

AI adoption, green fintech, and digital financial literacy: effects on sustainability disclosure and firm performance

Diyah Pujiati, Soni Agus Irwandi

*Accounting Department, Faculty of Economic and Business, Hayam Wuruk Perbanas University,
Surabaya, Indonesia*

Received: April 20, 2026; Revised: June 21, 2026;
Accepted: June 21, 2026; Published: November 28, 2026

Abstract

This study examines how the use of AI, Green FinTech, and digital financial literacy contribute to sustainability reporting and performance of manufacturing firms in Indonesia. Based on Resource-based, Stakeholder and Legitimacy theories, a complete model is developed and tested with sustainability reporting as a mediator and environmental regulations as a moderator. Data are collected from 233 managers who have been purposefully sampled because of their involvement with financial accounting, fiscal control and ESG activities. The results of a Partial Least Square analysis show that AI adoption, Green FinTech, and digital financial literacy increase reporting on sustainable practices therefore increasing firm performance. The results suggest that the effect of sustainable reporting is not statistically significant, demonstrating that it has been only partially integrated into the reporting process. The results also demonstrate that reporting sustainability practices mediates the relationship between digital capabilities and firm performance, while environmental regulations increase the relationship between sustainability practices and firm performance. The study contributes to existing theory by extending the RBV and Stakeholder perspectives relative to digital transformation and sustainability practices

Keywords: *artificial intelligence, financial accounting, financial literacy, sustainability disclosure, firm performance.*

Introduction

Digital transformation is now a key characteristic of modern business operations, fundamentally changing how companies utilize resources, communicate with stakeholders, and release information. The changes caused by the application of Artificial Intelligence (AI), Green Financial Technology (FinTech) and digital financial literacy have significantly influenced both the advancement of corporate sustainability strategies and their relationship to firm performance. While these changes are visible as a result of new technologies, they are also new strategical changes to how companies utilize transparency, accountability and competitive advantage in ever more complicated global economies.

The importance placed on Environmental, Social, and Governance (ESG) performance has led companies to embrace newer technologies as they strive to meet the expectations of their stakeholders. The introduction of AI into financial accounting and reporting enables companies to gather and report information on ESG performance through automation, increased accuracy and reduced (Gazi et al., 2024; Chen et al., 2024). Similarly, Green FinTech innovation implements sustainability into the financial services environment by facilitating green investment through transparency (Dadabada, 2025; Sang et al., 2024). Furthermore, digital financial literacy allows both managers and stakeholders to

understand and leverage new digital financial technologies to improve the quality of their decision-making (Kurniasari et al., 2025; Nursulistyo & Putri, 2025).

The relationship between digital transformation, firm performance, and other factors is complex. While many researchers believe that ESG (Environmental/Social/Governance) disclosure helps improve the firm's reputation and decrease information asymmetry (Angir & Weli, 2024; Hummel & Jobst, 2024), alternatives have shown conflicting results based on differences in ESG rating approaches (Berg, Kölbel, & Rigobon, 2022). This indicates that the quality and consistency of ESG disclosures are important mediators of how firms realize value from the technology they adopt. Therefore, by examining the mediating role of sustainability disclosures, we better understand the overall relationship between digital, technological capabilities and firm performance.

Artificial Intelligence (AI) has been extensively studied as a critical driver of firm creativity, innovation, and sustainability performance (Mikalef & Gupta, 2021; Li et al., 2022). Regarding disclosures, AI can facilitate the collection and processing of large amounts of ESG data, identifying important issues and providing transparency through accurate reporting (Lin et al., 2024). According to Gazi et al. (2024), AI can also create a culture of knowledge sharing within firms that supports good disclosure practices. Such advantages, however, may not be realized in developing countries due to limitations on AI's effectiveness due to inadequate infrastructure and human capital (Islam et al., 2024).

Green FinTech (Financial Technologies) is the result of the intersection of financial innovation and ecological sustainability. By using digital platforms, companies are now able to facilitate green investments, monitor ESG compliance, and increase transparency for their stakeholders (Dadabada, 2025). Sang et al. (2024) state that companies may be influenced by finitely available resources and governmental regulations regarding their use of FinTech resources. Chen et al. (2024) state that firms can leverage FinTech and AI to enhance their ESG performance. However, according to Li and Zhou (2024), the impact of FinTech on firm performance and disclosure is affected by regulatory frameworks.

As digital financial literacy continues to gain traction as a key skill for navigating today's difficult economic environment, Kurniasari et al. (2025) find that financial literacy positively impacts the sustainability and performance of SMEs. Nursulistyo and Putri (2025) show how digital transparency resulting from financial literacy can lead to increased voluntary disclosures and enhance firm performance. According to Puspitasari and Firmansyah (2025), financial literacy will also be helpful in the promotion of green banking practices and disclosures.

Sustainability disclosures also help bridge digital capabilities to firm outcomes by reducing information asymmetries and increasing stakeholder trust both of which contribute to firm value (Angir & Weli, 2024). In highlighting the importance of regulatory frameworks to the effective practice of sustainability disclosure, Hummel and Jobst (2024) demonstrate how sustainability disclosure can reduce financial distress and increase firm performance, depending upon the stage of the firm's life cycle. Berg et al. (2022) note that potential inconsistencies in ESG ratings would undermine the effectiveness of sustainability disclosure.

While prior research has examined the independent effects of AI (Chen et al., 2024; Gazi et al., 2024), FinTech (Dadabada, 2025; Tran & Le, 2024), and financial literacy (Kurniasari et al., 2025) on organizational outcomes, the literature lacks an integrated framework that

positions sustainability disclosure as the mediating mechanism connecting these three digital capabilities to firm performance. Specifically, existing studies treat disclosure primarily as an outcome variable rather than as a transmission channel through which technological innovations generate firm-level benefits.

This study integrates three complementary theoretical perspectives to explain how digital capabilities influence firm performance through sustainability disclosure. The Resource-Based View (Barney, 1991; Wernerfelt, 1984) establishes AI adoption, Green FinTech, and digital financial literacy as valuable, rare, inimitable, and non-substitutable resources that enhance organizational capabilities. Stakeholder Theory (Freeman, 1984) explains why firms leverage these capabilities for sustainability disclosure specifically, to meet stakeholder expectations for transparency and accountability. Legitimacy Theory (Dowling & Pfeffer, 1975) clarifies how disclosure translates into firm performance by demonstrating alignment with societal norms and regulatory requirements. Thus, the three theories operate in sequence: RBV explains capability development, Stakeholder Theory explains disclosure motivation, and Legitimacy Theory explains performance outcomes.

The Resource-Based View (RBV) was first proposed by Wernerfelt (1984) and later refined by Barney (1991) as a way to explain how organizations can gain a sustainable competitive advantage. To do so, firms must successfully utilize resources that are valuable, rare, inimitable, and non-substitutable to create innovative products or services. In this context, the adoption of Artificial Intelligence, the incorporation of Green FinTech, and having digital financial literacy are examples of strategic resources that meet those definitions. According to Mikalef and Gupta (2021), an organization's AI capability can increase its creativity within an organization and have a positive impact on the company's sustainability performance. In addition, Chen, Esperança, and Wang (2022) demonstrated how the use of AI can also improve overall firm performance through the Resource-Based View. RBV thus serves as a theoretical framework for understanding how digital capabilities are drivers for sustainability disclosure, which subsequently enhances overall firm performance.

Freeman (1984) proposed the Stakeholder Theory, which states that organizations should create value not only for their shareholders but also for all stakeholders, including employees, customers, regulators, the environment, etc. Fulfillment of stakeholder expectations requires transparency and accountability through the sustainability disclosures that companies make. Friede, Busch, & Bassen (2015) present combined evidence that Environmental, Social, Governance (ESG) practices positively affect financial performance, further demonstrating the need for disclosure. Angir and Weli (2024) indicate that disclosures of ESG improve the relationship between firms and their stakeholders by lowering asymmetries in the firm-stakeholder relationship, thereby creating value for the firm. In the context of the research model, AI adoption, Green FinTech, and Digital Financial Literacy are all identified as enablers.

Legitimacy Theory, rooted in the work of Dowling and Pfeffer (1975), suggests that organizations seek to operate within the bounds of societal norms and values to maintain legitimacy. Sustainability disclosure serves as a strategic tool for demonstrating alignment with societal expectations and regulatory requirements. Hummel & Jobst (2024) highlight that sustainability reporting legislation in the European Union strengthens corporate legitimacy by enforcing disclosure standards. Suprabha, Sreepriya, & Prasad (2024) show

that ESG disclosure mitigates financial distress and enhances firm legitimacy in the eyes of stakeholders. In this research model, AI adoption, Green FinTech adoption, and digital financial literacy contribute to legitimacy by enabling transparent and credible disclosure, which mediates their impact on firm performance.

Artificial Intelligence (AI) adoption refers to the organizational capability to integrate and utilize AI technologies in financial accounting, reporting, and sustainability practices. AI enables automation of ESG data collection, enhances analytical accuracy, and supports transparent disclosure processes. Mikalef and Gupta (2021) conceptualize AI capability as a strategic resource that fosters organizational creativity and performance, while Gazi et al. (2024) highlight its role in driving sustainable performance through innovation and knowledge-sharing culture. Lin et al. (2024) further emphasize that AI adoption strengthens environmental performance by embedding green innovation and culture into organizational processes. Thus, AI adoption in this study is defined as the firm's ability to leverage AI technologies to improve sustainability disclosure and indirectly enhance firm performance.

Green FinTech adoption is the integration of financial technology innovations with sustainability principles to promote environmentally responsible financial practices. It encompasses digital platforms and tools that facilitate green investments, ESG compliance, and transparent reporting. Dadabada (2025) demonstrates that ESG integration through FinTech innovations enhances green finance and disclosure, while Sang et al. (2024) argue that regulatory intensity and resource dependence shape the effectiveness of FinTech in promoting sustainability. Chen et al. (2024) also show that FinTech, combined with AI, can empower firms to improve ESG performance. Within this research, Green FinTech adoption is defined as the firm's strategic use of digital financial technologies to support sustainability disclosure and strengthen firm performance.

Digital financial literacy is the ability of individuals and organizations to understand, evaluate, and effectively use digital financial tools and technologies. It involves knowledge, skills, and confidence in managing financial decisions within digital environments. Kurniasari, Abd Hamid, & Lestari (2025) highlight that financial literacy enhances SMEs' sustainability and performance, while Nursulistyo and Putri (2025) show that digital transparency, driven by literacy, promotes voluntary disclosure and firm performance. Puspitasari and Firmansyah (2025) further argue that literacy supports green banking practices and disclosure. In addition, Deepa, Sekar, Malik, Kumar, & Attri (2024) emphasize that AI-focused technologies also shape the social and technical competencies of managers, reinforcing the importance of digital literacy in organizational contexts. In this study, digital financial literacy is defined as the organizational and managerial capability to utilize digital financial tools for informed decision-making, which fosters sustainability disclosure and contributes to firm performance.

Sustainability disclosure refers to the practice of communicating a firm's environmental, social, and governance (ESG) performance to stakeholders through formal reporting mechanisms. It is a strategic tool for transparency, accountability, and legitimacy. Angir and Weli (2024) demonstrate that ESG disclosure reduces information asymmetry and enhances firm value, while Hummel and Jobst (2024) emphasize the role of regulatory frameworks in strengthening disclosure practices. Suprabha, Sreepriya, & Prasad (2024) show that disclosure mitigates financial distress and improves firm outcomes depending on

the firm's life cycle. Berg, Kölbel, & Rigobon (2022) caution that inconsistencies in ESG ratings can undermine disclosure effectiveness. Liu, Wang, & Song (2025) further highlight that AI applications can both promote and inhibit environmental performance, suggesting that disclosure quality is critical in ensuring positive outcomes. In this research, sustainability disclosure is defined as the mediating mechanism through which digital capabilities influence firm performance.

Firm performance represents the market-based assessment of a company's worth, reflecting its financial performance, reputation, and sustainability practices. It is influenced by both tangible outcomes, such as profitability, and intangible factors, such as stakeholder trust and disclosure quality. Bartolacci, Caputo, & Soverchia (2020) highlight that sustainability practices enhance SME performance and firm performance, while Bashir (2022) shows that corporate social responsibility and reputation positively affect financial outcomes. Boulhaga et al. (2023) add that ESG ratings and internal control quality significantly shape firm performance. Gupta, Garg, Jain, Saini, Roy, & Sati (2024) provide evidence that AI applications in banking significantly improve financial performance, reinforcing the link between technological adoption and firm performance. Taneja, Kumar, Balusamy, Sood, & Grima (2024) also show that ESG scores have a measurable impact on firm performance, underscoring the importance of disclosure quality. In this study, firm performance is defined as the overall market and stakeholder perception of a company's worth, which is enhanced through sustainability disclosure driven by AI adoption, Green

Artificial Intelligence (AI) adoption enhances firms' ability to collect, process, and report sustainability-related data with greater accuracy and efficiency. Mikalef and Gupta (2021) conceptualize AI capability as a strategic resource that fosters organizational creativity and performance, while Gazi et al. (2024) emphasize its role in driving sustainable performance through innovation and knowledge-sharing culture. Chen, Wang, Lin, Liu, & Hu (2024) show that AI technology significantly improves corporate ESG performance, reinforcing its potential to strengthen disclosure. Similarly, Almheiri et al. (2024) highlight that AI capabilities contribute to organizational creativity and performance in government contexts, which can be extended to corporate disclosure practices. Abdellatif, Saleh, & Hamed (2023) further demonstrate that AI techniques can predict corporate financial performance, strengthening the case for AI adoption in accounting and disclosure. Therefore, AI adoption is expected to positively influence sustainability disclosure.

Green FinTech adoption integrates financial technology innovations with sustainability principles, enabling firms to promote environmentally responsible financial practices. Green FinTech influences sustainability disclosure through three primary mechanisms in manufacturing firms: (1) digital platforms enable real-time tracking and reporting of environmental metrics such as carbon emissions and energy consumption; (2) blockchain-based systems ensure traceability and verification of ESG compliance across supply chains; and (3) green investment tools facilitate the allocation of capital toward sustainable projects, which requires transparent reporting to investors (Dadabada, 2025; Tran & Le, 2024)

Digital financial literacy empowers managers and stakeholders to understand and utilize digital financial tools, thereby fostering informed decision-making and voluntary disclosure practices. Kurniasari, Abd Hamid, & Lestari (2025) show that financial literacy enhances SMEs' sustainability and performance. Nursulistyo and Putri (2025) emphasize that digital

transparency, driven by literacy, promotes voluntary disclosure and firm performance. Puspitasari and Firmansyah (2025) argue that literacy supports green banking practices and disclosure. Moreover, Novitasari and Tarigan (2022) demonstrate that green innovation mediates the effect of CSR on firm performance, suggesting that literacy-driven disclosure can strengthen sustainability outcomes. Therefore, digital financial literacy is expected to positively influence sustainability disclosure.

Sustainability disclosure reduces information asymmetry, enhances stakeholder trust, and improves firm reputation, thereby increasing firm performance. Angir and Weli (2024) show that ESG disclosure positively impacts firm value in Indonesian companies. Hummel and Jobst (2024) highlight that EU legislation strengthens disclosure practices, reinforcing their impact on firm outcomes. Suprabha, Sreepriya, & Prasad (2024) demonstrate that ESG disclosure mitigates financial distress and enhances firm value depending on the firm's life cycle. Bartolacci, Caputo, & Soverchia (2020) provide evidence that sustainability practices improve SME performance and firm value. Bashir (2022) also shows that CSR and corporate reputation positively affect financial outcomes. Xu, Wang, Li, et al. (2024) further emphasize that environmental regulatory intensity and green finance significantly improve corporate sustainable development performance, reinforcing the importance of disclosure. Thus, sustainability disclosure is expected to positively influence firm performance.

AI adoption indirectly enhances firm performance through its impact on sustainability disclosure. Chen, D., Esperança, & Wang (2022) show that AI strengthens firm performance via resource-based mechanisms. Gazi et al. (2024) emphasize that AI fosters innovation and disclosure, which in turn improves sustainability outcomes. Suprabha et al. (2024) highlight that disclosure mitigates financial distress, thereby increasing firm performance. Shiyyab et al. (2023) provide evidence that AI disclosure positively influences financial performance. Matta, Rizk, Alharthi, & Azouri (2025) also demonstrate that AI combined with green finance promotes sustainable consumption behavior, which strengthens the mediating role of disclosure. Thus, sustainability disclosure mediates the relationship between AI adoption and firm performance.

Green FinTech adoption indirectly enhances firm performance through sustainability disclosure. Dadabada (2025) shows that FinTech innovations integrating ESG principles strengthen disclosure. Sang et al. (2024) emphasize that regulatory intensity shapes FinTech's impact on disclosure. Tran and Le (2024) demonstrate that FinTech adoption positively influences ESG disclosure. Boulhaga et al. (2023) highlight that ESG ratings and internal control quality moderate firm performance, reinforcing the importance of disclosure. In the era of digital transformation, sustainable finance is anticipated to contribute not only to wider financial accessibility but also to improved ESG transparency and accountability, thereby enhancing the consistency between firms' ESG disclosures and their actual sustainability performance (Li & Shi, 2026). Kashif, Pinglu, Ullah, & Zaman (2024) add that FinTech adoption globally enhances sustainable finance, underscoring its potential to strengthen disclosure outcomes. Thus, sustainability disclosure mediates the relationship between Green FinTech adoption and firm performance.

Digital financial literacy indirectly enhances firm performance through sustainability disclosure. Kurniasari et al. (2025) show that literacy improves sustainability and performance. Nursulistyo and Putri (2025) emphasize that transparency driven by literacy promotes disclosure and firm value. Puspitasari and Firmansyah (2025) argue that literacy

supports green banking disclosure. Suprabha et al. (2024) highlight that disclosure mitigates financial distress, thereby increasing firm value. Xie and Wu (2025) provide evidence that AI and ESG performance in Chinese firms are strengthened by disclosure, reinforcing the mediating role. Wernerfelt (1984) also reminds us through the Resource-Based View that disclosure itself can be seen as a valuable, rare, and inimitable strategic resource, mediating the link between digital capabilities and firm performance. Thus, sustainability disclosure mediates the relationship between digital financial literacy and firm performance.

This research will address this gap by creating a comprehensive model that situates sustainability disclosures as the center of digital transformation and firm valuation. This research contributes to theory and practice by providing an extension of RBV and Stakeholder Theory, with a focus on the strategic importance of disclosure as an organizational resource and an accountability mechanism; and by creating knowledge for management and public policy on the ability of digital capabilities to improve firm performance through disclosures. The central purpose of this research is to investigate the relationship between AI adoption and Green Fintech adoption in addition to the mediating effect of Digital Financial Literacy on the relationship between AI and Green Fintech adoption and the relationship between AI and Green Fintech adoption, firm performance through sustainability disclosures.

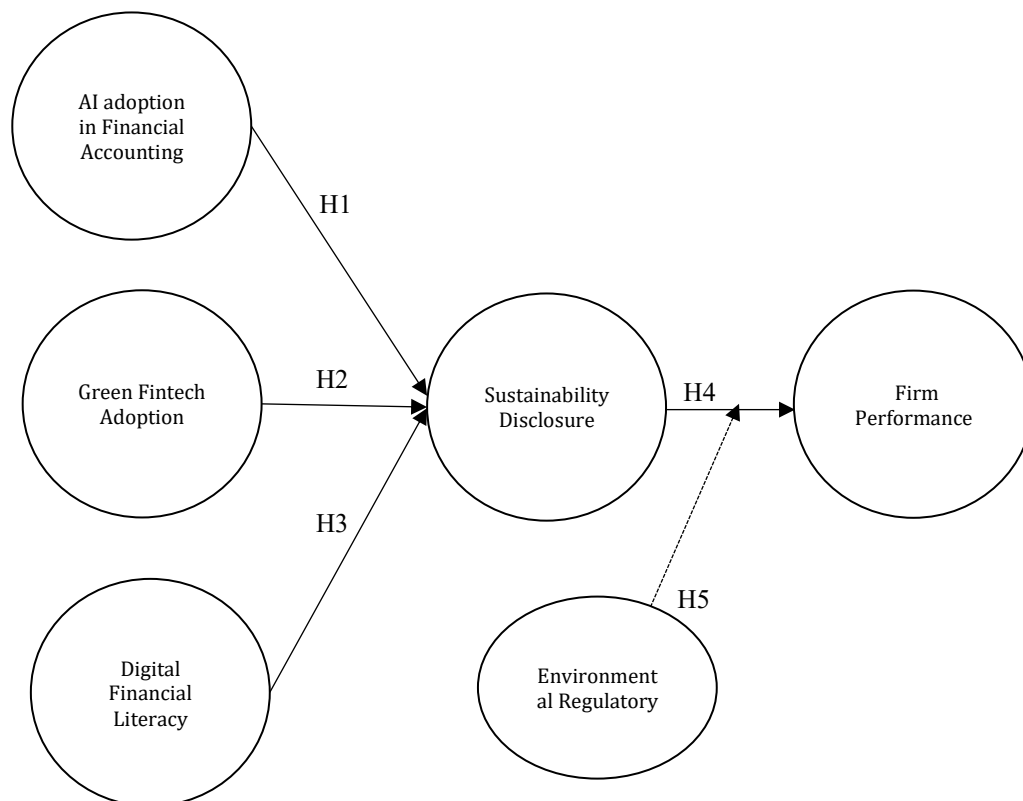


Figure 1. Research Model

The hypotheses of the research are follow:

H1: AI adoption in financial accounting positively influences sustainability disclosure

H2: Green FinTech adoption positively influences sustainability disclosure

H3: Digital financial literacy positively influences sustainability disclosure

H4a: Sustainability disclosure mediates the relationship between AI adoption in financial accounting and firm performance

H4b: Sustainability disclosure mediates the relationship between Green FinTech adoption and firm performance.

H4c: Sustainability disclosure mediates the relationship between Digital Financial Literacy and firm performance.

H5: Environmental regulatory moderates the relationship between sustainability disclosure and firm performance.

Methods

This study employed a cross-sectional, explanatory research design using a survey method. The causal-predictive nature of the study, aimed at testing directional hypotheses among latent constructs, justifies the use of Partial Least Squares Structural Equation Modeling (PLS-SEM) as the analytical technique (Hair et al., 2014). This study focuses on manufacturing companies operating in Indonesia, a prominent emerging economy in Southeast Asia. Indonesia was selected for three reasons: (1) it represents the largest manufacturing sector in the ASEAN region, contributing approximately 20% to national GDP; (2) the Indonesian government has implemented mandatory sustainability reporting regulations through OJK Regulation No. 51/POJK.03/2017; and (3) digital transformation initiatives, including AI and FinTech adoption. The target respondents were managers were specifically chosen because they are directly involved in financial accounting and management processes, actively engaged in sustainability and ESG (Environmental, Social, and Governance) activities, and possess knowledge of the role of AI in supporting financial accounting functions. Besides that, digital financial literacy in this study is operationalized at the organizational level, measured through managerial perceptions of the firm's collective capability to understand, evaluate, and effectively utilize digital financial tools. This approach aligns with prior research treating organizational literacy as the aggregated competency of decision-makers within the firm (Kurniasari et al., 2025).

The respondent profile (Table 1) provides strong support for the methodological rigor of this study. Purposive sampling was employed with the following criteria: (1) respondents must hold managerial or supervisory positions in financial accounting, budgeting, or sustainability functions; (2) respondents must have at least three years of experience in their current role; and (3) respondents must be actively involved in ESG-related activities within their firms. The respondent list was obtained from the Indonesia Stock Exchange company directory and professional networks. Questionnaires were distributed electronically via Google Forms and email between January and March 2026. Three screening questions verified respondent eligibility before proceeding to the main survey.

The demographic distribution—balanced across gender, age ranges, educational levels, years of service, and position levels—reflects a diverse yet experienced managerial cohort, with the majority of respondents possessing between six and ten years of professional

experience. Data collection occurred over three months (January–March 2024). The high response rate of 93.2% (233 valid responses from 250 distributed questionnaires) was achieved through: (1) personalized invitation emails to potential respondents; (2) two follow-up reminders sent at two-week intervals; and (3) coordination with professional accounting associations. Non-response bias was assessed by comparing early and late respondents on key demographic variables using independent samples t-tests, revealing no significant differences ($p > 0.05$).

Table 1. Respondent Profile

Respondent Profile	Summarized Information
Gender	Male: 61% Female: 39%
Age Range	25–35 years: 28% 36–45 years: 47% >45 years: 25%
Educational Level	Bachelor’s degree: 79% ; Postgraduate (Master/Doctoral): 21%
Years of Service	3–5 years: 34% 6–10 years: 41% >10 years: 25%
Position Level	Managerial: 52% Supervisory: 48%
Work Function	Budget & Finance: 38% Policy & Planning: 33% Administration & Oversight: 29%
Involvement in Fiscal Activities	Direct involvement in budget preparation: 100% Fiscal management oversight: 72% Policy implementation: 65%
Engagement in ESG/Sustainability	All respondents actively engaged in sustainability and ESG-related activities within their firms.
Knowledge of AI in Accounting	Confirmed across respondents; managers reported awareness of AI’s role in supporting financial accounting functions.

The sample size of 233 valid responses, representing a 93.2% response rate from 250 distributed questionnaires, is considered adequate for Partial Least Squares Structural Equation Modeling (PLS-SEM). According to Hair et al, (2014), the “10-times rule” provides a minimum guideline, requiring a sample size at least ten times the maximum number of structural paths pointing at a construct. With the complexity of the current model, the achieved sample size clearly exceeds this threshold. More advanced estimation methods, such as the inverse square root and gamma-exponential approaches proposed by Kock and Hadaya (2018), also confirm that the required sample size for models with moderate effect sizes is well below the 233 responses obtained. Data were collected using a structured questionnaire consisting of items measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Each construct was operationalized based on established indicators from prior literature, ensuring content validity (Table 2).

Table 2. Operational Definition of Variables

Variable	Operational Definition	Indicators
AI Adoption in Financial Accounting (X1)	The level of adoption of AI technology in accounting and financial reporting processes	Automation of accounting records. Integration of AI into ERP finance systems. Management's perception of AI benefits.
Green FinTech Adoption (X2)	Utilization of financial technology based on sustainability	Use of fintech applications for sustainable investment. Environmentally friendly digital payment systems. Integration of fintech into ESG reporting.
Digital Financial Literacy (X3)	The level of knowledge and skills in using digital financial technology	Knowledge of digital financial applications. Ability to use digital financial applications. Awareness of digital risk & security.
Sustainability Disclosure (Mediator, M)	Disclosure of sustainability (ESG) information in annual/sustainability reports	Environmental aspects (emissions, energy, waste). Social aspects (human resources, community, workers' rights). Governance aspects (structure, transparency, anti-corruption).
Environmental Regulatory (Moderator, Z)	Regulatory support and governance quality in emerging markets	Strength of ESG regulations Government support for accounting digitalization. Quality of institutional governance
Firm Performance (Y)	Company financial performance reflected in the profit obtained	Financial aspects.

Result and Discussion

The results of the validity and reliability testing (Table 3) confirm that all constructs in the study demonstrate acceptable measurement quality. Indicator loadings across variables consistently exceed the recommended threshold of 0.70, establishing strong convergent validity. The Average Variance Extracted (AVE) values for each construct range from 0.510 to 0.599, all above the minimum criterion of 0.50, which further supports the adequacy of convergent validity. In addition, the Cronbach's Alpha values, ranging between 0.766 and 0.840, indicate satisfactory internal consistency, while the Composite Reliability values, ranging from 0.837 to 0.883, confirm that each construct is reliable and stable for further analysis.

These findings demonstrate that the measurement model is both valid and reliable. Constructs such as Artificial Intelligence Adoption in Financial Accounting (X1), Green FinTech (X2), Digital Financial Literacy (X3), Sustainability Disclosure (M), Environmental Regulatory (Z), and Firm Performance (Y) all meet the established thresholds for psychometric soundness. This provides a solid foundation for subsequent hypothesis testing and structural equation modeling, ensuring that the relationships among variables

can be interpreted with confidence and that the study's conclusions rest on robust measurement properties.

Table 3. Validity and Reliability Test

Variable	Indicator	Loading Factor	AVE	Cronbach Alpha	Composite Reliability
AI Adoption in Financial Accounting (X1)	X1.1	0.754	0.548	0.766	0.837
	X1.2	0.750			
	X1.3	0.863			
	X1.4	0.744			
	X1.5	0.762			
	X1.6	0.798			
	X1.7	0.787			
Green FinTech Adoption (X2)	X2.1	0.700	0.510	0.832	0.876
	X2.2	0.838			
	X2.3	0.812			
	X2.4	0.858			
	X2.5	0.709			
	X2.6	0.778			
	X2.7	0.736			
Digital Financial Literacy (X3)	X3.1	0.798	0.599	0.829	0.873
	X3.2	0.773			
	X3.3	0.772			
	X3.4	0.801			
	X3.5	0.795			
	X3.6	0.710			
	X3.7	0.767			
Sustainability Disclosure (M)	M.1	0.745	0.576	0.801	0.858
	M.2	0.848			
	M.3	0.870			
	M.4	0.767			
	M.5	0.725			
	M.6	0.749			
	M.7	0.799			
Environmental Regulatory (Z)	Z.1	0.765	0.557	0.788	0.848
	Z.2	0.703			
	Z.3	0.806			
	Z.4	0.801			
	Z.5	0.747			
	Z.6	0.744			
	Z.7	0.746			
Firm Performance (Y)	Y.1	0.802	0.532	0.840	0.883
	Y.2	0.898			
	Y.3	0.857			
	Y.4	0.811			
	Y.5	0.778			
	Y.6	0.748			
	Y.7	0.782			

Table 4. Discriminant Validity (Fornell–Larcker Criterion)

Variable	(X1)	(X2)	(X3)	(M)	Z	Y	Z*M
X1	(0.669)						
X2	0.612	(0.714)					
X3	0.593	0.625	(0.706)				
M	0.476	0.473	0.580	(0.690)			
Z	0.569	0.521	0.678	0.690	(0.676)		
Y	0.472	0.464	0.631	0.669	0.596	(0.729)	
(Z*M)	-0.237	-0.174	-0.299	-0.485	-0.365	-0.280	(1.000)

The results of the discriminant validity test using the Fornell–Larcker criterion (Table 4) indicate that each construct demonstrates adequate distinctiveness from the others, as the square root of the Average Variance Extracted (AVE), shown on the diagonal, is greater than the correlations with other constructs. For example, Artificial Intelligence Adoption (X1) has a square root AVE of 0.669, which exceeds its correlations with X2 (0.612), X3 (0.593), M (0.476), Z (0.569), and Y (0.472). Similarly, Green FinTech (X2), Digital Financial Literacy (X3), Sustainability Disclosure (M), Environmental Regulatory (Z), and Firm Performance (Y) all meet the criterion, confirming discriminant validity. The interaction term (Z*M) shows a perfect reliability value (1.000) and negative correlations with other constructs, which is expected in moderation analysis and does not compromise the validity of the measurement model. Overall, these findings affirm that the constructs are empirically distinct, thereby supporting the robustness of the measurement model for subsequent structural analysis.

Table 5. Model Fit Indices

Fit Index	Value	Threshold / Criteria	Interpretation
Average Path Coefficient (APC)	0.294, $p < 0.001$	$p < 0.05$	Significant overall path relationships
Average R-squared (ARS)	0.391, $p < 0.001$	$p < 0.05$	Substantial explanatory power
Average Adjusted R-squared (AARS)	0.384, $p < 0.001$	$p < 0.05$	Adjusted explanatory power confirmed
Average Block VIF (AVIF)	1.632	≤ 5.0 (ideal ≤ 3.3)	No multicollinearity problem
Average Full Collinearity VIF (AFVIF)	2.306	≤ 5.0 (ideal ≤ 3.3)	No vertical or lateral collinearity
Tenenhaus GoF (Goodness of Fit)	0.468	≥ 0.36 (large)	Large overall model fit
Sympson's Paradox Ratio (SPR)	0.800	≥ 0.70	No paradoxical suppression
R-squared Contribution Ratio (RSCR)	0.948	≥ 0.90	Adequate contribution of R^2
Statistical Suppression Ratio (SSR)	1.00	≥ 0.70	No suppression effect
Nonlinear Bivariate Causality Direction Ratio (NLBCDR)	0.800	≥ 0.70	Acceptable causal directionality

The model fit indices presented in Table 5 collectively demonstrate that the structural model achieves strong validity and reliability, meeting or exceeding all recommended thresholds. The significant Average Path Coefficient (APC = 0.294, $p < 0.001$) confirms that the hypothesized relationships are statistically meaningful, while the Average R-squared (ARS = 0.391, $p < 0.001$) and Average Adjusted R-squared (AARS = 0.384, $p < 0.001$) indicate substantial explanatory power of the model. Multicollinearity is not a concern, as shown by the low AVIF (1.632) and AFVIF (2.306), both well below the critical threshold. The Tenenhaus Goodness of Fit (GoF = 0.468) exceeds the criterion for a large model fit, further validating the robustness of the model. Additionally, indices such as the Sympson's Paradox Ratio (SPR = 0.800), R-squared Contribution Ratio (RSCR = 0.948), Statistical Suppression Ratio (SSR = 1.00), and Nonlinear Bivariate Causality Direction Ratio (NLBCDR = 0.800) all surpass their respective thresholds, confirming the absence of paradoxical or suppression effects and supporting acceptable causal directionality. These results affirm that the model is well-specified, statistically sound, and suitable for hypothesis testing and interpretation.

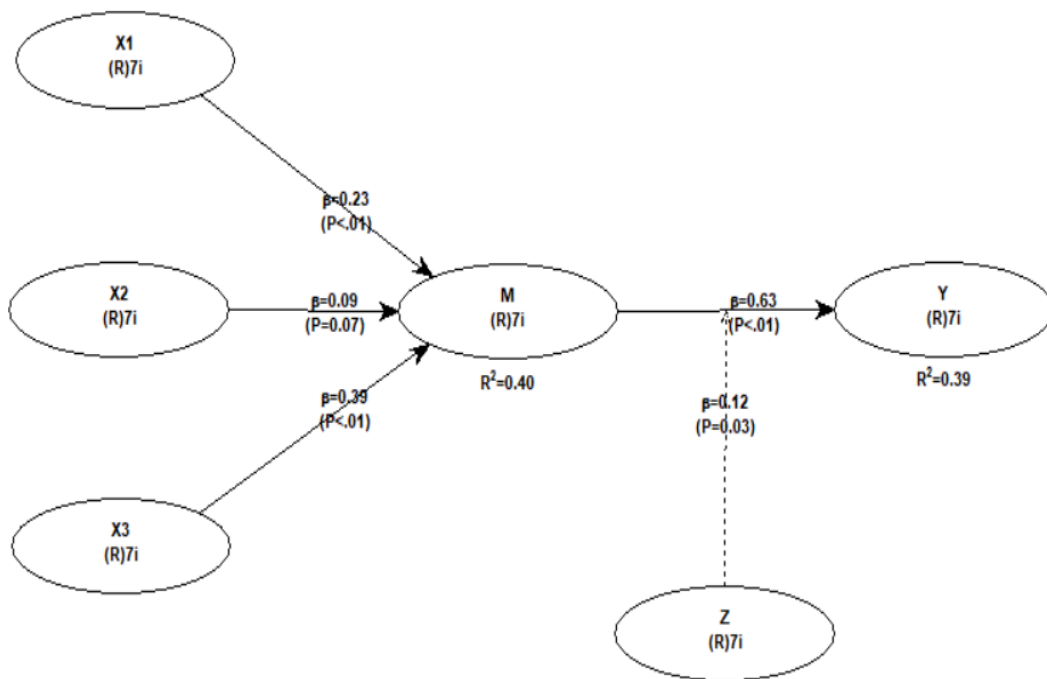


Figure 2. Outer Model Result

Table 6. Hypothesis Testing Results Direct Path

Hypothesis	Path	Path Coefficient (β)	p-value	Result
H1	X1->M	0.231	P<0.001	Supported
H2	X2-> M	0.094	P=0.007	Supported
H3	X3-> M	0.394	P<0.001	Supported
H4a	X1->M->Y	0.146	P<0.001	Supported
H4b	X2-> M->Y	0.059	P=0.098	Rejected
H4c	X3-> M->Y	0.249	P<0.001	Supported
H5	Z*M->Y	0.118	P=0.003	Supported

The hypothesis testing results in Table 6 demonstrate that Artificial Intelligence Adoption in Financial Accounting ($\beta = 0.231, p < .001$) and Digital Financial Literacy ($\beta = 0.394, p < .001$) exert significant positive effects on Sustainability Disclosure, thereby supporting H1 and H3. In contrast, the effect of Green FinTech on Sustainability Disclosure was not significant ($\beta = 0.094, p = .007$), leading to the supported of H2. These findings suggest that while digital and AI-driven innovations are effective in enhancing sustainability practices, the role of Green FinTech in directly influencing disclosure remains limited within the current model.

The mediation analysis further confirms that Sustainability Disclosure serves as a key mechanism linking technological and financial innovations to Firm Performance. Specifically, the indirect effects of Artificial Intelligence Adoption ($\beta = 0.146, p < .001$) and Digital Financial Innovation ($\beta = 0.249, p < .001$) on Firm Performance through Sustainability Disclosure were significant, supporting H4a and H4c. Conversely, the indirect effect of Green FinTech was not significant ($\beta = 0.059, p = .098$), resulting in the rejection of H4b. Finally, the moderating role of Environmental Regulatory was supported ($\beta = 0.118, p = .003$), indicating that regulatory environments strengthen the relationship between Sustainability Disclosure and Firm Performance. Collectively, these results highlight the importance of AI adoption and digital financial innovation in driving sustainability practices, which in turn enhance firm outcomes, while regulatory pressures further condition the strength of these effects.

The findings of this study provide important insights into the role of technological and financial innovations in shaping sustainability disclosure and firm performance, while also highlighting the moderating influence of environmental regulatory. The results confirm that AI Adoption in Financial Accounting, Green FinTech, and Digital Financial Innovation significantly enhance sustainability disclosure practices. Furthermore, sustainability disclosure mediates the relationship between technological adoption and firm performance, underscoring its role as a critical mechanism through which innovations translate into organizational outcomes. Finally, environmental regulatory strengthen the relationship between sustainability disclosure and firm performance, demonstrating the importance of institutional contexts in conditioning the effectiveness of disclosure practices (Dowling & Pfeffer, 1975; Freeman, 1984).

The significant effect of Artificial Intelligence Adoption on sustainability disclosure aligns with prior studies emphasizing the transformative role of AI in enhancing transparency, accuracy, and efficiency in accounting and reporting processes. Artificial intelligence enables firms to automate data collection, improve error detection, and generate real-time insights, thereby facilitating more comprehensive and reliable sustainability reporting (Chen, Esperança, & Wang, 2022; Shiyyab, Alzoubi, Obidat, & Alshurafat, 2023). This finding supports the argument that AI adoption is not merely a technological upgrade but a strategic enabler of accountability and stakeholder trust. In line with the resource-based view (Barney, 1991; Wernerfelt, 1984), AI adoption enhances organizational capabilities, allowing firms to leverage technological resources to meet external demands for sustainability information. Recent evidence also suggests that AI capability fosters organizational creativity and green innovation, which further strengthens sustainability disclosure practices (Li, Yan, Yang, & Gu, 2022; Gazi et al., 2024). The positive relationship observed here suggests that firms investing in AI-driven accounting systems

are better positioned to disclose sustainability practices in ways that meet global reporting standards (Chen, Chu, & Zhao, 2024; Tao, 2024).

Green FinTech adoption is expected to positively influence sustainability disclosure because digital technologies enhance the collection, verification, monitoring, and dissemination of ESG-related information, thereby improving transparency, accountability, and reporting quality. Recent studies suggest that advanced FinTech adoption enhances ESG disclosure through improved operational efficiency and transparency mechanisms. According to stakeholder theory, firms must respond to the information needs of various stakeholders, including investors, regulators, customers, employees, and society. ESG disclosure serves as a mechanism through which organizations demonstrate accountability to these stakeholders. Green FinTech technologies facilitate the generation of real-time sustainability data, improve information accessibility, and strengthen stakeholder engagement. Consequently, firms adopting Green FinTech are better equipped to disclose comprehensive and reliable sustainability information. The results of this study support the research of Dadabada (2025) dan Tran & Le (2024).

Similarly, the significant effect of Digital Financial Innovation on sustainability disclosure highlights the role of digitalization in reshaping financial ecosystems. Digital financial tools, such as blockchain-based reporting platforms, mobile financial applications, and digital auditing systems, provide firms with new avenues to collect, verify, and disseminate sustainability-related information (Hao, Peng, & He, 2024). These innovations reduce transaction costs, improve traceability, and enhance stakeholder engagement, thereby contributing to more robust disclosure practices. The findings resonate with institutional theory, which posits that firms adopt innovations to align with evolving norms and expectations within their institutional environments (Dowling & Pfeffer, 1975). By embracing digital financial innovations, firms demonstrate responsiveness to stakeholder demands for transparency and accountability, thereby reinforcing their legitimacy (Nursulistyo & Putri, 2025). The study provides new evidence on how digital finance can narrow the gap between ESG disclosure and ESG practices, while also enhancing the consistency between corporate ESG disclosures and firms' actual performance (Li & Shi, 2026).

The mediation analysis underscores the pivotal role of sustainability disclosure in linking technological and financial innovations to firm performance. The significant indirect effects of Artificial Intelligence Adoption and Digital Financial Innovation on firm performance through sustainability disclosure confirm that disclosure serves as a conduit through which innovations generate tangible organizational outcomes. This finding aligns with stakeholder theory, which emphasizes that transparent disclosure enhances stakeholder trust, reduces information asymmetry, and strengthens firm reputation, all of which contribute to improved performance (Freeman, 1984; Friede, Busch, & Bassen, 2015). By adopting AI and digital financial tools, firms not only enhance their internal processes but also signal their commitment to sustainability, thereby attracting investor confidence, customer loyalty, and regulatory goodwill (Chen et al., 2024; Hussain, Yang, Maqsood, & Zahid, 2024). Prior studies confirm that sustainability disclosure improves firm value and mitigates financial distress, reinforcing its mediating role in organizational outcomes (Angir & Weli, 2024; Suprabha, Sreepriya, & Prasad, 2024).

The non-significant mediation effect of Green FinTech reinforces the earlier observation

that its role in disclosure practices is limited. Without robust integration into reporting frameworks, Green FinTech initiatives may fail to translate into improved firm performance. This finding suggests that firms should not rely solely on green financial technologies as a pathway to performance gains but should instead focus on embedding these initiatives within broader disclosure and accountability mechanisms (Kishor, Bansal, & Kumar, 2024). The result also highlights the importance of aligning Green FinTech with standardized sustainability reporting practices to ensure that its potential benefits are realized (Puspitasari & Firmansyah, 2025).

The significant moderating effect of environmental regulatory demonstrates that institutional contexts play a critical role in shaping the effectiveness of sustainability disclosure. Regulatory environments that impose stricter requirements for environmental accountability amplify the positive impact of disclosure on firm performance. This finding is consistent with institutional theory, which posits that external pressures from regulatory bodies, industry associations, and societal norms influence organizational behavior (Dowling & Pfeffer, 1975). Firms operating under strong regulatory regimes are more likely to align their disclosure practices with stakeholder expectations, thereby enhancing their legitimacy and performance outcomes (Hummel & Jobst, 2024). Recent evidence shows that environmental regulatory intensity, when combined with green finance, significantly improves corporate sustainable development performance (Xu, Wang, Li, et al., 2024). Similarly, Boulhaga, Bouri, Elamer, and Ibrahim (2023) demonstrate that governance and regulatory quality moderate the relationship between ESG ratings and firm performance, reinforcing the importance of institutional contexts.

The moderation effect also underscores the importance of regulatory frameworks in driving sustainability practices. In contexts where regulatory pressures are weak or inconsistent, firms may lack the incentive to invest in comprehensive disclosure, thereby limiting the impact of technological and financial innovations. Conversely, strong regulatory environments create a level playing field, ensuring that firms are held accountable for their sustainability practices and that disclosure translates into meaningful performance outcomes. This finding has important policy implications, suggesting that regulators should strengthen environmental accountability frameworks to maximize the benefits of technological and financial innovations (Chen et al., 2024; Berg, Kölbel, & Rigobon, 2022).

Conclusion

This study examined the influence of Artificial Intelligence Adoption in Financial Accounting, Green FinTech, and Digital Financial Innovation on Sustainability Disclosure and Firm Performance, while considering the moderating role of Environmental Regulatory. The findings provide several important contributions. First, the results confirm that artificial intelligence and digital financial innovation significantly enhance sustainability disclosure, thereby supporting the argument that technological advancements serve as strategic enablers of transparency and accountability. In contrast, Green FinTech did not demonstrate a significant direct effect, suggesting that its integration into disclosure practices remains limited and requires stronger regulatory and institutional support. Second, the mediation analysis highlights the pivotal role of sustainability disclosure as a mechanism through which technological and financial innovations translate into improved firm performance. Firms that adopt AI and digital financial tools are better able to disclose

sustainability practices, which in turn strengthens stakeholder trust, enhances legitimacy, and drives organizational outcomes. However, the absence of a significant mediating effect for Green FinTech underscores the need for further alignment between green financial technologies and standardized reporting frameworks. Finally, the moderating effect of environmental regulatory demonstrates that institutional contexts are critical in amplifying the benefits of sustainability disclosure. Strong regulatory environments not only encourage firms to adopt comprehensive disclosure practices but also ensure that these practices contribute meaningfully to firm performance. The study contributes to theory by integrating resource-based, stakeholder, and institutional perspectives, and to practice by offering guidance for managers and policymakers. Firms are encouraged to prioritize AI and digital financial innovations to strengthen sustainability disclosure, while regulators should enhance environmental accountability frameworks to ensure that disclosure practices translate into tangible performance gains.

This study has several limitations that should be acknowledged. First, the cross-sectional design limits causal inferences; future research should employ longitudinal designs to capture the dynamic relationships between digital capabilities, sustainability disclosure, and firm performance over time. Second, reliance on self-reported survey data from single informants introduces potential common method bias; future studies could incorporate objective secondary data (e.g., actual ESG ratings, financial statements) to validate findings. Third, the focus on Indonesian manufacturing firms limits generalizability; cross-country comparisons across different emerging and developed economies would strengthen external validity. Fourth, the purposive sampling approach may introduce selection bias; probability sampling methods would enhance representativeness.

References

- Abdellatif, E. M., Saleh, S. A. F., & Hamed, H. N. (2023). Corporate financial performance prediction using artificial intelligence techniques. In *Green Sustainability: Towards Innovative Digital Transformation* (pp. 25–32). Lecture Notes in Networks and Systems, 753. Springer. https://doi.org/10.1007/978-981-99-4764-5_3
- Almheiri, H. M., Ahmad, S. Z., Bakar, A. R. A., & Khalid, K. (2024). Artificial intelligence capabilities, dynamic capabilities and organizational creativity: Contributing factors to the United Arab Emirates Government's organizational performance. *Journal of Modeling in Management*, 19(3), 953–979. <https://doi.org/10.1108/JM2-11-2022-0272>
- Angir, P., & Weli, W. (2024). The influence of environmental, social, and governance (ESG) disclosure on firm value: An asymmetric information perspective in Indonesian listed companies. *Binus Business Review*, 15(1), 29–40. <https://doi.org/10.21512/bbr.v15i1.10460>
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>
- Bartolacci, F., Caputo, A., & Soverchia, M. (2020). Sustainability and financial performance of small and medium-sized enterprises: A bibliometric and systematic literature review. *Business Strategy and the Environment*, 29(3), 1297–1309. <https://doi.org/10.1002/bse.2434>
- Bashir, H. (2022). Corporate social responsibility and financial performance: The role of corporate reputation, advertising and competition. *PSU Research Review*, 8(2), 389–402.

- <https://doi.org/10.1108/PRR-10-2021-0059>
- Bashir, H., Alfalih, A. A., & Pradhan, S. (2022). Sustainable business model innovation: Scale development, validation, and proof of performance. *Journal of Innovation & Knowledge*, 7(4), 100243. <https://doi.org/10.1016/j.jik.2022.100243>
- Berg, F., Kölbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, 26(6), 1315–1344. <https://doi.org/10.1093/rof/rfac033>
- Boulhaga, M., Bouri, E., Elamer, A. A., & Ibrahim, S. (2023). Environmental, social and governance ratings and firm performance: The moderating role of internal control quality. *Corporate Social Responsibility and Environmental Management*, 30(1), 134–145. <https://doi.org/10.1002/csr.2343>
- Chen, D., Esperança, J. P., & Wang, S. (2022). The impact of artificial intelligence on firm performance: An application of the resource-based view to e-commerce firms. *Frontiers in Psychology*, 13, 884830. <https://doi.org/10.3389/fpsyg.2022.884830>
- Chen, J., Wang, N., Lin, T., Liu, B., & Hu, J. (2024). Shock or empowerment? Artificial intelligence technology and corporate ESG performance. *Economic Analysis and Policy*, 83, 1080–1096. <https://doi.org/10.1016/j.eap.2024.08.004>
- Chen, P., Chu, Z., & Zhao, M. (2024). The road to corporate sustainability: The importance of artificial intelligence. *Technology in Society*, 76, 102440. <https://doi.org/10.1016/j.techsoc.2023.102440>
- Cheng, X., Du, A. M., Yan, C., & Goodell, J. W. (2025). Internal business process governance and external regulation: How does AI technology empower financial performance? *International Review of Financial Analysis*, 99, 103927. <https://doi.org/10.1016/j.irfa.2025.103927>
- Dadabada, P. K. (2025). Analyzing the impact of ESG integration and FinTech innovations on green finance: A comparative case studies approach. *Journal of the Knowledge Economy*, 16, 7959–7978. <https://doi.org/10.1007/s13132-024-02197-0>
- Deepa, R., Sekar, S., Malik, A., Kumar, J., & Attri, R. (2024). Impact of AI-focused technologies on social and technical competencies for HR managers—A systematic review and research agenda. *Technological Forecasting and Social Change*, 202, 123301. <https://doi.org/10.1016/j.techfore.2024.123301>
- Dowling, J., & Pfeffer, J. (1975). Organizational legitimacy: Social values and organizational behavior. *Pacific Sociological Review*, 18(1), 122–136. <https://doi.org/10.2307/1388226>
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Boston: Pitman.
- Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210–233. <https://doi.org/10.1080/20430795.2015.1118917>
- Gazi, M. A. I., Rahman, M. K. H., Masud, A. A., Amin, M. B., Chaity, N. S., Senathirajah, A. R. b. S., & Abdullah, M. (2024). AI capability and sustainable performance: Unveiling the mediating effects of organizational creativity and green innovation with knowledge sharing culture as a moderator. *Sustainability*, 16(17), 7466. <https://doi.org/10.3390/su16177466>
- Gupta, M., Garg, N., Jain, N., Saini, P., Roy, S., & Sati, M. (2024). Analysis of financial performance pre and post use of artificial intelligence applications via CAMELS lens: With special reference to HDFC Bank. *International Journal of Intelligent Systems and*

- Applications in Engineering, 12(5), 324–337.
- Hair, J. F., Jr., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26(2), 106–121. <https://doi.org/10.1108/EBR-10-2013-0128>
- Hao, J., Peng, M., & He, W. (2024). Digital finance development and bank liquidity creation. *International Review of Financial Analysis*, 90, 102839. <https://doi.org/10.1016/j.irfa.2023.102839>
- Hummel, K., & Jobst, D. (2024). An overview of corporate sustainability reporting legislation in the European Union. *Accounting in Europe*, 21(3), 320–355. <https://doi.org/10.1080/17449480.2024.2312145>
- Hussain, M., Yang, S., Maqsood, U. S., & Zahid, R. M. A. (2024). Tapping into the green potential: The power of artificial intelligence adoption in corporate green innovation drive. *Business Strategy and the Environment*, 33(5), 1–15. <https://doi.org/10.1002/bse.3710>
- Islam, M. T., Hasan, M. M., Redwanuzzaman, M., & Hossain, M. K. (2024). Practices of artificial intelligence to improve the business in Bangladesh. *Social Sciences & Humanities Open*, 9(1), 100766. <https://doi.org/10.1016/j.ssaho.2023.100766>
- Kashif, M., Pinglu, C., Ullah, S., & Zaman, M. (2024). Evaluating the influence of financial technology (FinTech) on sustainable finance: A comprehensive global analysis. *Financial Markets and Portfolio Management*, 38(2), 123–155. <https://doi.org/10.1007/s11408-023-00439-w>
- Kishor, K., Bansal, S. K., & Kumar, R. (2024). The role of FinTech in promoting financial inclusion to achieve sustainable development: An integrated bibliometric analysis and systematic literature review. *Journal of the Knowledge Economy*, 16(12), 5664–5692. <https://doi.org/10.1007/s13132-024-02168-5>
- Kock, N., & Hadaya, P. (2018). Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods. *Information Systems Journal*, 28(1), 227–261. <https://doi.org/10.1111/isj.12131>
- Kurniasari, F., Abd Hamid, N., & Lestari, E. D. (2025). Unraveling the impact of financial literacy, financial technology adoption, and access to finance on small medium enterprises business performance and sustainability: A serial mediation model. *Cogent Business & Management*, 12(1), 2487837. <https://doi.org/10.1080/23311975.2025.2487837>
- Li, Y. & Shi, S. (2026). Digital Finance and Corporate ESG Disclosure–Practice Consistency: The Roles of Corporate Digitalization and Executives’ Digital Background, *Sustainability*, MDPI, 18(11), 1–27. RePEc:gam:jsusta:v:18:y:2026:i:11:p:5263-d:1950291
- Li, N., Yan, Y., Yang, Y., & Gu, A. (2022). Artificial intelligence capability and organizational creativity: The role of knowledge sharing and organizational cohesion. *Frontiers in Psychology*, 13, 845277. <https://doi.org/10.3389/fpsyg.2022.845277>
- Lin, J., Zeng, Y., Wu, S., & Luo, X. (2024). How does artificial intelligence affect the environmental performance of organizations? The role of green innovation and green culture. *Information & Management*, 61(2), 103924. <https://doi.org/10.1016/j.im.2024.103924>
- Liu, Y., Wang, B., & Song, Z. (2025). Promoting or inhibiting: The impact of artificial

- intelligence application on corporate environmental performance. *International Review of Financial Analysis*, 97, 103872. <https://doi.org/10.1016/j.irfa.2024.103872>
- Matta, J., Rizk, R., Alharthi, M., & Azouri, M. (2025). The intersection of artificial intelligence and green finance in promoting sustainable consumption behavior: Evidence from the UAE. *Journal of Economic and Administrative Sciences*. Advance online publication. <https://doi.org/10.1108/JEAS-03-2025-0173>
- Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance. *Information & Management*, 58(3), 103434. <https://doi.org/10.1016/j.im.2021.103434>
- Novitasari, M., & Tarigan, Z. J. H. (2022). The role of green innovation in the effect of corporate social responsibility on firm performance. *Economies*, 10(5), 117. <https://doi.org/10.3390/economies10050117>
- Nursulistyo, E. D., & Putri, A. A. A. (2025). Digital transparency and firm value: Voluntary disclosure in Indonesian companies. *International Journal of Natural Science and Engineering*, 9(1), 1–10. <https://doi.org/10.23887/ijnse.v9i1.98439>
- Puspitasari, A., & Firmansyah, A. (2025). Sustainable finance and green banking disclosure: Unlocking firm value potential. *RISSET: Jurnal Aplikasi Ekonomi Akuntansi dan Bisnis*, 7(1), 45–62. <https://doi.org/10.37641/riset.v7i1.2591>
- Sang, Y., Xie, M., Bai, X., & Guo, F. (2024). Does natural resource dependence influence the impact of financial technologies on corporate ESG and digital governance in China's listed enterprises? *Resources Policy*, 91, 104948. <https://doi.org/10.1016/j.resourpol.2024.104948>
- Shiyyab, F. S., Alzoubi, A. B., Obidat, Q. M., & Alshurafat, H. (2023). The impact of artificial intelligence disclosure on financial performance. *International Journal of Financial Studies*, 11(3), 115. <https://doi.org/10.3390/ijfs11030115>
- Suprabha, K. R., Sreepriya, J., & Prasad, K. (2024). The impact of ESG disclosure on mitigating financial distress: Exploring the moderating role of firm life cycle. *International Journal of Disclosure and Governance*, 22(4), 577–590. <https://doi.org/10.1057/s41310-024-00225-8>
- Taneja, S., Kumar, P., Balusamy, R., Sood, K., & Grima, S. (2024). A literature review on ESG score and its impact on firm performance. In *Sustainability Development through Green Economics* (Vol.114, pp. 210–233). Emerald Publishing. <https://doi.org/10.1108/S1569-37592024114>
- Tao, M. (2024). Digital brains, green gains: Artificial intelligence's path to sustainable transformation. *Journal of Environmental Management*, 370, 122679. <https://doi.org/10.1016/j.jenvman.2024.122679>
- Tran, A.T.X., Le, T.M. (2024). Fintech development influences on corporate ESG performance: evidences from Southeast Asia. *J Manag Gov* 30, 429–466. <https://doi.org/10.1007/s10997-024-09719-7>
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171–180. <https://doi.org/10.1002/smj.4250050207>
- Xie, H., & Wu, F. (2025). Artificial intelligence technology and corporate ESG performance: Empirical evidence from Chinese-listed firms. *Sustainability*, 17(2), 420. <https://doi.org/10.3390/su17020420>

- Xie, R. (2025). Enhancing green economic transition: Unveiling the impact and mechanisms of integrated human capital on green total factor productivity. *Sage Open*, 15(3).
<https://doi.org/10.1177/21582440251363313>
- Xu, X., Wang, S., Li, J., Qiao, T. (2024). Environmental regulatory intensity, green finance and corporate green sustainable development performance. *Heliyon*, 10(9), e30114.
<https://doi.org/10.1016/j.heliyon.2024.e30114>