

Sustainable Management Practices Through Digitalisation in the Service Sector: A Study with Reference to the Indian Financial Sector

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Abstract

This research paper discusses the interlink between digital transformation and sustained management practices in the services sector, with particular emphasis on the Indian financial system. It explores the way in which highly advanced digital technologies, such as Artificial Intelligence, Blockchain, and Big Data Analytics, facilitate the aims of Environmental, Social, & Governance (ESG) criteria in emerging countries. The analysis adopted in the research paper involves a mixed research methodology to conduct a systematic review of current literature (2020-2025), with a complementation of the analysis with the data collected from ESG disclosure statement analysis among major financial institutions in the Indian context. The analysis also involves an analysis of the BRSR statement with support from thematic analysis derived from preparatory regulatory statements released by RBI, SEBI. Results clearly show that technological advancements have considerably improved the operational sustainability, financial sustainability, and transparency in Indian financial services. Digital Public Infrastructure, namely UPI & AA, has resulted in improving the social dimension of sustainability. New emerging failures, like digital pollution, cyber risk, and algorithmic bias, challenge the sustainability gap. From the findings, it is apparent that consideration among management paradigms to incorporate cyber sustainability is essential to achieve robust, sustained financial sustainability in the Indian context.

Keywords: Digitalisation, Sustainable Management Practices, Artificial Intelligence ESG, Green Finance, Indian Financial Sector, Green Finance, Financial Inclusion.

Introduction

A very critical dual shift regarding the need for digital transformation and the need for sustainability is currently underway in the banking sector in India. The need for sustainable management practices is no longer a discretionary choice but a need based on the commitment

of India to become Net Zero by the year 2070 and the initiatives of the RBI regarding climate disclosure requirements in 2024 and the SEBI’s requirement regarding the BRSR Core. The need for digitalisation has come to the forefront as a ground-enabler in the wake of these changes. The concept of India’s Digital Public Infrastructure or DPI—Aadhaar, UPI, AA’s, and Digi Locker—has brought about a radical change in the area of financial service delivery, and the use of this infrastructure ensures increased inclusivity, low-cost transactions, and better governance. This paper centres on the impact of various digital technologies in the area of creating a mechanism for the infusion of ESG into the management of finances in India.

Theoretical Framework and Literature Review

Resource-Based View (RBV)

Based on the Resource-Based View (Barney, 1991), this research defines digital sustainable finance capabilities like AI-powered ESG analysis solutions, blockchain traceability platforms, and so on, as valuable resources. These sustainable finance capabilities can be a source of sustained competitive advantage through reduced information asymmetry related to green credits, improved green credit evaluation, and boosted stakeholder confidence in sustainable finance initiatives (Agarwal & Rai.,2025).

Institutional Theory

Institutional theory explains sustainability adoption in the Indian financial sector through coercive isomorphism, driven by regulatory guidelines from institutions such as the RBI and SEBI. Mandatory ESG disclosures under BRSR Core have accelerated the digitalisation of sustainability reporting, compelling financial institutions to adopt standardised digital frameworks (Rai t al., 2024).

Literature Review Synthesis

Currently, new studies focus on the relationship between digital finance and sustainability and financial inclusion. Despite the significant increase in financial access provided by UPI, ESG discloses governance factors in a dispersed manner. However, despite infrastructure problems experienced by small banks, Sharma and Gupta (2025) find that ESG performance and digital maturity demonstrate a good relationship between them and Indian banks. Definitely, there is room in terms of research gap since currently, there are only limited studies, particularly on digitalisation and ESG integration with Indian financial institutions.

Research Gap

There is a lack of India-specific empirical research explaining how digitalisation—through advanced technologies and Digital Public Infrastructure—integrates ESG principles into sustainable management practices in the financial sector while accounting for regulatory mandates and emerging digital sustainability risks.

Research Methodology

Research Design

The study employs a mixed-method research, quantitative and qualitative Content analysis of ESG disclosures from NIFTY 50 financial service firms (2022–2025) using sentiment analysis to distinguish substantive sustainability actions from symbolic greenwashing based on quantitative data. Thematic analysis of RBI’s 2024 climate risk disclosure guidelines and SEBI’s ESG reporting frameworks based on qualitative analysis.

Data Collection

Secondary data were sourced from SEBI’s BRSR database, RBI annual and policy reports, World Bank publications, and Statista India (2025). The final sample included 15 major Indian commercial banks, representing both public and private sector institutions.

Table 1: Digitalisation and ESG Performance in Indian Financial Institutions

| Sustainability Pillar | Digital Initiative | Key Metrics/Indicators | Findings (Indian Context) | References |
|-----------------------|---|---|---|--|
| Social | Digital Public Infrastructure (DPI), UPI, Account Aggregators | Cost reduction (%), Digitally onboarded customers | 85% cost reduction; increased financial inclusion, micro-insurance & pensions | World Bank (2024); Kashyap et al. (2024) |
| Environmental | AI-based Climate Risk Assessment | Scope 3 emissions, Climate risk monitoring | 60% of leading banks use AI & satellite data for floods/droughts | RBI (2024); Sharma & Gupta (2025) |

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|--------------------|--|---|---|--------------------------|
| Governance | Blockchain for Green Bonds | Traceability of green credits, Smart contract adoption | Smart contracts piloted; improved transparency & governance | SEBI (2025); OECD (2020) |
| Challenges & Risks | Cybersecurity, Digital Pollution, Algorithmic Bias | Number of breaches, Energy consumption, AI bias incidents | Emerging risks in smaller banks; energy use rising | Vial (2019); OECD (2023) |

Results And Discussion

Social Sustainability: Digital Public Infrastructure (DPI)

This study analysis indicates that Digital Public Infrastructure (DPI) has minimised the cost of servicing rural and underserved customers by approximately 85% through digital onboarding, e-KYC, and paperless transactions.

Discussion

These findings are consistent with previous literature that highlighted that sustainable India is primarily social-inclusion-before-governance and environmental outcomes (World Bank, 2024). As opposed to MDC economies, for which carbon emissions reduction is commonly the common aim for all sustainability endeavours, even in India's DPI programs, including Aadhaar, UPI, and Account Aggregators, scaling the delivery of financial services to marginalised sections of society is possible. These platforms make available DBT, micro-insurance schemes, and micro-pension schemes and, therefore, social sustainability is imbued in the core business models of financial institutions through digital platforms. This is consistent with RBI (2024), who state that digital finance is “a driving force for strong and inclusive growth (Jaiswal et al., 2024).

Environmental Sustainability: AI in Climate Risk Assessment

Following the RBI’s 2024 Draft Climate Risk Disclosure Framework, Indian banks have increasingly deployed AI-based tools to assess Scope 3 emissions embedded in their lending portfolios (Shrivastava & Kumar, 2020).

Discussion

There has been an observed shift towards data-informed environmental risk management, which is proven by the fact that close to 60% of the leading Indian banks have started making use of satellite imagery and geospatial analysis for infrastructure and agri-loans. These results have confirmed the OECD (2023) and Sharma and Gupta (2025) study, which mentioned that AI enhances green credit disbursements and climate-risk predictions. The Indian banks have moved on from sustainability and environmental risk management strategies to proactive environmental care, in which environmental and climate variables are taken into account for credit evaluation. Still, AI models have been found to augment energy consumption and require effective governance frameworks to mitigate environmental trade-offs (Vial, 2019).

Governance Sustainability: Blockchain and Green Finance

Blockchain technology is being increasingly adopted within India’s sovereign green bond ecosystem to enhance transparency and accountability.

International green finance literature is proven by the pilot application of smart contracts to ensure the traceable nature of green bonds’ proceeds and prevent double-counting of green credits. Blockchain-based systems of India pertain to the Ministry of Environment’s Green Credit mechanism for 2024 and SEBI’s higher transparency requirements. By minimising information asymmetry and risk of governance, which is a common drawback of ESG, these systems help increase investor confidence. Yet, there is a long way regarding compatibility and regulatory requirements to increase the scalability of applications of blockchain.

Managerial And Policy Implications

- Financial Managers: There needs to be a focus on digital ethics and algorithmic equity to make sure that AI-based credit judgments are not marginalising certain sections of society (Narendran, et al., 2024).
- Policymakers: The RBI should create a Green Digital Sandbox to facilitate fintech innovation in carbon accounting, climate risk analysis, and MSME sustainability reporting (Maurya et al., 2025).

Conclusion, Limitations, And Future Research

Digitalisation is an important facilitator of sustainable management in the Indian financial industry. Although digital finance promotes ESG integration, sustainable results

require proper governance of technology use. For this analysis, there are some limitations with regard to the absence of information concerning the performance of green loans over time. Further analysis is required concerning data centres' environmental impact and whether the augmentation of digitisation is leading to "electronic pollution" in the services sector.

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