitioners rely on unstructured data, such as text, imagery, and sensor-based information, to supplement or replace traditional ESG disclosure. This transition promises to reshape how sustainability performance is assessed, potentially moving away from periodic reporting cycles toward real-time evaluation models. Such a shift has broader implications for both companies and investors. Firms will need to adapt to a landscape where transparency is continuous, and where deviations between reported and actual performance can be detected more easily. Investors, meanwhile, will gain access to more detailed and reliable information for decision-making.

Overall, the discussion shows that digital finance and big data analytics are not merely tools that support sustainability initiatives but are transformative forces that redefine the relationship between financial performance and ESG commitments. This review contributes to the scholarly conversation by bringing together evidence that has often been examined separately. The integrated perspective provided here demonstrates that the combined use of digital finance and big data creates a mutually reinforcing cycle that enhances financial

stability, strengthens ESG performance, and supports long-term corporate value. While challenges remain, such as inconsistent sustainability standards and uneven technological adoption across regions, the findings consistently point to the growing strategic importance of digital transformation in shaping the future of corporate sustainability.

6. | CONCLUSION

This review highlights how digital finance and big data analytics are increasingly shaping the way firms create long-term value. The evidence shows that digital financial tools improve efficiency and reduce informational barriers, while big data technologies enhance the accuracy of ESG assessments. When these elements operate together, they support better decision-making and help firms align financial performance with sustainability goals. The findings contribute to the broader academic discussion by showing that technological capabilities now play a central role in connecting financial outcomes with responsible corporate behavior.

Despite these contributions, several limitations should be acknowledged. The lack of consistent ESG standards across countries may influence how results are interpreted, though the recurring patterns across studies suggest that the core conclusions remain reliable. Another limitation arises from the dominance of large firms in the reviewed literature, which may lead readers to question whether the findings apply equally to smaller companies or emerging markets. This is not a flaw in the review itself, but a reflection of the current state of research, and it highlights areas that deserve further attention. The limited number of long-term studies also raises the question of whether the observed effects will persist over time, indicating the need for more longitudinal work.

Future research should therefore explore how smaller firms adopt digital technologies, develop more consistent ESG measurement approaches, and examine the long-term impact of digital transformation on sustainability performance. In summary, although the reviewed studies vary in scope and context, they collectively show that digital finance and big data analytics offer meaningful support for firms seeking to strengthen both financial outcomes and ESG performance. These insights provide a useful foundation for further investigation into the evolving relationship between technology, sustainability, and corporate value.

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The authors declare that there is no conflict of interest.

Ethical Approval and Originality Statement

Ethical approval was obtained for this study. The manuscript represents original work and has not been previously published, nor is it under consideration by another journal.

Data Disclosure Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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