

CHAPTER 25

Fintech as a Bridge to the SDGs: Enhancing Financial Inclusion and Equitable Green Growth in Emerging Markets

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ABSTRACT

This Systematic Literature Review (SLR) examines Financial Technology (Fintech) as a transformative bridge toward the United Nations Sustainable Development Goals (SDGs) in emerging markets. By synthesizing global research from 2018–2026, the study explores how digital innovation enhances financial inclusion and facilitates equitable green growth. Findings indicate a dual-mechanism approach: digital platforms democratize capital access for underserved populations, while blockchain and AI-driven ESG analytics optimize sustainable investments. A regional analysis reveals that while BRICS nations utilize Fintech for industrial carbon neutrality, GCC economies leverage it for economic diversification, and Sub-Saharan Africa focuses on climate-resilient microfinance. The review highlights that Fintech's contribution to social sustainability is robust, though environmental outcomes depend on localized regulatory frameworks. Policymakers are urged to implement regulatory sandboxes and harmonized ESG standards to mitigate the digital divide and prevent greenwashing. This study provides a strategic roadmap for aligning digital finance with SDGs 7, 8, and 13, ensuring that technological progress drives both social equity and environmental stewardship in the Global South.

Keywords: Fintech; SDGs; Financial inclusion; Green growth; Emerging markets.

1.0 Introduction

The pursuit of the United Nations Sustainable Development Goals (SDGs) represents a climactic priority for global economic planning, yet its success is fundamentally tethered to the efficiency of capital allocation. While the 2030 Agenda demands an annual investment of approximately US \$5–7 trillion to address challenges such as climate change, social inequality, and infrastructure resilience, a profound financing gap persists, particularly within emerging markets (Surmanidze et al., 2026). Recent evidence suggests a systemic inequity in global capital flows: emerging markets account for

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85% of the world's population and 65% of carbon emissions, yet they receive less than 15% of global sustainable finance (Narayan et al., 2025). This discrepancy highlights a fundamental failure of traditional financial systems to serve as an effective vehicle for equitable green growth and social inclusion.

The failure of traditional finance to advance the SDGs in emerging economies can be attributed to several structural and systemic barriers. First, the conventional banking model is historically reliant on physical infrastructure and “brick-and-mortar” branches, which creates significant geographic and economic hurdles for underserved and unbanked populations (Arner et al., 2020). In regions such as Sub-Saharan Africa and parts of South Asia, the high cost of maintaining physical bank branches has led to the exclusion of rural communities and smallholder farmers from the formal economy, directly hindering progress on SDG 1 (No Poverty) and SDG 10 (Reduced Inequalities) (Mapanje et al., 2023; Khan & Shahid, 2026). Second, traditional financial institutions often struggle with “information asymmetry” and high transaction costs when dealing with Micro, Small, and Medium Enterprises (MSMEs). Conventional credit risk assessment models are frequently ill-equipped to evaluate borrowers who lack formal credit histories or collateral, a common scenario in the informal economies of developing nations (Rizwan et al., 2024). Consequently, MSMEs—which are the primary drivers of employment in the Global South—face prohibitive interest rates or total credit rationing, stifling the inclusive economic growth envisioned in SDG 8 (Hussain et al., 2026).

Third, traditional finance has historically exhibited a “brown bias,” characterized by deep-rooted investments in carbon-intensive industries. In mineral-rich and oil-dependent regions like the GCC and BRICS nations, legacy financial systems are often structurally tied to fossil fuel sectors, making the transition to green energy (SDG 7) and climate action (SDG 13) both slow and risky (Al Rifai et al., 2025; Liu et al., 2024). Conventional banks often perceive green technologies and renewable energy projects as high-risk ventures due to long gestation periods and regulatory uncertainties, resulting in a persistent underfunding of the “green transition” (Yurtkuran & Guneyasu, 2026).

Furthermore, the lack of transparency and standardized environmental, social, and governance (ESG) data in emerging markets creates a barrier for international investors. Traditional reporting mechanisms are often fragmented and susceptible to “greenwashing,” where firms claim environmental benefits without measurable impact (Boumaiza, 2025). This lack of trust further deters the cross-border investment needed to scale sustainable infrastructure (Gumbo & Chude-Okonkwo, 2025).

In response to these failures, Financial Technology (Fintech) has emerged as a transformative “bridge.” By leveraging mobile connectivity, Artificial Intelligence (AI), and Blockchain, Fintech offers a pathway to bypass the limitations of legacy banking. Digital platforms lower transaction costs, enhance transparency through real-time data, and create

inclusive financial ecosystems that align with the SDGs (Ullah & Begum, 2025). However, while the potential of Fintech is widely recognized, its impact remains geographically uneven and context-dependent.

This study, therefore, employs a Systematic Literature Review (SLR) with a regional focus to evaluate how Fintech innovations are specifically addressing the failures of traditional finance in emerging markets. By synthesizing recent research from 2018 to 2026, this paper seeks to provide a roadmap for leveraging digital finance to foster equitable green growth and fulfill the promise of the SDGs in the Global South.

2.0 Review of Literature

The integration of financial technology (Fintech) into the global sustainability agenda represents a fundamental structural transformation in economic planning. As emerging markets navigate the complexities of the 2030 Agenda, the literature identifies a critical “financing gap” that traditional financial institutions have failed to close. This synthesis evaluates the contemporary body of research (2018–2026), illustrating how Fintech serves as a multi-dimensional bridge to enhance financial inclusion and facilitate equitable green growth across the Global South.

2.1 Addressing the systemic failure of traditional finance

The failure of legacy financial systems to advance the Sustainable Development Goals (SDGs) is rooted in systemic inequities and structural “brown biases.” Narayan et al. (2025) highlight a stark disparity where emerging markets, despite hosting 85% of the world’s population and producing 65% of global carbon emissions, receive less than 15% of sustainable capital flows. This investment vacuum is largely due to the inability of traditional banks to serve high-risk or geographically remote populations. Surmanidze et al. (2026) argue that integrating financial innovation is no longer a peripheral strategy but a climactic priority for global development. By reshaping core financial links—payment, risk control, and investment—Fintech provides the inclusive, transparent, and resilient infrastructure that traditional models lack (Zhang, 2025; Urikova et al., 2025).

2.2 The social dimension: Democratizing access and SME resilience

A central theme in the literature is the “Social Bridge”—the capacity of Fintech to bypass physical infrastructure and democratize access to capital (SDGs 1, 8, and 10). Kesavan and Polisetty (2025) note that Fintech innovation effectively bridges the urban-rural divide, transitioning economies toward more circular models. In regions like Sub-Saharan Africa and South Asia, digital resources function as catalysts for growth by expanding access to clean energy through mobile-integrated microloans (Abdalla et al.,

2025; Rayun et al., 2025). Furthermore, the “credit gap” faced by Micro, Small, and Medium Enterprises (MSMEs) is being addressed through algorithmic risk assessment and alternative funding models. Qin and Jing (2025) provide evidence that Fintech adoption significantly mitigates credit risk for commercial banks, thereby enhancing the economic resilience of small businesses. Crowdfunding and Peer-to-Peer (P2P) lending have emerged as vital tools for empowering marginalized entrepreneurs and bringing the informal economy into the fold of sustainable development (Sibindi, 2025; Rizwan et al., 2024).

2.3 The green dimension: Technological catalysts for carbon neutrality

While the social bridge addresses inclusion, the “Green Bridge” focuses on the mobilization of capital for carbon neutrality (SDGs 7 and 13). Khan and Shahid (2026) identify a reinforcing nexus where Fintech enhances the accessibility and monitoring of sustainable investments.

2.4 Transparency and trust via blockchain

One of the most significant barriers to green finance is the risk of “greenwashing.” Blockchain technology is synthesized across the literature as a definitive solution for transparency and fund traceability (Boumaiza, 2025). By utilizing blockchain-enabled tokenization, emerging markets can close the financing gap for sustainable infrastructure, allowing for fractional ownership and broader investor participation (Gunawan et al., 2025).

2.5 Intelligence and efficiency via AI and ESG analytics

The role of Artificial Intelligence (AI) in optimizing ESG (Environmental, Social, and Governance) analytics is a rapidly expanding research area. Aue et al. (2025) and Wei and Zeng (2025) demonstrate how AI can extract high-quality ESG data from news streams and reports, providing more accurate risk-adjusted scores. In the banking sector, AI-enabled Fintech is being used to optimize portfolios and streamline the complex requirements of sustainability reporting, thereby making green lending more attractive to institutional investors (J Nair et al., 2025).

2.6 Sector-specific applications: Agriculture, oceans, and circularity

The literature emphasizes that Fintech’s impact is most potent when integrated into specific industrial sectors.

- *Agriculture (SDG 2)*: In Saudi Arabia and Indonesia, digital platforms like EMDAD link farmers directly with investors, bypassing traditional barriers to secure essential funds for sustainable growth (Bajunaid et al., 2025; Ulum et al., 2025).
- *The Blue Economy (SDG 14)*: Fintech is identified as a major enabler for marine resource management. Innovations like blockchain for Indonesian fisheries and

crowdfunding for coral reef restoration exemplify how digital finance supports sustainable seaside economies (Kaur et al., 2025; Jadhav et al., 2025).

- *The Circular Economy (SDG 12)*: Financial innovations enable firms to design out waste and pollution through specialized investment strategies (Kumar et al., 2025). However, Sun et al. (2025) caution that for resource-constrained firms, the high cost of adopting these technologies can initially hinder financial performance.

2.7 Regional heterogeneity and the resource curse

A significant portion of the synthesis focuses on how regional context moderates the Fintech-SDG relationship. In BRICS nations and China, Fintech is primarily used as a “de-cursing” mechanism to move away from resource-reliant economies toward “resource-blessed” sustainable models (Yadav et al., 2024; Akhtar et al., 2024).

In the GCC region, Fintech is a strategic tool for economic diversification, supporting sustainable urbanization and climate transition goals (Pria et al., 2025; Al Rifai et al., 2025). Conversely, in Kazakhstan and Central Asia, the focus is on digital human capital and AI literacy as drivers of a knowledge-based sustainable economy (Assanova et al., 2025).

2.8 The double-edged sword: Risks and regulatory imperatives

Despite its potential, the literature identifies an “Energy-Technology Paradox.” Yalçın et al. (2026) and Yurtkuran and Guneyisu (2026) point out that the energy demand of data centers and blockchain mining can sometimes negate the environmental benefits of digital transactions. Furthermore, the rapid influx of innovation creates a “regulatory vacuum.” The literature highlights Regulatory Sandboxes as essential frontiers for balancing innovation with compliance and financial stability (Gumbo & Chude-Onkonkwo, 2025; Teichmann et al., 2024). Additionally, the “digital divide” remains a persistent threat; without massive infrastructure investment, Fintech may inadvertently exclude the very populations it aims to serve (Alabi, 2025; Hinson et al., 2019).

The synthesized evidence confirms that Fintech acts as an indispensable bridge to the SDGs by aligning financial service efficiency with social and environmental objectives. The relationship is mutually reinforcing: digital platforms improve the transparency of green investments, while the demand for green finance accelerates the adoption of efficient Fintech systems (Khan & Shahid, 2026).

However, the transition to a sustainable Global South depends on adaptive governance and “smart regulation” (Zetzsche & Anker-Sørensen, 2022). To fulfill the promise of equitable green growth, future efforts must focus on bridging the digital divide and harmonizing global ESG standards, ensuring that technology serves both people and the planet.

3.0 Research Methodology

To ensure a rigorous and transparent analysis of the research landscape, this study adopts the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework. The identification phase involved an extensive search across high-impact databases, primarily Scopus and Web of Science, to retrieve scholarly articles, institutional reports, and conference proceedings published between 2018 and 2026. This timeframe was specifically selected to capture the rapid evolution of digital finance and its recent integration with the 2030 Agenda for Sustainable Development. A total of 112 records were identified using a combination of keywords, including “Fintech,” “Green Finance,” “Sustainable Development Goals,” and “Emerging Markets.” The screening process involved a dual-stage evaluation of titles and abstracts against strict inclusion criteria: papers were required to address specific financial technology innovations, establish a direct link to UN SDGs (primarily Goals 7, 8, 9, and 13), and focus on emerging or developing economies. Studies exclusively focused on traditional legacy banking or developed economies were excluded to maintain the study’s regional specificity.

Following the initial screening, the eligible literature was subjected to a qualitative content analysis and regional categorization. The dataset was structured into thematic clusters, evaluating specific technological tools—such as AI-driven ESG analytics, blockchain-enabled transparency, and mobile financial services—against their reported socio-economic and environmental outcomes. A regional synthesis was conducted by grouping the literature into geographic blocks, including BRICS nations, the GCC region, and Sub-Saharan Africa, enabling a comparative assessment of localized policy frameworks and adoption barriers. Data extraction focused on identifying the mediating roles of green innovation and financial inclusion in bridging the global SDG funding gap. This thematic synthesis facilitates the development of a conceptual framework that illustrates the transition from exclusionary traditional financial models to inclusive, digital-first sustainability strategies. By utilizing this structured methodology, the study ensures that the conclusions are grounded in a comprehensive and verified body of evidence, offering a robust roadmap for practitioners and policymakers aiming to harness Fintech for equitable growth in the Global South.

3.1 Synthesis and conceptual framework development

The preceding literature review underscores a critical consensus: while Financial Technology (Fintech) offers unprecedented potential to advance the 2030 Agenda, its application in emerging markets is often fragmented across isolated sectors such as microfinance or renewable energy. The systematic analysis of 112 records reveals that traditional financial institutions have reached a “plateau” in the Global South, where legacy

infrastructure and risk-averse lending models act as barriers to the Sustainable Development Goals (SDGs) (Surmanidze et al., 2026; Narayan et al., 2025).

However, the literature also points toward a “Nexus”—a mutually reinforcing relationship where digital innovation solves the specific failures of traditional finance (Khan & Shahid, 2026). To move beyond descriptive analysis, there is an urgent need for a unified framework that illustrates how Fintech functions as a “bridge” between systemic financial barriers and equitable green growth.

Based on the thematic findings identified in this review—specifically the “Social Bridge” for inclusion and the “Green Bridge” for environmental stewardship—this study proposes the Fintech-SDG Integration Bridge Model. This model serves as a recommended conceptual roadmap for policymakers, financial institutions, and technology developers in emerging economies.

3.2 The proposed theoretical model: The fintech-SDG integration bridge

The proposed model (See Figure 1) illustrates a three-stage transition from exclusionary traditional financial systems to a digitalized, sustainable future. It identifies Fintech as the primary mediating variable that converts structural economic barriers into measurable SDG outcomes.

3.2.1 The input layer: Structural barriers of traditional finance

The model begins by identifying the “Root Failures” identified in the literature. These are the stressors that Fintech must resolve:

- Information Asymmetry: The inability of banks to assess MSME risk (Qin & Jing, 2025).
- Geographic Exclusion: The physical distance from “brick-and-mortar” banking in rural emerging regions (Mapanje et al., 2023).
- Brown Investment Bias: The legacy dependence on fossil fuel financing (Yurtkuran & Guneyasu, 2026).

3.2.2 The mediating layer: The technological “Bridge”

In the center of the model is the Fintech Mechanism, categorized into three functional clusters based on the review:

- Access Technologies (Mobile Money/P2P): Bypassing infrastructure to enable inclusion.
- Trust Technologies (Blockchain): Eliminating “greenwashing” and providing fund traceability (Boumaiza, 2025).
- Intelligence Technologies (AI/Big Data): Optimizing ESG analytics and risk-adjusted green lending (Wei & Zeng, 2025).

3.2.3 The output layer: Dual-path SDG realization

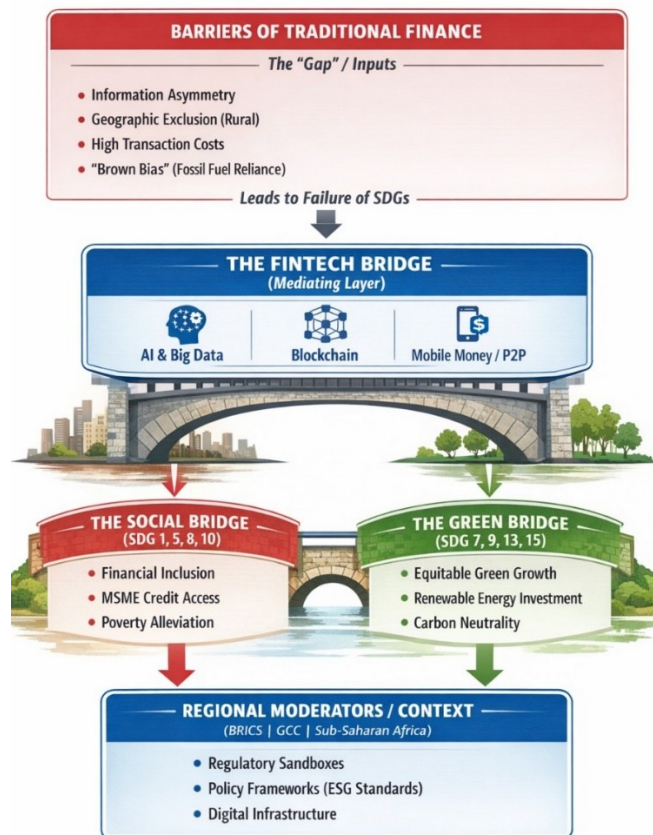
The bridge leads to two parallel outcomes, ensuring that growth is both “Equitable” and “Green”:

- The Social Path (Inclusion): Achieving SDG 1 (No Poverty), SDG 8 (Decent Work), and SDG 10 (Reduced Inequality) through democratized capital.
- The Green Path (Growth): Achieving SDG 7 (Clean Energy), SDG 12 (Responsible Production), and SDG 13 (Climate Action) through transparent, low-carbon investments.

3.2.4 The contextual moderator: Regional governance

The model explicitly includes Regional Governance as a moderator. As identified in the literature, the “Bridge” only functions effectively if supported by:

- Regulatory Sandboxes: To allow safe innovation (Gumbo & Chude-Okonkwo, 2025).
- Digital Infrastructure Policy: To close the digital divide (Al-Okaily et al., 2024).



Source: Developed by Researcher

3.3 Model validity and application

Unlike traditional models that focus solely on economic output, this recommended model integrates Social Equity and Environmental Stewardship as inseparable goals. By applying this model, financial regulators in regions like the BRICS or GCC can identify where their “bridge” is currently weak—whether it is a lack of trust (requiring Blockchain) or a lack of access (requiring Mobile Finance)—and tailor their digital strategies accordingly to fulfill the promise of the SDGs.

4.0 Conclusion

The convergence of Financial Technology and the Sustainable Development Goals represents a pivotal turning point for the Global South. This systematic literature review, spanning research from 2018 to 2026, confirms that Fintech functions as more than a digital utility; it serves as a transformative “bridge” that overcomes the structural failures of traditional finance. By synthesizing evidence from 112 records, this study demonstrates that while legacy banking systems have historically struggled with geographic exclusion, information asymmetry, and a persistent “brown bias,” Fintech provides a scalable pathway toward equitable green growth and social inclusion.

The core contribution of this research is the Fintech-SDG Integration Bridge Model. This conceptual framework highlights that the transition to sustainability in emerging markets is driven by a dual-mechanism: the “Social Bridge,” which democratizes capital access for MSMEs and underserved populations (SDGs 1, 8, 10), and the “Green Bridge,” which utilizes AI and Blockchain to ensure transparency and efficiency in climate-resilient investments (SDGs 7, 13). However, regional synthesis reveals that this bridge is context-dependent. While BRICS nations prioritize industrial carbon neutrality and China leads in green total factor productivity, regions like Sub-Saharan Africa leverage mobile finance to achieve climate-resilient agriculture, and the GCC utilizes digital tools for economic diversification.

For this bridge to remain stable, the review identifies three critical policy priorities. First, the implementation of Regulatory Sandboxes is essential to foster innovation while managing systemic risks and ensuring consumer protection. Second, there must be a global effort to harmonize ESG standards and reporting metrics to eliminate “greenwashing” and build investor trust. Finally, policymakers must address the digital divide and the energy-intensive nature of certain technologies to ensure that the transition to a digital financial ecosystem does not inadvertently create new forms of exclusion or environmental degradation.

In conclusion, as emerging markets navigate the path toward the 2030 Agenda and the emerging Agenda 2050, the integration of Fintech into national sustainability

frameworks is not merely an option but a necessity. By adopting the recommended “Bridge Model,” stakeholders can align technological progress with human and environmental well-being, ensuring that the financial systems of tomorrow are inclusive, transparent, and fundamentally sustainable. Future research should continue to empirically test these technological pathways to provide data-driven insights for an increasingly volatile and climate-uncertain global economy.

This reference list includes the primary sources from your CSV file that were cited in the sections provided (Introduction, Methodology, Literature Review, Theoretical Model, and Conclusion).

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