

Chapter 15

Transformation of SME Financing Models Using Disruptive Technologies


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ABSTRACT

The evolution of SME financing is being reshaped by disruptive technologies such as blockchain, artificial intelligence, big data, and the Internet of Things. These innovations enhance financial accessibility, streamline credit assessment, and enable decentralized finance solutions. However, challenges such as regulatory uncertainties, cybersecurity risks, and algorithmic biases persist. This research explores the transformative impact of these technologies, addressing both opportunities and risks while proposing policy recommendations to ensure secure, inclusive, and efficient SME financing in an increasingly digital economy.

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1- INTRODUCTION

Small and medium-sized enterprises (SMEs) form the backbone of economies worldwide, contributing significantly to employment, innovation, and economic stability. Despite their crucial role, SMEs have historically faced persistent challenges in securing adequate financing. Traditional financing mechanisms, primarily driven by banks and financial institutions, impose rigid requirements that often act as barriers for SMEs, particularly those in emerging markets. High collateral demands, lengthy credit approval processes, and stringent regulatory frameworks make it difficult for these businesses to access the funds they need to sustain operations and expand. The lack of comprehensive credit histories and financial transparency further exacerbates these challenges, leaving many SMEs financially underserved (Smuts et al., 2024).

The advent of disruptive technologies has initiated a paradigm shift in financial ecosystems, offering new avenues for SMEs to overcome these longstanding obstacles. The digital transformation of financial services has ushered in an era where alternative financing models, powered by technologies such as artificial intelligence (AI), blockchain, big data, and the Internet of Things (IoT), are reshaping access to capital. These innovations are dismantling traditional financial barriers by enabling decentralized, efficient, and data-driven decision-making processes. Fintech companies, leveraging cutting-edge technologies, are providing SMEs with alternative credit scoring mechanisms, peer-to-peer (P2P) lending platforms, and automated financing solutions that operate with greater flexibility and inclusivity.

Blockchain technology has emerged as a particularly disruptive force in SME financing. Through decentralized finance (DeFi) solutions, businesses can access funding without relying on traditional intermediaries. Smart contracts facilitate trustless transactions, ensuring transparency and security while reducing operational costs. The tokenization of assets allows SMEs to diversify their financing options, attracting investors globally without the need for complex legal frameworks. Moreover, blockchain-based financing mechanisms mitigate fraud risks, enhance transactional security, and increase liquidity in capital markets. As a result, SMEs that previously struggled to obtain bank loans are now finding alternative funding channels through decentralized platforms (Soni et al., 2022).

Artificial intelligence plays an equally transformative role in addressing the credit assessment challenges faced by SMEs. Conventional credit scoring models rely heavily on historical financial data, often excluding businesses with limited formal financial records. AI-driven algorithms, on the other hand, leverage alternative data sources, including transactional behaviors, market trends, and even real-time operational metrics, to assess creditworthiness with greater accuracy. By integrating machine learning models, financial institutions and fintech startups can

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