© Volume 2, Issue 10, October 2026 | JATIR
e-ISSN: 2839-5786, p-ISSN: 3139-8464

Digital-Intelligent Banking for Sustainable Finance Opportunities Challenges and Strategic Implications

Dr. Rajesh S
Professor PG Department of Commerce (M.Com.) Government First Grade College Devanahalli Bangalore Rural District Karnataka, India – 562110
doi.org/10.64643/jatir.141040

***Abstract*—The integration of artificial intelligence, advanced analytics, and FinTech ecosystems into banking has reshaped sustainable finance, yet a unified theoretical framework linking digital intelligence capabilities to sustainability performance outcomes remains absent. Drawing upon Institutional Theory, Stakeholder Theory, and the Resource-Based View augmented by Dynamic Capabilities Theory, this study develops a conceptual framework positioning four dimensions of digital intelligence capabilities — AI and machine learning infrastructure, advanced data analytics and ESG monitoring, FinTech ecosystem integration, and intelligent automation — as mediating constructs translating institutional pressures and stakeholder expectations into four sustainability outcomes: ESG performance, risk management quality, financial inclusion, and environmental responsibility. Three moderating conditions — regulatory environment, institutional capacity, and digital divide conditions — shape the capability–outcome relationship in emerging economy banking contexts. Eight propositions formalise these arguments. The study advances a unified conceptual architecture, a precise mediating model, and contextually grounded moderating conditions with strategic and policy implications for emerging economies.**

***Index Terms*—digital intelligence capabilities; sustainable banking; ESG performance; FinTech; financial inclusion; emerging economies**

I. INTRODUCTION

The banking sector has undergone profound structural transformation driven by rapid technological innovation, regulatory reform, and intensifying stakeholder emphasis on sustainability. Early modernisation centred on core banking systems and internet-enabled delivery models; subsequent expansion of mobile banking broadened financial access, particularly for underserved populations (DeYoung et al., 2007; Ozili, 2018). More recently, growing environmental and social concerns — reinforced by international frameworks such as the

Principles for Responsible Banking (UNEP Finance Initiative, 2019) — have compelled banks to integrate sustainability into strategic decision-making, advancing a broader transition toward responsible finance.

Simultaneously, the emergence of artificial intelligence (AI), big-data analytics, and blockchain has reshaped banking business models through intelligent automation, predictive risk assessment, and data-driven services (Gomber et al., 2018; Broby, 2021). In the Indian context, fintech and AI adoption increasingly contribute to enhanced ESG performance and financial inclusion, demonstrating a growing convergence between digital intelligence and sustainability objectives (Sharma & Priya, 2025). This study responds to the resulting theoretical gap — the absence of a unified framework integrating digital intelligence capabilities with multidimensional sustainability performance outcomes — and develops such a framework with particular reference to emerging economy banking contexts.

II. LITERATURE REVIEW AND RESEARCH GAP

2.1 From Green Banking to Intelligent Banking

The evolution of sustainability in banking reflects three progressive stages. Green banking focused on reducing environmental footprints through responsible lending and renewable energy financing, driven largely by regulatory pressure and climate risk awareness (Scholtens & Dam, 2007; Park & Kim, 2020). Sustainable banking subsequently broadened this agenda, integrating ESG considerations into core strategies, lending policies, and risk management, though persistent challenges around ESG measurement complexity and data standardisation limited consistent adoption (Aracil et al., 2021; Costa-Climent & Martínez-Climent, 2018). The third and current stage — intelligent banking — is characterised by AI, fintech, big-data analytics, and automation enabling data-driven risk modelling, enhanced transparency, and innovative green financial services (Gomber et al., 2018; Broby, 2021), while simultaneously raising concerns regarding cybersecurity, algorithmic bias, and regulatory uncertainty (Macchiavello & Siri, 2022).

2.2 Digital Intelligence and Sustainable Finance

Digital intelligence has become a central driver of sustainable finance. Foundational research conceptualises FinTech as a technology-driven innovation transforming financial services through automation, big data, and digital platforms, establishing the intellectual basis for subsequent intelligent banking scholarship (Gomber et al., 2017). AI and big-data analytics enhance ESG risk assessment through improved predictive modelling and climate-risk evaluation (Gomber et al., 2018). Digitalisation promotes operational sustainability through paperless transactions and optimised resource utilisation (Kumar & Prakash, 2019), while digital financial services extend access to underserved populations — a key pillar of sustainable development in emerging economies (Ozili, 2018). Blockchain-based systems improve transparency and accountability in sustainability reporting, although energy efficiency concerns and limited interoperability present

adoption barriers (Kouhizadeh et al., 2021). Digital technologies also foster innovation in green bonds, sustainability-linked loans, and impact investment products, thereby strengthening the sustainable finance ecosystem (Macchiavello & Siri, 2022; Vives, 2019).

2.3 Theoretical Foundations

Institutional Theory (DiMaggio & Powell, 1983) explains ESG-aligned digital adoption through coercive regulatory mandates such as the EU's Sustainable Finance Disclosure Regulation, normative professional standards such as the Principles for Responsible Banking (UNEP Finance Initiative, 2019), and mimetic emulation of industry leaders. Stakeholder Theory (Freeman, 1984) establishes the demand-side rationale: regulatory, investor, customer, and community expectations collectively compel banks to deploy sustainability-oriented digital capabilities. The Resource-Based View (Barney, 1991) positions AI infrastructure, ESG analytics, FinTech ecosystems, and intelligent automation as VRIN strategic resources generating sustained competitive advantage, while Dynamic Capabilities Theory (Teece, 2018) explains how banks continuously sense, seize, and reconfigure digital intelligence to respond to evolving sustainability imperatives.

2.4 Research Gap

Existing literature provides substantial insights into digitalisation, ESG integration, and FinTech ecosystems independently, but these streams largely operate in isolation. A significant gap persists: limited research has systematically integrated digital intelligence capabilities with measurable sustainability performance outcomes within a unified conceptual framework. Empirical investigations have seldom examined how digital intelligence simultaneously enhances ESG performance, risk management quality, and inclusive finance objectives. Evidence from emerging economies remains fragmented, and existing studies devote insufficient attention to trade-offs between AI-driven efficiency gains and associated environmental, ethical, and governance risks. This study addresses these gaps by developing an integrated framework linking digital-intelligent banking capabilities to multidimensional sustainability performance outcomes, moderated by contextual conditions characteristic of emerging economy banking.

III. THEORETICAL FRAMEWORK

This study adopts an integrated multi-theoretical framework drawing upon Institutional Theory, Stakeholder Theory, and the Resource-Based View augmented by Dynamic Capabilities Theory. These perspectives operate at distinct analytical levels — macro, meso, and micro — providing a comprehensive account of how digital-intelligent banking capabilities emerge, are shaped, and translate into sustainability performance outcomes.

At the macro level, Institutional Theory explains how regulatory mandates, professional norms, and competitive mimicry constitute the antecedent forces driving ESG-aligned digital adoption. Coercive pressures are evident in the SFDR and the Reserve Bank of India's sustainable finance agenda (European Commission, 2021; Reserve Bank of India, 2022); normative pressures manifest

through the UNEP Principles for Responsible Banking (UNEP Finance Initiative, 2019); and mimetic pressures arise as banks emulate early AI and FinTech adopters. This framework also illuminates uneven ESG adoption in emerging economies, where nascent regulatory environments and limited digital infrastructure constrain the diffusion of sustainability-oriented digital practices (Bose et al., 2018).

At the meso level, Stakeholder Theory explains how regulatory, investor, customer, and community stakeholders shape the strategic direction and priorities of digital intelligence deployment. The business case for ESG integration increasingly reflects genuine multi-stakeholder imperatives rather than philanthropic motivation (Aracil et al., 2021). At the micro level, the RBV positions AI and machine learning infrastructure, advanced ESG analytics, FinTech ecosystem integration, and intelligent automation as VRIN resources, while Dynamic Capabilities Theory explains how banks sense emerging sustainability risks, seize investment opportunities in explainable AI and green financial products, and reconfigure compliance systems in response to regulatory evolution (Teece, 2018).

Integrating these perspectives, digital intelligence capabilities are conceptualised as the mediating mechanism through which institutional pressures and stakeholder expectations — the antecedent forces — translate into sustainability performance outcomes. This mediation relationship is moderated by three contextual conditions: regulatory environment, institutional capacity, and digital divide conditions, which amplify or attenuate the capability–outcome relationship depending on the institutional context in which banks operate. As illustrated in Figure 1, the framework thus comprises four interrelated components: antecedent forces, digital intelligence capabilities as the core mediating construct, moderating conditions, and sustainability performance outcomes.

IV. CONCEPTUAL FRAMEWORK

4.1 Antecedent Forces

As depicted in Figure 1, two categories of antecedent forces drive sustainability-oriented digital intelligence adoption. Institutional pressures — operating through coercive regulatory mandates, normative ESG standards encompassing professional codes and international frameworks, and mimetic competitive forces as banks emulate digitally advanced peers — compel investment in digital intelligence capabilities as a means of achieving regulatory compliance and institutional legitimacy (DiMaggio & Powell, 1983). Stakeholder expectations — encompassing regulatory demands for responsible AI governance, investor ESG screening criteria, customer preferences for sustainable financial products, and community imperatives for financial inclusion — shape the strategic direction of digital intelligence deployment (Freeman, 1984). These antecedent forces do not directly produce sustainability outcomes but create the institutional and competitive conditions that motivate digital intelligence capability development.

4.2 Digital Intelligence Capability Dimensions

The core construct of the framework comprises four interrelated digital intelligence capability dimensions that collectively operationalise the mediating mechanism. AI and machine learning infrastructure refers to the technological foundations enabling banks to deploy predictive analytics, automated decision-making, and intelligent risk assessment, underpinning ESG risk modelling, credit scoring, fraud detection, and climate-risk evaluation (Cao, 2022). Advanced data analytics and ESG monitoring systems refer to the analytical competencies enabling real-time ESG performance tracking, sustainability disclosure, and green investment identification, directly supporting the measurement and reporting of sustainability outcomes (Inderst & Stewart, 2018; Dikau & Volz, 2021). FinTech ecosystem integration and digital platform capabilities refer to the ecosystem-based competencies enabling banks to leverage FinTech partnerships and open banking infrastructure for sustainable financial service delivery, inclusive finance initiatives, and green financial product innovation (Gomber et al., 2018; Demirgüç-Kunt et al., 2022). Intelligent automation of banking operations and compliance processes encompasses the operational competencies enabling banks to automate sustainability reporting, regulatory compliance monitoring, and ESG-aligned governance, enhancing transparency and reducing operational risk (Fritz-Morgenthal et al., 2022; Kouhizadeh et al., 2021).

4.3 Sustainability Performance Outcomes

The framework proposes four interrelated sustainability performance outcomes into which digital intelligence capabilities translate. ESG performance — encompassing environmental risk management, social responsibility, and governance quality — is enhanced through real-time monitoring and strategic ESG integration enabled by AI infrastructure and advanced analytics (Aracil et al., 2021; Bose et al., 2018). Risk management quality reflects improved identification and mitigation of climate-related financial risks, algorithmic governance risks, and sustainability-linked credit risks through AI-driven analytics and explainable AI frameworks (Dikau & Volz, 2021; Fritz-Morgenthal et al., 2022). Financial inclusion outcomes reflect the extent to which FinTech ecosystem integration and AI-driven credit assessment extend sustainable financial services to underserved populations, reinforcing the social pillar of sustainable banking (Ozili, 2018; Suri & Jack, 2016). Environmental responsibility reflects banks' capacity to reduce their operational environmental footprint and finance environmentally responsible economic activities; however, energy consumption trade-offs associated with large-scale AI deployment must be explicitly acknowledged as a potential offset to these gains (Strubell et al., 2019; Kumar & Prakash, 2019).

4.4 Moderating Conditions

As shown in Figure 1, three moderating conditions shape the strength and direction of the digital intelligence capability–sustainability performance outcome relationship. It is important to note that these conditions do not constitute a sequential step in the causal chain but rather moderate the

capability–outcome relationship, amplifying or attenuating it depending on the institutional context of the bank.

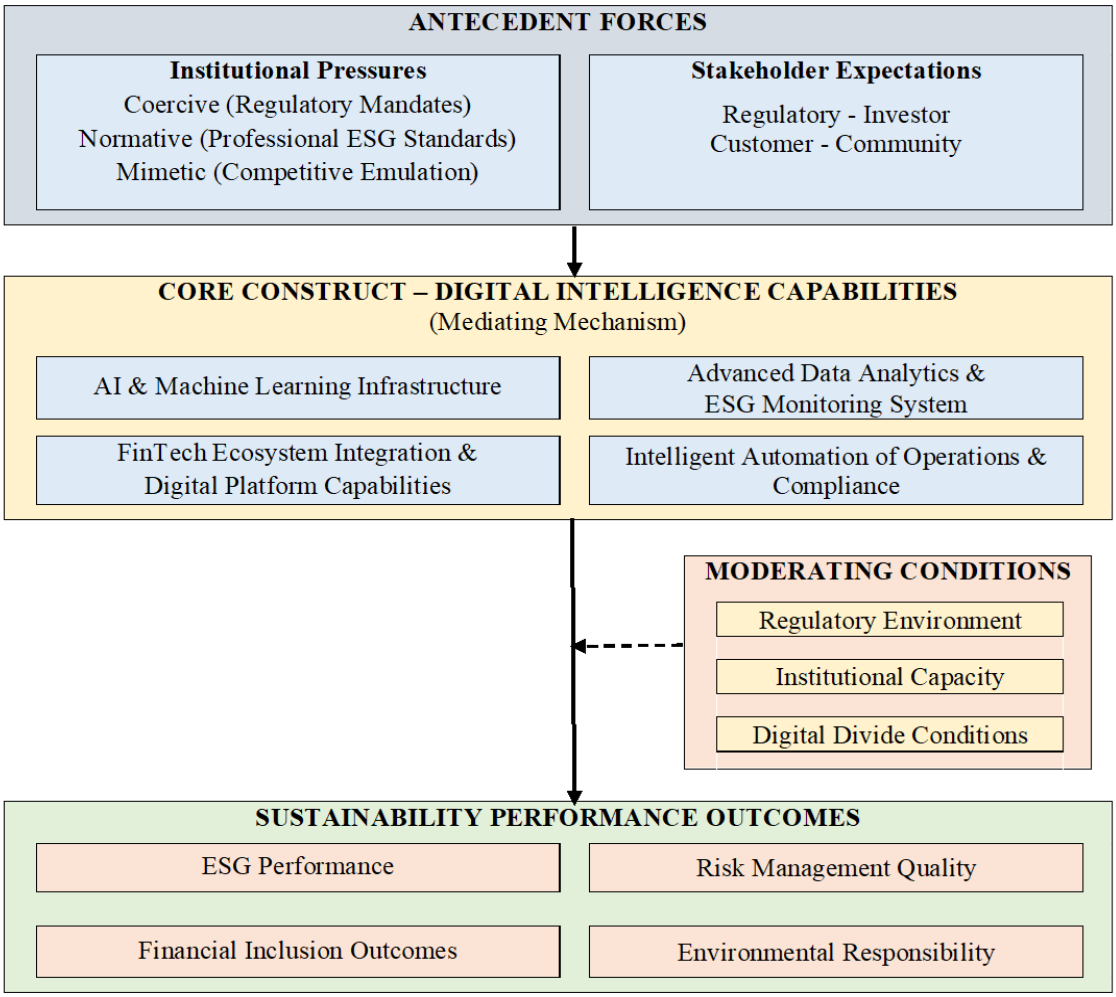

Figure 1. Conceptual framework of digital-intelligent banking for sustainable finance.

Source: Authors' own conceptual framework (2026).

Regulatory environment moderates the framework by determining the stringency and consistency of ESG disclosure obligations, responsible AI governance requirements, and sustainable finance incentives available to banks. Stronger regulatory environments amplify the positive relationship between digital intelligence capabilities and sustainability performance outcomes by providing clear compliance targets and enforcement mechanisms (European Commission, 2021; Reserve Bank of India, 2022; Dikau & Volz, 2021). Institutional capacity moderates the framework by reflecting the organisational resources, human capital, and technological infrastructure available to banks for digital intelligence development. Banks with greater institutional capacity are better positioned to translate digital intelligence investments into measurable sustainability outcomes, whereas capacity constraints — common in emerging market banking institutions — may significantly attenuate this relationship (Bose et al., 2018; Torre Olmo et al., 2021). Digital divide

conditions moderate the framework by capturing the extent to which structural barriers — including limited digital literacy, infrastructure gaps, gender disparities in mobile access, and affordability constraints — restrict the reach and effectiveness of digital intelligence-enabled sustainable financial services, particularly weakening the pathway from FinTech ecosystem capabilities to financial inclusion outcomes (Demirgüç-Kunt et al., 2022).

V. PROPOSITIONS

Eight propositions operationalise the relational arguments embedded within the conceptual framework, translating theoretical reasoning into precisely stated testable propositions. Propositions 1 through 4 address the direct capability–outcome relationships; Proposition 5 addresses a contingency condition within the environmental responsibility pathway; and

Propositions 6 through 8 address the three moderating conditions.

Proposition 1 (Antecedent Forces → Digital Intelligence Capabilities): Banks operating in stronger institutional environments — characterised by stringent ESG regulatory mandates and high stakeholder sustainability expectations from regulatory, investor, customer, and community constituents — will demonstrate significantly higher levels of digital intelligence capability development than banks operating in nascent or weakly enforced institutional environments.

Proposition 2 (Digital Intelligence Capabilities → ESG Performance): Banks with more advanced digital intelligence capabilities — particularly in AI and machine learning infrastructure and advanced data analytics and ESG monitoring systems — will demonstrate superior ESG performance outcomes, including enhanced sustainability disclosure quality, more effective environmental risk management, and stronger governance integration.

Proposition 3 (Digital Intelligence Capabilities → Risk Management Quality): Banks deploying advanced AI-driven risk analytics and explainable AI governance frameworks will demonstrate significantly improved risk management quality, reflected in enhanced climate risk assessment accuracy, reduced algorithmic governance failures, and more effective sustainability-linked credit risk management.

Proposition 4 (Digital Intelligence Capabilities → Financial Inclusion): Banks with stronger FinTech ecosystem integration and digital platform capabilities will achieve superior financial inclusion outcomes, particularly in emerging economy contexts characterised by limited traditional banking infrastructure and high unbanked population proportions.

Proposition 5 (Digital Intelligence Capabilities → Environmental Responsibility): The relationship between digital intelligence capabilities and environmental responsibility outcomes is contingent upon the energy efficiency of AI deployment practices, such that banks adopting

computationally optimised and carbon-conscious AI systems will demonstrate stronger environmental responsibility outcomes than those deploying large-scale AI infrastructure without corresponding energy efficiency management. This proposition recognises an inherent tension between AI-enabled environmental benefits and the carbon footprint of AI infrastructure that banks must actively manage.

Proposition 6 (Regulatory Environment moderates capability–outcome relationship): Regulatory environment positively moderates the relationship between digital intelligence capabilities and sustainability performance outcomes, such that the positive effect of digital intelligence capabilities on ESG performance, risk management quality, financial inclusion, and environmental responsibility is stronger in banking systems characterised by more stringent and comprehensive sustainability regulatory frameworks.

Proposition 7 (Institutional Capacity moderates' capability–outcome relationship): Institutional capacity positively moderates the relationship between digital intelligence capabilities and sustainability performance outcomes, such that the positive effect of digital intelligence capabilities on all four sustainability outcomes is stronger among banks with greater organisational resources, human capital depth, and technological infrastructure maturity.

Proposition 8 (Digital Divide Conditions moderate capability–outcome relationship): Digital divide conditions negatively moderate the relationship between FinTech ecosystem integration capabilities and financial inclusion outcomes, such that the positive effect of digital intelligence capabilities on financial inclusion is weaker in emerging economy contexts characterised by significant digital literacy gaps, infrastructure deficiencies, and affordability barriers.

VI. DISCUSSION

6.1 Theoretical Implications

This framework makes three principal theoretical contributions. First, it integrates previously fragmented streams of digitalisation, ESG, and FinTech scholarship into a unified multi-level explanatory model, responding to calls for greater theoretical consolidation in the sustainable banking literature (Aracil et al., 2021). Second, by explicitly positioning digital intelligence capabilities as a mediating construct — rather than a direct determinant of sustainability outcomes — the framework advances a theoretically precise account of the causal pathway from antecedent institutional and stakeholder forces to sustainability performance, grounded in Dynamic Capabilities Theory (Teece, 2018). Third, the introduction of three moderating conditions advances theoretical specificity for emerging economy banking, where assumptions derived from advanced economy contexts may not apply uniformly (Bose et al., 2018; Demirgüç-Kunt et al., 2022). The moderating conditions also clarify why the same digital intelligence investments may produce differential sustainability outcomes across institutional contexts — a theoretical

contribution that goes beyond documenting the capability–outcome relationship to explaining its variability.

6.2 Strategic Implications

The framework carries several important strategic implications for banking institutions. Digital intelligence capability development must be treated as a core strategic priority, with differentiated investment strategies applied across the four dimensions. AI and machine learning infrastructure and advanced ESG analytics constitute foundational priorities underpinning ESG performance and risk management quality. FinTech ecosystem integration is particularly critical in emerging economies where financial inclusion imperatives are most acute. Intelligent automation delivers its greatest sustainability impact when aligned with transparent and accountable compliance governance frameworks (Fritz-Morgenthal et al., 2022).

Banks must also actively manage the energy consumption trade-off inherent in large-scale AI deployment, as articulated in Proposition 5. Sustainability strategies must incorporate explicit policies for computationally efficient AI design, green data centre management, and carbon-conscious technology procurement to safeguard environmental responsibility outcomes (Strubell et al., 2019; Kumar & Prakash, 2019). Furthermore, capacity-constrained banks — particularly smaller institutions and those in emerging markets — must complement digital intelligence investments with deliberate strategies for talent development, organisational learning, and technological infrastructure upgrading to prevent institutional capacity from attenuating the capability–outcome relationship.

6.3 Policy Implications for Emerging Economies

Three policy priorities emerge for emerging economies. First, regulatory strengthening is paramount. The primacy of regulatory environment as a moderating condition underscores the importance of developing comprehensive and consistently enforced ESG disclosure mandates, responsible AI governance frameworks, and sustainable finance incentive structures. Policymakers — including the Reserve Bank of India and equivalent authorities across Asia, Africa, and Latin America — should prioritise aligning sustainability regulatory design with digital transformation agendas to amplify the capability–outcome relationship (Dikau & Volz, 2021; Reserve Bank of India, 2022).

Second, digital divide conditions represent a structural barrier that technology expansion alone cannot overcome, as established in Proposition 8. Financial inclusion policy must extend beyond promoting FinTech adoption to encompass complementary investments in digital infrastructure, digital literacy programmes, gender-sensitive mobile access initiatives, and affordable connectivity solutions. Third, institutional capacity building — through regulatory sandbox frameworks for FinTech innovation, technology transfer initiatives, shared digital infrastructure investments, and human capital development programmes — should enable a broader range of banking institutions to effectively translate digital intelligence investments into measurable sustainability performance improvements (Ozili, 2018; Sharma & Priya, 2025).

6.4 Limitations and Future Research

As a conceptual study, the primary limitation is the absence of empirical validation. Future research should operationalise the constructs of the framework and empirically examine the proposed relationships using quantitative survey-based, longitudinal, or panel data methodologies across diverse banking contexts. The framework's generalisability across diverse emerging market contexts — including Sub-Saharan Africa, Southeast Asia, and Latin America — warrants comparative investigation. Emerging technologies such as generative AI, decentralised finance platforms, and quantum computing may introduce additional digital intelligence capability dimensions not addressed herein. Future research should also adopt a more critical perspective, examining sustainability-undermining consequences of digital-intelligent banking — including algorithmic bias in credit decisions, data privacy risks in ESG monitoring systems, cybersecurity vulnerabilities, and workforce displacement — to provide a more balanced account of the digital–sustainability relationship.

VII. CONCLUSION

The rapid convergence of digital intelligence and sustainability imperatives has fundamentally reshaped the strategic landscape of contemporary banking. This study has responded to the theoretical and empirical fragmentation characterising scholarship at this intersection by developing a unified conceptual framework that integrates digital intelligence capabilities with multidimensional sustainability performance outcomes in banking institutions, with particular reference to emerging market contexts.

Drawing upon Institutional Theory, Stakeholder Theory, and the Resource-Based View augmented by Dynamic Capabilities Theory as complementary multi-level lenses, the framework conceptualises digital intelligence capabilities as the mediating mechanism through which institutional pressures and stakeholder expectations — the antecedent forces — translate into ESG performance, risk management quality, financial inclusion, and environmental responsibility outcomes. Three moderating conditions — regulatory environment, institutional capacity, and digital divide conditions — shape the strength of this capability–outcome relationship, accounting for the institutional heterogeneity characteristic of emerging markets.

The study makes three overarching theoretical contributions: a unified conceptual architecture consolidating fragmented streams of digitalisation, ESG, and FinTech scholarship; a theoretically precise mediating model clarifying the causal pathway from antecedent forces to sustainability outcomes; and contextually grounded moderating conditions advancing theoretical specificity for emerging economy banking beyond generalisations prevalent in existing literature. The eight propositions provide a structured and testable conceptual agenda for future empirical inquiry. As banking institutions worldwide intensify simultaneous commitments to digital intelligence and sustainability, this framework offers both a theoretical foundation for future scholarship and a practical roadmap for responsible digital-intelligent banking transformation.

REFERENCES

[1] Aracil, E., Nájera-Sánchez, J. J., & Forcadell, F. J. (2021). Sustainable banking: A literature review and integrative framework. Finance Research Letters, 42, 101932.

[2] Barney, J. B. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120.

[3] Bose, S., Khan, H. Z., Rashid, A., & Islam, S. (2018). What drives green banking disclosure? An institutional and corporate governance perspective. Asia Pacific Journal of Management, 35(2), 501–527.

[4] Broby, D. (2021). Financial technology and the future of banking. Financial Innovation, 7, Article 47.

[5] Cao, L. (2022). AI in finance: Challenges, techniques, and opportunities. ACM Computing Surveys, 55(3), Article 64.

[6] Costa-Climent, R., & Martínez-Climent, C. (2018). Sustainable profitability of ethical and conventional banking. Contemporary Economics, 12(4), 519–530.

[7] Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). The Global Findex Database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19. World Bank.

[8] DeYoung, R., Lang, W. W., & Nolle, D. E. (2007). How the Internet affects output and performance at community banks. Journal of Banking & Finance, 31(4), 1033–1060.

[9] Dikau, S., & Volz, U. (2021). Central bank mandates, sustainability objectives and the promotion of green finance. Ecological Economics, 184, 107022.

[10] DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. American Sociological Review, 48(2), 147–160.

[11] European Commission. (2021). Regulation (EU) 2019/2088 of the European Parliament and of the Council on sustainability-related disclosures in the financial services sector. Official Journal of the European Union.

[12] Freeman, R. E. (1984). Strategic management: A stakeholder approach. Pitman.

[13] Fritz-Morgenthal, S., Hein, B., & Papenbrock, J. (2022). Financial risk management and explainable, trustworthy, responsible AI. Frontiers in Artificial Intelligence, 5, 779799.

[14] Gomber, P., Kauffman, R. J., Parker, C., & Weber, B. W. (2018). On the FinTech revolution: Interpreting the forces of innovation, disruption, and transformation in financial services. Journal of Management Information Systems, 35(1), 220–265.

[15] Gomber, P., Koch, J.-A., & Siering, M. (2017). Digital finance and FinTech: Current research and future research directions. Journal of Business Economics, 87(5), 537–580.

[16] Inderst, G., & Stewart, F. (2018). Incorporating environmental, social and governance (ESG) factors into fixed income investing (OECD Working Papers on Finance, Insurance and Private Pensions, No. 42). OECD Publishing.

[17] Kouhizadeh, M., Saberi, S., & Sarkis, J. (2021). Blockchain technology and the sustainable supply chain: Theoretically exploring adoption barriers. International Journal of Production Economics, 231, 107831.

[18] Kumar, K., & Prakash, A. (2019). Examination of sustainability reporting practices in Indian banking sector. Asian Journal of Sustainability and Social Responsibility, 4(2), 1–16.

[19] Macchiavello, E., & Siri, M. (2022). Sustainable finance and FinTech: Can technology contribute to achieving environmental goals? European Company and Financial Law Review, 19(1), 128–174.

[20] Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability. Borsa Istanbul Review, 18(4), 329–340.

[21] Park, H., & Kim, J. D. (2020). Transition towards green banking: Role of financial regulators and financial institutions. Asian Journal of Sustainability and Social Responsibility, 5(1), 1–25.

[22] Reserve Bank of India. (2022). Report on trend and progress of banking in India 2021–22. Reserve Bank of India.

[23] Scholtens, B., & Dam, L. (2007). Banking on the equator: Are banks that adopted the Equator Principles different from non-adopters? World Development, 35(8), 1307–1328.

[24] Sharma, V., & Priya, B. (2025). Bridging the gap: AI-powered FinTech and its impact on financial inclusion and financial well-being. Discover Artificial Intelligence, 5(1), Article 290.

[25] Strubell, E., Ganesh, A., & McCallum, A. (2019). Energy and policy considerations for deep learning in NLP. Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics, 3645–3650.

[26] Suri, T., & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. Science, 354(6317), 1288–1292.

[27] Teece, D. J. (2018). Dynamic capabilities as (workable) management systems theory. Journal of Management & Organization, 24(3), 359–368.

[28] Torre Olmo, B., Cantero Saiz, M., & Sanfilippo Azofra, S. (2021). Sustainable banking, market power, and efficiency: Effects on banks' profitability and risk. Sustainability, 13(3), 1298.

[29] United Nations Environment Programme Finance Initiative. (2019). Principles for responsible banking. https://www.unepfi.org/banking/bankingprinciples/

[30] Vives, X. (2019). Digital disruption in banking. Annual Review of Financial Economics, 11(1), 243–272.