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Digital Transformation and ESG Governance: Opportunities and Challenges for Vietnamese Enterprises in the Green Integration Era

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Abstract

In the context of globalization and green integration, Vietnamese enterprises face increasing pressures to meet environmental, social, and governance (ESG) standards while simultaneously accelerating digital transformation to maintain competitiveness. This study aims to clarify the opportunities and challenges for Vietnamese enterprises in integrating digital transformation with ESG governance—a topic that remains relatively new and underexplored in Vietnam. A desk research methodology was employed, based on the analysis and synthesis of policy reports, international academic literature, as well as practical business experience and regional comparisons. The findings indicate that digital transformation brings significant benefits to ESG implementation, including enhancing data transparency and reporting capacity, optimizing operations

and saving energy, strengthening investor confidence, expanding access to green capital, and fostering circular business models. However, the Vietnamese context also reveals substantial barriers, ranging from high technology investment costs, inconsistent legal frameworks, shortages of digital human resources, to data risks and cybersecurity concerns. These findings underscore that ESG–digital integration should be approached as a long-term strategic orientation rather than a mere compliance requirement. This study contributes by providing a conceptual analytical framework and policy recommendations, helping Vietnamese enterprises not only overcome immediate obstacles but also seize the opportunity to “leapfrog” toward sustainable integration into the global green economy.

Keywords: Digital Transformation, ESG Governance, Vietnam, Sustainable Development, Green Integration

1. Introduction

In the context of globalization and the Fourth Industrial Revolution, economies are under increasing pressure to transform their development models toward sustainability and alignment with carbon reduction goals. Green economic integration is not only a political and trade trend but also a prerequisite for enterprises to access international markets, particularly as next-generation trade agreements increasingly incorporate binding provisions related to sustainable development. This has exerted significant pressure on Vietnamese enterprises to adjust governance practices in line with environmental, social, and governance (ESG) standards (Loan *et al.*, 2024) ^[17].

ESG has become central to modern corporate governance. In the capital market, global investors are increasingly using ESG criteria to assess non-financial risks, thereby guiding capital allocation and trade cooperation (Ziolo *et al.*, 2023) ^[29]. Enterprises that fail to provide transparent ESG disclosures risk exclusion from supply chains or limited access to green capital. In Vietnam, despite heightened awareness, ESG practices are still often superficial, with weak data control systems and the absence of long-term ESG strategies (Pham, 2024) ^[23].

In this context, digital transformation has emerged as an important enabler. Digital technologies can enhance data transparency, optimize supply chains, automate risk management, and reduce operating costs, aligning with sustainable development objectives. Tools such as artificial intelligence (AI), big data, blockchain, and the Internet of Things (IoT) provide enterprises with platforms not only to measure and report ESG performance in line with global standards but also to improve governance efficiency and market competitiveness.

However, the challenges for Vietnamese enterprises are significant. Most small- and medium-sized enterprises (SMEs) lack financial resources, skilled personnel, and regulatory guidance to implement both processes concurrently. Delays in technology adoption and weak data connectivity risk undermining the credibility of ESG reports, thus directly affecting corporate

reputation and integration capacity.

From this reality, the paper aims to analyze opportunities and challenges in integrating digital transformation with ESG practices in Vietnam. Specifically, it seeks to answer three key questions: (1) What values does digital transformation bring to ESG governance? (2) What challenges obstruct Vietnamese enterprises in integration? (3) What policies and strategies can help enterprises overcome these barriers and seize opportunities?

The study applies a desk research approach, analyzing secondary documents, domestic and international policy reports, and relevant academic research. This approach enables synthesis, comparison, and conceptual generalization to construct a comprehensive picture of the current situation, thereby proposing context-specific recommendations for Vietnam.

2. Theoretical Foundation and Conceptual Framework

2.1 ESG Concept and Three Pillars

ESG represents a set of standards to evaluate enterprise sustainability and responsibility beyond traditional financial metrics (Friede *et al.*, 2015) [7]. The Environmental (E) pillar addresses corporate impacts on climate, resources, and ecosystems, including carbon emissions, energy, and waste management (Clark *et al.*, 2015) [3]. The Social (S) pillar refers to labor relations, human rights, diversity and inclusion, community responsibility, and product safety (Kotsantonis *et al.*, 2016) [14]. The Governance (G) pillar emphasizes board structure, shareholder rights, financial transparency, anti-corruption, and long-term strategy (Eccles *et al.*, 2014) [4].

International ESG frameworks are increasingly diverse and influential. The Global Reporting Initiative (GRI) is the most widely adopted framework for disclosing sustainability impacts (Global Reporting Initiative, 2021) [8]. The Sustainability Accounting Standards Board (SASB) provides industry-specific standards linking ESG to financial performance (Khan, Serafeim, & Yoon, 2016) [12]. Recently, the International Sustainability Standards Board (ISSB), under IFRS, has launched a global baseline for sustainability reporting (IFRS Foundation, 2023) [11]. The EU Corporate Sustainability Reporting Directive (CSRD) has also introduced mandatory reporting obligations for listed firms, setting important legal benchmarks for global markets (European Commission, 2021) [6].

2.2 Digital Transformation in Enterprises

Digital transformation is understood as the process of integrating digital technologies into all aspects of an organization, fundamentally altering operations, business models, and value creation (Vial, 2019) [27]. Key technologies include big data for complex information analysis; AI for prediction and optimization; IoT for monitoring supply chains and smart energy use; blockchain for transparency and traceability; and cloud computing for managerial flexibility (Verhoef *et al.*, 2021) [26].

In Vietnam, digital transformation is viewed as a key driver of competitiveness, especially in core sectors such as banking, manufacturing, and energy (Nguyen, Ngo, & Ruël, 2021) [21]. Leading banks use big data and AI for sustainable credit assessment, while textile and energy firms are piloting IoT and blockchain for emission monitoring and supply chain transparency. Nonetheless, adoption remains limited among SMEs, which dominate the economy.

2.3 The “Digital Transformation – ESG” Relationship Framework

Scholars often view digital transformation as a tool to strengthen ESG effectiveness. AI and big data support ESG data collection, processing, and reporting in line with global standards (Pizzi, Venturelli, & Caputo, 2021) [24]. Blockchain enables transparent value chain traceability, enhancing trust among investors and consumers (Saber *et al.*, 2019) [25].

Conversely, ESG commitments act as a driver for digital adoption. Buallay (2019) [2] found that firms with stronger ESG commitments tend to invest more heavily in digital technologies to ensure transparency and efficiency. In advanced economies, regulations and investor expectations around ESG have become catalysts for corporate digitalization (Kotsantonis & Pinney, 2022) [13].

International experiences confirm this trend. In the EU, CSRD has spurred firms to apply digital tools for ESG reporting. In the United States, ESG funds increasingly demand verifiable technology-based disclosures (Eccles & Klimenko, 2019) [5]. South Korea leverages big data and IoT in energy to optimize operations and reduce emissions (Lee & Xuan, 2019) [15]. Singapore has developed a “Green FinTech” framework aligning financial digitalization with ESG to attract sustainable investment (Monetary Authority of Singapore, 2020) [19].

Based on this evidence, the study proposes a conceptual framework illustrating the bidirectional relationship: digital transformation as a key means to implement ESG, and ESG pressures as drivers for accelerated digitalization.

3. Vietnam Context Analysis

3.1 ESG in Vietnam

Over the past decade, ESG has become increasingly important in corporate governance in Vietnam, particularly among listed firms. Large corporations in banking, energy, real estate, and textiles have begun publishing ESG or sustainability reports aligned with international standards such as GRI and SASB (Nguyen & Bui, 2022) [20]. However, most remain at a minimal compliance level, lacking comprehensiveness and strategic linkage (Hoang, 2021) [10].

Pressure from capital markets and FDI is propelling ESG adoption. Global financial institutions from the EU, US, Japan, and South Korea now view ESG as mandatory for capital provision (World Bank, 2020) [28]. Moreover, new-generation trade agreements such as EVFTA and CPTPP embed strict environmental and labor requirements, compelling Vietnamese firms to demonstrate compliance to maintain global supply chain positions (Nguyen *et al.*, 2022) [22]. This is especially critical for export-dependent sectors such as textiles, electronics, and agro-processing.

3.2 National Digital Transformation Policy

Since 2020, the Vietnamese Government has issued the National Digital Transformation Program to 2025, vision to 2030 (Government of Vietnam, 2020) [9]. The strategy aims to establish a digital nation based on data and advanced technologies, structured around three pillars: digital government, digital economy, and digital society. By 2025, the digital economy is expected to account for 20% of GDP, reaching 30% by 2030 (Ministry of Information and Communications, 2021) [18].

Sectors leading digitization and ESG convergence include banking, which applies big data and AI in green finance; e-commerce, which rapidly expands but faces green logistics challenges; and manufacturing and energy, where IoT and blockchain are applied for monitoring energy use and emissions (ADB, 2021) ^[1].

3.3 Gaps and Limitations

Despite progress, ESG–digital integration in Vietnam faces multiple constraints. First, SMEs, which make up over 95% of firms, suffer from limited capital, technology, and skills (Nguyen & Bui, 2022) ^[20]. Second, Vietnam lacks a unified ESG legal framework: existing regulations are fragmented and misaligned with global standards, causing inconsistent reporting (Hoang, 2021) ^[10]. Third, data infrastructure and reporting standards remain weak, hindering transparency and investor confidence, while cybersecurity risks further complicate digital ESG (Le & Ngo, 2021) ^[16].

Overall, Vietnam presents both opportunities (international integration, national digital strategies, green finance markets) and significant challenges (resource constraints, regulatory gaps, weak data systems), underscoring the need for comprehensive ESG–digital strategies across policy and corporate levels.

4. Opportunities of Digital Transformation for ESG Governance

Digital transformation plays a pivotal role in strengthening corporate ESG practices, particularly under green integration and global market pressures. It not only supports data collection and processing but also provides platforms for sustainable business innovation.

Blockchain enables verification and traceability of supply chain data, ensuring integrity and investor trust. Big data allows aggregation and visualization of large ESG datasets, supporting compliance with GRI and CSRD standards.

IoT and AI enable real-time monitoring of energy use and greenhouse gas emissions, feeding analyses to optimize production and reduce carbon footprints. Renewables benefit from AI's predictive capabilities for solar and wind capacity.

Digitally-enabled ESG transparency increases credibility, expanding access to green funds and international capital. Evidence shows transparent ESG data correlates positively with lower financing costs and enhanced global reputation.

Digital tools support circular economy practices such as reuse, recycling, and waste reduction, while blockchain enables green product labeling, building consumer trust and brand value.

Banks are adopting big data to establish green credit scoring; energy firms deploy IoT sensors for emission monitoring; textile firms pilot blockchain for raw material traceability to meet EU market standards.

In sum, digital transformation provides opportunities to enhance transparency, optimize operations, foster investor trust, and reshape business models, becoming essential for Vietnamese enterprises in green integration.

5. Challenges for Vietnamese Enterprises

Despite these opportunities, Vietnamese firms face systemic and structural barriers.

SMEs, which dominate Vietnam's economy, face prohibitive costs for infrastructure, IoT sensors, blockchain,

or AI applications, often prioritizing short-term over long-term ESG–digital benefits.

Fragmented and inconsistent ESG regulations create reporting complexity, limiting comparability and international credibility.

Corporate leaders often undervalue ESG strategically, while skilled digital and ESG professionals remain scarce, leading to disjointed and unsustainable technology adoption.

ESG data collection remains manual, unstandardized, and disconnected across departments, undermining reliability and impeding digital integration.

The processing of sensitive ESG data heightens vulnerability to cyberattacks and breaches, risking financial losses and reputational damage.

Many firms treat ESG as a compliance burden rather than a competitive advantage, leading to superficial reporting and underinvestment in digital ESG innovation.

These challenges highlight the gap between expectations and capabilities, raising the risk of falling behind in sustainable integration if systemic solutions are not implemented.

6. Discussion

An integrated assessment reveals an organic relationship between opportunities and challenges in digital–ESG convergence. On one hand, digital tools enhance transparency, efficiency, and sustainability. On the other, ESG pressures push digital adoption. Yet opportunities will only materialize if enterprises overcome cost, skill, and legal barriers.

Digital transformation is not a “magic wand.” Technology adoption is only effective when embedded in a coherent and long-term ESG strategy. Stakeholders play critical roles: Government provides enabling policies, industry associations share knowledge, enterprises lead implementation, while investors and international organizations supply pressure and resources.

Within ASEAN, Vietnam lags behind early movers such as Singapore and Malaysia, but has a unique “leapfrogging” opportunity by learning from best practices and adopting advanced technologies directly, thus narrowing competitiveness gaps in regional value chains.

7. Conclusion and Recommendations

This study demonstrates that digital transformation acts as a strategic lever for ESG governance under green integration. Digital technologies enhance data transparency, operational efficiency, and access to green finance, while fostering sustainable business innovation. Yet challenges remain, including resource limitations, legal inconsistencies, skill shortages, and cyber risks.

The overarching implication is that ESG–digital integration is no longer optional but inevitable for enterprises seeking global competitiveness. This pathway is also essential for Vietnam's economy to integrate sustainably into global value chains.

Future research should undertake empirical investigations to measure digital transformation's specific impacts on ESG outcomes in sectors such as textiles, energy, and banking. Evidence-based results will support policymaking and strategy formulation for sustainable technology-driven development in Vietnam.

Policy Implications:

For Government: Develop a unified ESG framework aligned with international standards; provide financial and technology access support for SMEs; and implement tax incentives for ESG-digital adopters.

For Enterprises: Embed ESG within strategic goals; invest in data infrastructure and digital skills; and engage in public-private partnerships and international learning initiatives.

For Intermediaries and Investors: Build and expand green capital markets; prioritize financing for digitally-enabled ESG firms; and enhance transparency via credible ESG rating systems.

If implemented synchronously, these measures can create an enabling ecosystem supporting Vietnamese enterprises in leveraging digital transformation for effective ESG governance, thereby advancing sustainable green integration.

8. References

- Asian Development Bank (ADB). Viet Nam digital economy assessment report. ADB, 2021.
- Buallay A. Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector. *Management of Environmental Quality: An International Journal*. 2019; 30(1):98-115. Doi: <https://doi.org/10.1108/MEQ-12-2017-0149>
- Clark GL, Feiner A, Viehs M. From the stockholder to the stakeholder: How sustainability can drive financial outperformance. University of Oxford, 2015.
- Eccles RG, Ioannou I, Serafeim G. The impact of corporate sustainability on organizational processes and performance. *Management Science*. 2014; 60(11):2835-2857. Doi: <https://doi.org/10.1287/mnsc.2014.1984>
- Eccles RG, Klimenko S. The investor revolution. *Harvard Business Review*. 2019; 97(3):106-116.
- European Commission. Corporate sustainability reporting. Publications Office of the European Union, 2021.
- Friede G, Busch T, Bassen A. ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*. 2015; 5(4):210-233. Doi: <https://doi.org/10.1080/20430795.2015.1118917>
- Global Reporting Initiative. GRI standards, 2021. <https://www.globalreporting.org/standards/>
- Government of Vietnam. National digital transformation program to 2025, orientation to 2030 (Decision No. 749/QĐ-TTg). Hanoi, 2020.
- Hoang TH. ESG adoption in Vietnam: Challenges and prospects. *Asian Journal of Business and Accounting*. 2021; 14(2):135-154.
- IFRS Foundation. IFRS sustainability disclosure standards. IFRS Foundation, 2023.
- Khan M, Serafeim G, Yoon A. Corporate sustainability: First evidence on materiality. *The Accounting Review*. 2016; 91(6):1697-1724. Doi: <https://doi.org/10.2308/accr-51383>
- Kotsantonis S, Pinney C. ESG data and ratings: Challenges and policy considerations. *OECD Business and Finance Outlook*, 2022. Doi: <https://doi.org/10.1787/7d9f0a2f-en>
- Kotsantonis S, Pinney C, Serafeim G. ESG integration in investment management: Myths and realities. *Journal of Applied Corporate Finance*. 2016; 28(2):10-16. Doi: <https://doi.org/10.1111/jacf.12169>
- Lee KH, Xuan Y. How to foster green business practice in developing countries? Evidence from South Korea. *Journal of Cleaner Production*. 2019; 209:425-433. Doi: <https://doi.org/10.1016/j.jclepro.2018.10.249>
- Le TH, Ngo LV. Fintech and sustainable finance: The case of Vietnam. *Journal of Risk and Financial Management*. 2021; 14(12):589. Doi: <https://doi.org/10.3390/jrfm14120589>
- Loan BTT, Anh TTL, Hoang T. ESG disclosure and financial performance: Empirical study of Vietnamese commercial banks. *Banks and Bank Systems*. 2024; 19(1):208.
- Ministry of Information and Communications. Vietnam digital transformation index 2020. MIC, 2021.
- Monetary Authority of Singapore. Green finance action plan. MAS, 2020.
- Nguyen HM, Bui QT. Drivers and barriers to ESG practices in Vietnam: Evidence from listed companies. *Journal of Asian Business and Economic Studies*. 2022; 29(3):205-222. Doi: <https://doi.org/10.1108/JABES-11-2021-0132>
- Nguyen HM, Ngo LV, Ruël H. Digital transformation and firm performance in emerging markets: Evidence from Vietnam. *Technological Forecasting and Social Change*. 2021; 170:120921. Doi: <https://doi.org/10.1016/j.techfore.2021.120921>
- Nguyen QT, Pham ND, Hoang HT. Trade agreements and sustainability standards: Implications for Vietnam. *Journal of International Trade and Economic Development*. 2022; 31(7):953-971. Doi: <https://doi.org/10.1080/09638199.2022.2109845>
- Pham HH. Impact of environmental audits on the performance of Vietnamese tourism companies. *Central Asian Journal of Innovations on Tourism Management and Finance*. 2024; 5(2):34-44.
- Pizzi S, Venturelli A, Caputo A. The 'right' way to report: Does CSR reporting practice affect ESG scores? *Business Strategy and the Environment*. 2021; 30(8):3494-3506. Doi: <https://doi.org/10.1002/bse.2794>
- Saberi S, Kouhizadeh M, Sarkis J, Shen L. Blockchain technology and its relationships to sustainable supply chain management. *International Journal of Production Research*. 2019; 57(7):2117-2135. Doi: <https://doi.org/10.1080/00207543.2018.1533261>
- Verhoef PC, Broekhuizen T, Bart Y, Bhattacharya A, Dong JQ, Fabian N, Haenlein M. Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*. 2021; 122:889-901. Doi: <https://doi.org/10.1016/j.jbusres.2019.09.022>
- Vial G. Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*. 2019; 28(2):118-144. Doi: <https://doi.org/10.1016/j.jsis.2019.01.003>
- World Bank. Transforming Vietnamese enterprises for green growth: Policy report. World Bank Group, 2020.
- Zioło M, Bąk I, Cheba K, Filipiak BZ, Spoz A. Environmental, social, governance risk versus cooperation models between financial institutions and businesses: Sectoral approach and ESG risk analysis. *Frontiers in Environmental Science*. 2023; 10:1077947.