


# Chapter 7


## Revolutionizing Financial Systems: Emerging Technologies, Sustainability, and Inclusivity in FinTech

**K. Agusta**

 <https://orcid.org/0009-0003-1677-4756>

*SASTRA University, India*

**R. Nalini**

 <https://orcid.org/0000-0003-3033-8945>

*SASTRA University, India*

### **ABSTRACT**

*This book examines the pivotal role of FinTech in enhancing financial inclusion, sustainability, and accessibility. It explores cutting-edge technologies such as blockchain, artificial intelligence, decentralized finance (DeFi), and embedded finance, emphasizing their influence on digital payment ecosystems, cross-border transactions, and expanding financial services for underserved communities. Furthermore, it investigates FinTech's contribution to environmental sustainability through green finance initiatives and AI-driven ESG investment strategies. The discussion also extends to regulatory complexities, ethical considerations, and policy frameworks essential for fostering innovation while ensuring security and compliance. Through in-depth case studies and expert perspectives, this book offers strategic insights for policymakers, financial institutions, entrepreneurs, and researchers aiming to drive inclusive and sustainable financial advancements.*

DOI: 10.4018/979-8-3373-1112-8.ch007

## INTRODUCTION

The global financial ecosystem is undergoing a profound transformation propelled by the rapid evolution of emerging technologies in the FinTech sector. Innovations such as blockchain, artificial intelligence (AI), machine learning (ML), decentralized finance (DeFi), the Internet of Things (IoT), and embedded finance are revolutionizing the way financial services are designed, delivered, and consumed across the world. These technologies are not merely enhancing efficiency and transparency but are fundamentally altering the accessibility and inclusivity of financial systems, especially in developing economies. According to the World Bank (2024), digital financial services have enabled over 1.2 billion people globally to gain access to formal financial tools in the past decade, signalling a paradigm shift in financial empowerment. India has emerged as a global frontrunner in leveraging digital infrastructure to drive financial inclusion through initiatives such as India Stack, the Pradhan Mantri Jan Dhan Yojana (PMJDY), the Unified Payments Interface (UPI), and the Reserve Bank of India's Digital Rupee (CBDC). As of August 2024, more than 53 crore bank accounts had been opened under PMJDY, with 67% located in rural and semi-urban areas and 55% held by women. Furthermore, UPI facilitated over 16.73 billion transactions in December 2024 alone, accounting for nearly 49% of all global real-time payments. While these achievements highlight the transformative potential of FinTech in expanding access, reducing inequality, and stimulating economic participation, they also expose critical challenges related to the digital divide, cybersecurity, data privacy, algorithmic bias, and the underutilization of accounts. Vulnerable communities, particularly women, and low-income rural populations, continue to face barriers in digital readiness, financial literacy, and meaningful use of digital tools. Moreover, the rapid pace of innovation has often outpaced the development of inclusive and adaptive regulatory frameworks, raising ethical concerns around unregulated lending, opaque AI models, and exclusionary financial algorithms. This chapter explores the complex interplay between technological innovation and financial inclusivity by analyzing the integration and impact of emerging FinTech solutions in the Indian context. It seeks to critically evaluate whether these technologies are truly enabling equitable and sustainable digital financial inclusion or inadvertently reinforcing socio-economic disparities.

### 1. OVERVIEW OF LITERATURE REVIEW

A literature review is a critical component of academic research, providing context, identifying knowledge gaps, and framing the study within existing scholarship (Boote & Beile, 2005). It helps assess prior theories, methodologies, and findings

38 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: [www.igi-global.com/chapter/revolutionizing-financial-systems/387219](http://www.igi-global.com/chapter/revolutionizing-financial-systems/387219)

## Related Content

---

### The Role of Profit Rate in Islamic Monetary Policy

Trisiladi Suprijanto (2020). *Handbook of Research on Theory and Practice of Global Islamic Finance* (pp. 18-37).

[www.irma-international.org/chapter/the-role-of-profit-rate-in-islamic-monetary-policy/247190](http://www.irma-international.org/chapter/the-role-of-profit-rate-in-islamic-monetary-policy/247190)

### Liquidity Efficiency in the Greek Listed Firms: A Financial Ratio Based on Data Envelopment Analysis

Ioannis Dokas, Dimitris Giokas and Anastasios Tsamis (2014). *International Journal of Corporate Finance and Accounting* (pp. 40-59).

[www.irma-international.org/article/liquidity-efficiency-in-the-greek-listed-firms/107004](http://www.irma-international.org/article/liquidity-efficiency-in-the-greek-listed-firms/107004)

### Business Model of Internet Banks

(2011). *E-Banking and Emerging Multidisciplinary Processes: Social, Economical and Organizational Models* (pp. 101-113).

[www.irma-international.org/chapter/business-model-internet-banks/46231](http://www.irma-international.org/chapter/business-model-internet-banks/46231)

### Cloud TV: A Techno-Economic Approach in the Emerging Era of the Internet of Things

Georgia Dede, Georgios Loupatatzis, Dimitris Grigoropoulos, Georgios Chatzithanasis, Thomas Kamalakis and Christos Michalakelis (2020). *International Journal of Corporate Finance and Accounting* (pp. 39-53).

[www.irma-international.org/article/cloud-tv/261858](http://www.irma-international.org/article/cloud-tv/261858)

### The Use of Simulations as an Analytical Tool for Payment Systems

Martin Diehl (2013). *Simulation in Computational Finance and Economics: Tools and Emerging Applications* (pp. 29-45).

[www.irma-international.org/chapter/use-simulations-analytical-tool-payment/68689](http://www.irma-international.org/chapter/use-simulations-analytical-tool-payment/68689)