

# THE ROLE OF DIGITAL TRANSFORMATION IN ENHANCING ESG OUTCOMES: CURRENT SITUATION AND STRATEGIC SOLUTIONS FOR VIETNAMESE ENTERPRISES

Nguyen Phuong Thao<sup>1</sup>, Nguyen Van Thinh<sup>2</sup>, Le Thi Phuong Lien<sup>3</sup>

<sup>123</sup>Ho Chi Minh University of Banking, Ho Chi Minh City, Vietnam

## ABSTRACT

*This study examines the role of digital transformation in enhancing ESG (Environmental, Social, and Governance) performance among Vietnamese enterprises. By synthesizing national reports and industry data, the study finds that digital technologies—such as AI, IoT, and Big Data—significantly support ESG implementation through improved environmental monitoring, stakeholder engagement, and governance transparency. Despite positive trends, challenges remain in terms of uneven adoption, limited digital capacity, and lack of standardized ESG frameworks. The study highlights the need for integrated strategies to strengthen the synergy between digital transformation and sustainable business development in Vietnam..*

**Keyword:** ESG, Digital transformation, business development

## 1. INTRODUCTION

ESG (Environmental, Social, and Corporate Governance) was proposed by the United Nations as a framework to promote global sustainable development standards (Wong et al., 2021). ESG requires enterprises to reduce emissions, enhance social responsibility, and improve governance transparency. As of now, the ESG reporting rate among large global corporations has reached 96% (Zang & Huang, 2024). In Vietnam, ESG has gained increasing attention and widespread adoption among businesses. According to recent surveys, 94% of Vietnamese enterprises recognize the importance of ESG, and 51% have already begun implementing related practices (QMS, 2024). Although ESG reporting is not yet mandatory for all businesses, many have proactively adopted ESG practices to meet international market expectations (Thao Nguyen, 2024).

Digital transformation plays a pivotal role in enhancing ESG performance through the application of core technologies such as artificial intelligence (AI), big data, blockchain, and the Internet of Things (IoT). These technologies enable more accurate and efficient ESG management and reporting (George et al., 2022). According to McKinsey & Company (2020), digital transformation can help enterprises reduce operational costs by up to 30% and increase revenue by approximately 50%. Despite the Vietnamese government's efforts in formulating a

national digital transformation strategy, only around 30% of enterprises have implemented this strategy in a systematic manner, while ESG reporting remains limited to about 20% of businesses (PwC Vietnam, 2022). This situation underscores the urgent need for further research to clarify the mechanisms through which digital transformation influences ESG performance and to propose feasible solutions to promote sustainable development among Vietnamese enterprises.

## 2. LITERATURE REVIEW

### 2.1. Digital transformation

Digital transformation is broadly understood as the strategic process through which enterprises integrate advanced digital technologies—such as artificial intelligence (AI), the Internet of Things (IoT), big data analytics, and cloud computing—across their entire value chain and business model, with the aim of fostering innovation, improving operational efficiency, and strengthening competitive advantage (Vial, 2019; Westerman et al., 2014). This transformation goes beyond the mere adoption of new technologies; it involves a fundamental rethinking of organizational processes, customer interactions, and value delivery mechanisms.

To achieve this, firms must not only invest in robust digital infrastructure but also cultivate organizational capabilities that support change management, cross-functional collaboration, and

continuous learning. Furthermore, digital transformation necessitates a cultural shift within the organization—promoting data-driven decision-making, agility, and openness to innovation. These elements collectively enable businesses to unlock the full potential of automation, predictive analytics, and digital platforms, thereby generating sustained value in an increasingly complex and dynamic environment (Hess et al., 2016).

## **2.2. ESG (Environmental, Social, and Governance)**

The concept of ESG (Environmental, Social, and Governance) originated from the “Who Cares Wins” initiative launched by the United Nations in 2005, with the aim of encouraging businesses to integrate environmental responsibility, social impact, and sound governance into their corporate strategies. This integration is intended to create long-term sustainable value and strengthen stakeholder trust (UN PRI, 2018; Eccles et al., 2014). The adoption of ESG not only reflects a firm’s commitment to sustainability standards, but also shows a positive correlation with financial performance, risk management capabilities, and corporate reputation in capital markets (Friede et al., 2015).

From the Environmental perspective, ESG encompasses efforts to reduce greenhouse gas emissions, utilize natural resources (such as water and energy) more efficiently, manage waste, and protect biodiversity. Digital technologies such as the Internet of Things (IoT) and Big Data enable companies to monitor environmental performance, detect anomalies, and optimize production processes, thereby minimizing adverse environmental impacts (Global Reporting Initiative, 2020). The Social dimension focuses on corporate responsibility toward employees and communities. It includes improving working conditions, ensuring occupational health and safety, promoting gender equality, and contributing to local community development. Effective ESG implementation requires enterprises to adopt digital platforms that enhance two-way communication with employees and stakeholders, thereby improving engagement and social well-being (Friede et al., 2015). In terms of Governance, ESG relates to board structure and effectiveness, transparency in information disclosure, anti-corruption policies, risk management, and legal compliance. Strong governance enhances

organizational integrity, improves decision-making processes, and increases transparency. The integration of digital tools into internal control and automated reporting systems further improves data accuracy, reduces errors, and reinforces investor confidence (Aguilera et al., 2008).

## **2.3. The Relationship Between Digital Transformation and ESG**

In the context of a rapidly evolving digital economy, digital transformation is increasingly recognized as a key driver in enhancing ESG performance in businesses. At its core, digital transformation exerts far-reaching influence on both internal processes and external stakeholder interactions. By integrating advanced digital technologies, firms can optimize operations, improve efficiency, and significantly reduce energy and resource consumption (Wu et al., 2021). This operational optimization not only enhances innovation capacity aligned with sustainability goals but also reinforces the company's commitment to social responsibility. Moreover, digital transformation enables enterprises to adopt more advanced business models and improve customer interaction, thereby enhancing product quality, brand reputation, and corporate image (Zhao, 2022). Simultaneously, the digital transformation process provides tools to better assess environmental and social impacts, allowing companies to develop strategies aligned with ESG standards.

Furthermore, digital transformation can significantly improve ESG performance through the optimization of resource utilization and allocation. Digital resources such as information technology and data analytics are increasingly regarded as strategic assets that help enhance overall productivity and mitigate financial constraints. This, in turn, allows businesses to reinvest in sustainable development initiatives (Wei et al., 2022). Digital tools also enable more accurate environmental data analysis and risk forecasting, supporting the formulation of more effective environmental management strategies and contributing to stronger ESG outcomes overall (Zhang & Huang, 2024).

In addition, digital transformation promotes transparency and information sharing, meeting the growing demands of stakeholders regarding corporate social responsibility and access to ESG-

related data (Freeman, 2010). The application of digital technologies in internal governance strengthens control systems and transparency across supply chains. As a result, investors, customers, and regulatory bodies can more easily monitor and evaluate corporate ESG performance, thereby encouraging enterprises to uphold sustainable commitments and align with stakeholder expectations.

### 3. RESEARCH METHOD

This study employs a qualitative research approach by collecting, synthesizing, and analyzing secondary data in alignment with the defined research objectives. Based on this foundation, the paper proposes conclusions and recommendations aimed at enhancing ESG performance among Vietnamese enterprises. The chosen methodology is appropriate for the study's scope and purpose; however, the absence of primary data derived from surveys, interviews, or direct observations constitutes a notable limitation. To strengthen the validity and applicability of the findings, future research should incorporate quantitative methods and consider narrowing the research focus to a more specific context. These limitations also serve as a basis for suggesting future research directions, particularly in measuring ESG performance within the digital transformation landscape of Vietnamese enterprises..

### 4. DISCUSSION

#### 4.1. *The Current State of Digital Transformation in Vietnam*

To accelerate the digital transformation process, the Government of Vietnam issued Decision No. 749/QĐ-TTg on June 3, 2020, approving the National Digital Transformation Strategy toward 2025 with a vision to 2030. One of its key objectives is for at least 50% of Vietnamese enterprises to adopt digital solutions in their governance and operations (Ministry of Information and Communications, 2020). By the end of 2024, Vietnam's digital economy accounted for approximately 18.3% of GDP, maintaining an annual growth rate of over 20%—three times higher than the overall GDP growth rate—positioning Vietnam as one of the fastest-growing digital economies in Southeast Asia (Ekaterina Liasko, 2025). The number of digital technology enterprises reached approximately 73,788, an increase of 10.1% compared to the previous year, with total revenue estimated at nearly USD 158

billion, up 10.2% (Ministry of Information and Communications, 2020).

According to the Business Technology Report (2024), around 74% of Vietnamese enterprises have developed or are in the process of developing digital transformation strategies—exceeding the Asia-Pacific regional average of 63%. Among these enterprises, 98% reported improved operational efficiency, 91% noted enhanced cybersecurity, and 87% experienced improvements in customer experience. A separate survey conducted by UOB Vietnam in 2024, involving 525 enterprises, found that 87% had partially or fully digitized their business processes; however, only 40% believed their current IT infrastructure was capable of supporting comprehensive digital transformation.

In addition, the Vietnam Digital Transformation Survey 2023, jointly conducted by the Vietnam Chamber of Commerce and Industry (VCCI) and the World Bank, surveyed 1,200 enterprises and revealed that only 28% had achieved “comprehensive digital transformation” (i.e., full digitization and automation of core business processes), while 55% were at the “partial transformation” stage, and 17% remained in the “experimental phase” (VCCI, 2023). In terms of technology adoption, about 63% of enterprises had implemented at least one solution related to cloud computing or big data. However, only 22% had the capacity for real-time data analytics to support strategic decision-making. Regarding process innovation, 47% of enterprises had introduced intelligent automation (e.g., RPA, automated workflows), yet only 30% had fully integrated these with CRM or ERP systems (GSMA, 2023). Notably, human capital remains a major challenge. The shortage of high-quality IT professionals is increasingly severe, with a projected shortfall of approximately 400,000 technology specialists by 2025. As a result, 58% of surveyed enterprises expressed concerns about their ability to effectively operate digital systems in the near future (GSMA, 2023).

Overall, Vietnam has made notable progress in its digital transformation journey, driven by strong governmental direction and proactive engagement from the business sector. However, the current landscape reveals significant disparities among enterprises in terms of readiness and implementation capacity. Gaps in digital infrastructure investment, real-time data analytics

capabilities, process integration, and especially the shortage of high-quality human resources remain key barriers preventing many businesses from fully realizing the benefits of digital transformation. The projected shortfall of technology professionals, the limited adoption of advanced data systems, and the relatively low level of comprehensive digital integration indicate that digital transformation in Vietnam is still in its early stages and faces considerable challenges. This underscores the urgent need for coordinated efforts across government policy, enterprise investment, and workforce development to build a robust, inclusive, and sustainable digital transformation ecosystem in the near future.

#### 4.2. The Current State of ESG in Vietnam

Amid the global shift toward sustainable development, Vietnam has proactively promoted the integration of ESG (Environmental, Social, and Governance) principles into its national economic development strategy. The regulatory framework for ESG has gradually been consolidated, with foundational legislation such as the 2020 Law on Environmental Protection (No. 72/2020/QH14), which took effect in February 2021. This law emphasizes the responsibility of enterprises to protect the environment, utilize natural resources efficiently, and pursue sustainable development. In parallel, Decree No. 155/2016/ND-CP underscores the corporate role in improving quality of life and working conditions for employees—one of the key pillars of ESG.

Despite these institutional efforts, there remains a significant gap between ESG awareness and actual implementation across Vietnamese enterprises, especially when segmented by firm size and industry sector. According to a 2022 survey by Bain & Company involving nearly 17,000 respondents across 11 Asia-Pacific countries, Vietnamese

consumers expressed the highest expectations for corporate leadership in sustainable development—surpassing even those in developed countries like Japan and South Korea. This social pressure compels Vietnamese enterprises to adopt ESG more substantively.

Empirical data from the 2024 ESG Report (see Figure 1) show that approximately 61% of

enterprises have begun exploring and implementing ESG practices. However, 39% remain unfamiliar with the concept, particularly in sectors such as mining (59%), healthcare (53%), and tourism and hospitality (51%). These discrepancies reflect structural characteristics of certain industries and varying degrees of exposure to international ESG standards. Notably, the survey indicates a strong correlation between firm size and ESG implementation: only 21% of large enterprises are unaware of ESG, compared to nearly double that proportion among micro and small enterprises. This highlights the persistent challenges these smaller firms face in accessing resources and governance capabilities necessary for effective ESG execution.

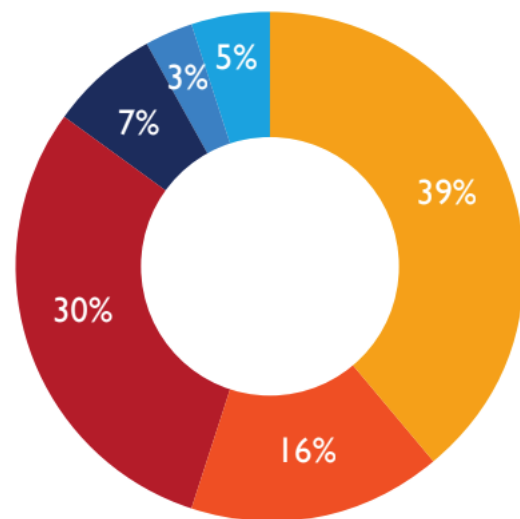








Figure 1: Levels of ESG Awareness and Implementation Among Enterprises (%)



Source: 2024 ESG Evaluation Report on Vietnamese

	Enterprises with no prior exposure to the concept of ESG
	Enterprises that have never heard of ESG but are actively engaged in practices related to environmental, social, and governance issues
	Enterprises currently exploring or learning about ESG
	Enterprises in the process of developing an ESG implementation strategy
	Enterprises that have established an ESG strategy and commitment, but have yet to develop a concrete implementation plan
	Enterprises that have developed a plan and are actively implementing ESG practices within their organization

*Enterprises*

Nevertheless, several large Vietnamese enterprises have emerged as ESG pioneers. For instance, Grab has introduced features that encourage environmentally responsible consumer behavior, contributing to the planting of over 42,000 trees, the reduction of 2,300 tons of greenhouse gas emissions, and the avoidance of nearly 774 million single-use plastic items. In the banking sector, VPBank stands out for integrating ESG into its long-term strategy by adopting an ESG risk governance framework across its entire organization—going beyond traditional CSR initiatives.

There are also variations in ESG performance across its three pillars. In the social dimension, Vietnamese enterprises achieved an average score of 68%, with large enterprises scoring as high as 79%. This reflects their superior ability to implement initiatives that enhance employee welfare, support communities, and develop human capital. In contrast, smaller firms face more constraints due to limited financial and human

resources, though many have begun to engage with ESG—an encouraging trend for future sustainability.

In terms of corporate governance, the nationwide average ESG score is 63%, with large enterprises again leading at 76%. This disparity reflects stronger organizational capacity among larger firms, as well as their earlier exposure to requirements for transparency and risk disclosure. According to the ESG Readiness 2022 report, 80% of listed firms have appointed senior leaders responsible for ESG, and 68% have developed internal control systems aligned with ESG risk governance—figures that significantly surpass those for small and medium-sized enterprises.

Overall, Vietnam is gradually building a solid ESG foundation at both the institutional and enterprise levels. However, for ESG to become an integral part of every firm's strategic development, continued efforts are needed to support small and medium enterprises in building access capacity, expanding ESG literacy, and promoting exemplary models to diffuse sustainable values across the broader economy.

#### ***4.3. Discussion on the Role of Digital Transformation in Enhancing ESG Performance***

For Vietnamese enterprises—many of which continue to face challenges related to resource constraints, governance mechanisms, and alignment with global standards—digital transformation acts as a “strategic accelerator” that helps bridge gaps, improve ESG performance, and enhance competitiveness in an increasingly globalized environment.

Digital transformation as a driver of environmental performance: Within the environmental pillar, digital transformation enables companies to establish systems for monitoring, evaluating, and optimizing natural resource usage with greater flexibility and precision. Technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), Big Data, and real-time analytics allow firms not only to track energy consumption, CO<sub>2</sub> emissions, and solid waste, but also to predict environmental changes, enabling proactive adjustments to

production and supply chain operations. The integration of digital technologies into business operations has helped Vietnamese firms gradually mitigate negative environmental impacts. For instance, Nestlé Vietnam's initiatives in using recycled materials, optimizing packaging, and reducing emissions eliminated over 2,500 tons of plastic packaging within just two years (2021–2022). This example demonstrates that digital transformation is not merely a measurement tool but a foundation for restructuring environmental strategy.

Enhancing social performance through connectivity and co-creation: In the social dimension, digital transformation plays a pivotal role in reshaping the relationship between enterprises and their stakeholders, particularly employees and customers. Internal digital platforms enable efficient management of indicators related to employee health, occupational safety, and career development, while also enhancing transparency in workplace conditions and employee benefits. Additionally, CRM systems, social media, and digital customer service platforms facilitate timely engagement with customer expectations and satisfaction levels, thereby enhancing consumer experiences and perceived value. According to the 2024 ESG Report, the average social performance score among Vietnamese enterprises is 68%, with large firms reaching 79%, indicating the critical role of digital technologies not only in supporting operations but also in building systematic and sustainable social policies. Leading firms such as Grab have integrated social values into their products through “green choice” features that promote responsible consumption and contribute to community initiatives like tree planting, emission reductions, and environmental protection.

Strengthening governance through digitization and transparency: The governance pillar of ESG requires data-driven decision-making, risk monitoring, and transparency—areas where digital transformation can provide strong support. Implementing systems such as enterprise resource planning (ERP), automated financial reporting, risk analytics, and digital internal control enhances corporate governance capacity and enables the development of evidence-based governance frameworks. According to the ESG Readiness 2022

survey, 80% of listed firms in Vietnam have appointed ESG leadership, and 68% have developed internal control systems aligned with ESG risk management. These figures highlight the increasingly critical role of digital transformation in shaping modern governance models that are agile, data-driven, and compliant with international disclosure standards such as GRI, SASB, or TCFD.

More importantly, digital transformation impacts not only each ESG pillar individually but also facilitates the restructuring of business models toward flexibility, inclusiveness, and adaptability to external changes. As of late 2024, Vietnam's digital economy accounted for 18.3% of GDP, growing at over 20% annually—three times the pace of traditional GDP growth (Ekaterina Liasko, 2025). This signals a rapidly expanding digital infrastructure, creating favorable conditions for integrating ESG into core business strategies.

Despite notable progress in promoting ESG and digital transformation in Vietnam, significant structural and operational limitations persist across the national business landscape. These challenges hinder the ability of enterprises—particularly small and medium-sized enterprises (SMEs)—to fully integrate ESG principles and leverage digital technologies as transformative tools for sustainable development.

First, there is a pronounced disparity in ESG awareness and implementation across enterprise sizes. While large corporations often exhibit a higher degree of ESG maturity—supported by more advanced governance structures, greater access to capital, and digital infrastructure—micro and small enterprises lag significantly behind. According to the ESG Report 2024, nearly 50% of these smaller businesses have not yet engaged with ESG principles. This imbalance not only risks exacerbating inequality in access to sustainability benefits but also undermines the broader diffusion of ESG norms across the economy. Without targeted interventions, a dual-speed ESG transition could emerge, limiting the potential for systemic transformation.

Second, ESG engagement among many enterprises remains superficial, often confined to ad hoc activities or public relations-oriented CSR efforts. A mere 35% of listed firms in Vietnam have

adopted formal ESG strategies, significantly lower than the global average (Vũ Khê, 2023). This reveals a critical gap in strategic integration, whereby ESG is not yet institutionalized as a core business objective. The lack of binding ESG disclosure requirements and standardized performance benchmarks further disincentivizes deep, long-term commitment. As a result, many enterprises fail to internalize ESG as a value-creating paradigm, treating it instead as a compliance burden or reputational necessity.

Third, inadequate digital infrastructure continues to constrain ESG implementation—particularly in SMEs, which represent the backbone of Vietnam’s economy. The UOB Vietnam (2024) survey reveals that only 40% of firms feel their IT systems are capable of supporting comprehensive digital transformation. This deficiency is compounded by the acute shortage of high-skilled digital professionals, which limits firms’ ability to operationalize ESG data, automate reporting systems, or integrate advanced technologies (e.g., AI, IoT) into ESG-related functions. Consequently, many businesses remain in a reactive posture, unable to adopt forward-looking, data-driven sustainability strategies.

Finally, the policy environment governing ESG and digital transformation remains fragmented and inconsistently applied across sectors and regions. Although Vietnam has made strides in establishing macro-level frameworks, existing ESG regulations are often generalized, lacking the sector-specific granularity needed to address industry-specific risks and opportunities. Moreover, digital transformation programs—while ambitious in scope—have largely targeted large corporations, with insufficient adaptation for SMEs. This top-down, one-size-fits-all approach risks marginalizing smaller firms and limiting their capacity to participate in the national sustainability agenda.

Taken together, these limitations suggest that the transition toward a digitally enabled, ESG-driven economy in Vietnam requires a more cohesive and inclusive ecosystem. This entails not only refining the legal and regulatory architecture to provide clearer ESG mandates and measurement standards, but also designing financial, technical, and capacity-building mechanisms that address the specific constraints of various enterprise

segments. Only through such targeted, multilevel reforms can ESG and digital transformation evolve from isolated corporate initiatives into foundational pillars of national competitiveness and resilience.

## 5. RECOMMENDATIONS

Given the challenges outlined in the current state of ESG and digital transformation in Vietnam, it is imperative to develop a set of coherent and context-specific solutions tailored to the internal conditions of Vietnamese enterprises. The following are feasible and strategic long-term recommendations to promote sustainable development:

Develop an integrated ESG strategy aligned with digital transformation roadmaps: Enterprises should formulate comprehensive ESG strategies that are embedded within long-term development goals and synchronized with digital transformation plans. Rather than implementing ESG initiatives in a fragmented or ad hoc manner, firms should integrate ESG criteria into corporate governance, performance evaluation, and business model innovation. The application of digital technologies in real-time ESG data monitoring will enhance transparency, facilitate data-driven decision-making, and improve reporting capabilities to stakeholders.

Strengthen digital capabilities and promote ESG literacy among SMEs: For small, medium, and micro enterprises—which constitute over 90% of businesses in Vietnam—specific support policies are essential to build digital competency and disseminate ESG knowledge. Regulatory authorities should implement free or subsidized training programs on ESG and digital technologies, while also developing accessible platforms offering practical ESG toolkits and simplified assessment frameworks that are tailored to smaller firms.

Invest in digital infrastructure and foster an ESG-friendly digital transformation ecosystem: The government should increase investment in digital infrastructure, particularly in non-urban areas and industrial manufacturing zones. At the same time, tripartite collaboration among government agencies, enterprises, and technology providers should be promoted to build an ESG-

supportive digital ecosystem. For instance, regional digital transformation support centers could offer industry-specific consulting, shared data services, and technical assistance to help local enterprises implement digital solutions aligned with ESG goals.

Standardize ESG criteria by sector and expand mandatory disclosure requirements: A key bottleneck in ESG implementation is the absence of standardized and accessible ESG guidelines across industries. To address this, the government should prioritize the development of sector-specific ESG standards that reflect the operational characteristics and sustainability risks of each industry. Moreover, the scope of mandatory ESG disclosure should be expanded beyond listed or large-cap firms. Broader reporting requirements will not only create regulatory pressure for positive behavioral change but also facilitate the emergence of a more transparent and accountable market environment.

## 6. CONCLUSION

In the context of globalization and growing pressure for sustainable development, ESG has become a fundamental standard that defines long-term corporate value and competitiveness. For Vietnam—where the business ecosystem is undergoing rapid transformation—digital transformation not only serves as a supporting tool but also represents a strategic foundation for enterprises to effectively, flexibly, and scalably achieve ESG objectives.

Empirical analysis demonstrates that digital transformation has a positive impact across all three pillars of ESG: optimizing environmental performance through data monitoring and analytics technologies; enhancing social responsibility through interactive platforms and stakeholder engagement; and improving governance capabilities through digitized processes and greater transparency. Leading enterprises in Vietnam have showcased the potential for ESG value realization through the integration of technology into core business operations.

Nevertheless, ESG and digital transformation initiatives continue to face numerous barriers—particularly among small and medium-sized

enterprises (SMEs)—including limited awareness, constrained resources, and insufficient institutional support. This highlights the urgent need to develop a comprehensive support ecosystem in which the state plays a role in institutional design, technology providers offer appropriate solutions, and enterprises themselves proactively strengthen their internal capabilities.

In summary, digital transformation is not merely a catalyst for growth but also a key enabler for Vietnamese businesses to deepen their integration into the global sustainability movement through effective ESG implementation. In the next phase, aligning digital transformation with ESG will be a strategic pathway for enterprises to enhance long-term value, reduce non-financial risks, and build stronger reputations in both regional and international markets.

## REFERENCES

- [1]. Freeman, R. E. (2010). *Strategic management: A stakeholder approach*. Cambridge University Press.
- [2]. Wei, P., Xie, T., Wang, Z., & Ma, L. (2022). Digital economy: An innovation driver for total factor productivity. *Journal of Business Research*, 139, 303–311.
- [3]. Wong, W. C., Batten, J. A., Ahmad, A. H., Mohamed-Arshad, S. B., Nordin, S., & Adzis, A. A. (2021). Does ESG certification add firm value? *Finance Research Letters*, 39, 101593.
- [4]. Wu, F., Hu, H., Lin, H., & Ren, X. (2021). Enterprise digital transformation and capital market performance: Empirical evidence from stock liquidity. *Management World*, 37, 130–144.
- [5]. Zhang, M., & Huang, Z. (2024). The impact of digital transformation on ESG performance: The role of supply chain resilience. *Sustainability*, 16, 7621.
- [6]. Zhao, C. (2022). Research on the impact of digital transformation on corporate social responsibility. *Contemporary Economic Science*, 44, 109–116.
- [7]. Liasko, E. (2025). Vietnam's digital transformation 2025: Strategies, AI, and infrastructure growth. GlobalCIO. Retrieved June 1, 2025, from [https://globalcio.com/longread/Digital-Strategies-of-Vietnam/?utm\\_source](https://globalcio.com/longread/Digital-Strategies-of-Vietnam/?utm_source)
- [8]. Aguilera, R. V., Filatotchev, I., Gospel, H., & Jackson, G. (2008). The corporate governance



- of multinationals: A conceptual framework and survey. *Academy of Management Annals*, 2(1), 205–259.
- [9]. Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management Science*, 60(11), 2835–2857. <https://doi.org/10.1287/mnsc.2014.1984>
- [10]. Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2,000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210–233. <https://doi.org/10.1080/20430795.2015.1118917>
- [11]. George, G., Merrill, R. K., & Schillebeeckx, S. J. D. (2022). Digital sustainability and ESG: A review and research agenda. *Journal of Business Research*, 150, 623–635. <https://doi.org/10.1016/j.jbusres.2022.03.103>
- [12]. Global Reporting Initiative. (2020). Global Reporting Initiative annual report. Retrieved June 1, 2025, from <https://www.globalreporting.org/media/q0vl5ima/annual-sustainability-report-2020.pdf>
- [13]. GSMA. (2024). 2024 Mobile Industry Impact Report: Sustainable Development Goals. Retrieved June 1, 2025, from <https://www.gsma.com/solutions-and-impact/connectivity-for-good/external-affairs/2024-mobile-industry-impact-report-sustainable-development-goals/>
- [14]. Huyen My. (2025). Việt Nam có hơn 73.700 doanh nghiệp công nghệ số. *Doanh nghiệp Tiếp thị*. Retrieved June 1, 2025, from <https://doanhnghieptiepthi.vn/viet-nam-co-hon-73700-doanh-nghiep-cong-nghe-so-16125012307351446.htm>
- [15]. Vietnam 2022 From ambition to action. Retrieved June 1 McKinsey & Company. (2020). The next normal arrives: Trends that will define 2021—and beyond. McKinsey Global Institute.
- [16]. Thu Ha. (2023). Digital and green transformation: Driving sustainable business development. VCCI News. [Online]. Available: <https://en.vcci.com.vn/digital-and-green-transformation-driving-sustainable-business-development?>
- [17]. Thảo Nguyên. (2024). Looking ahead: Many Vietnamese businesses publish ESG reports [Online]. Available: <https://www.tinnhanhchungkhoan.vn/nhi-n-xa-trong-rong-nhieu-doanh-nghiep-viet-cong-bo-bao-cao-esg-post343433.html>
- [18]. UOB. (2024). UOB Corporate Outlook 2024 Study Released: Cautious Optimism, Growth Amid Challenges. [Online]. Available: <https://www.uob.com.vn/about/newsroom/uob-vietnam-news/cautious-optimism-growth-amidst-challenges.page>
- [19]. Wei, P., Xie, T., Wang, Z., & Ma, L. (2022). Digital economy: An innovation driver for total factor productivity. *Journal of Business Research*, 139, 303–311. <https://doi.org/10.1016/j.jbusres.2021.08.008>
- [20]. Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading digital: Turning technology into business transformation*. Harvard Business Review Press.
- [21]. Wu, F., Hu, H., Lin, H., & Ren, X. (2021). Enterprise digital transformation and capital market performance: Empirical evidence from stock liquidity. *Management World*, 37, 130–144.
- [22]. Zhang, M., & Huang, Z. (2024). The impact of digital transformation on ESG performance: The role of supply chain resilience. *Sustainability*, 16, 7621. <https://doi.org/10.3390/su16137621>
- [23]. Zhao, C. (2022). Research on the impact of digital transformation on corporate social responsibility. *Contemporary Economic Science*, 44, 109–116.
- [24]. Zhao, X., Lynch, J. G., Jr., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37(2), 197–206. <https://doi.org/10.1086/651257>
- [25]. Mạnh, H. (2024, November 26). 44% of Vietnamese banking and e-wallet applications remain inadequately secure. *VietnamNet*. Retrieved February 1, 2025, from <https://vietnamnet.vn/44-ung-dung-ngan-hang-vi-dien-tu-viet-chua-bao-mat-chat-che-2345792.html>
- [26]. QMS. (2024). ESG and report ESG. [Online]. Available: <https://qms.com.vn/esg-va-bao-cao-esg/>
- [27]. PwC. (2022). Report on ESG Readiness in, 2025. [Online]. Available: <https://www.pwc.com/vn/vn/publications/2022/pwc-vietnam-esg-readiness-2022-vn.pdf>