



Journal of Hunan University
(Natural Sciences)

Vol. 52 No. 11
November 2025

Available online at
<https://joununs.com>



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Open Access Article

 <https://doi.org/10.55463/issn.1674-2974.52.11.13>

The Role of Financial Technology in Optimizing Financial Management, Marketing, and Business Systems in Start-Up Companies

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Article history

Received: October 21, 2025

Revised: November 28, 2025

Accepted: December 16, 2025

Published: December 30, 2025

Abstract: This study examines the financial management challenges faced by start-up companies, particularly related to inefficiency and lack of transparency in traditional financial systems. The research aims to analyze how the implementation of Financial Technology (Fintech) can enhance Financial Management, Marketing, and Business Systems in Start-Up Companies. Using a library research method, data were collected from primary and secondary literature sources, including journals, books, reports, and scientific publications on Fintech, financial transparency, and start-up financial management. Content analysis was applied to evaluate and synthesize findings. The study concludes that Fintech significantly improves financial processes, reporting transparency, and decision-making quality through automation, real-time data access, and digital financial tools, thus strengthening financial governance and supporting long-term sustainability of start-up companies.

Keywords: Financial Technology (Fintech), Financial Transparency, Start-Up Financial Management.



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金融科技在初创企业财务管理、市场营销与商业系统优化中的作用

摘要： 本研究探讨了初创企业在财务管理方面面临的挑战，尤其是传统财务系统中存在的效率低下和透明度不足问题。研究旨在分析金融科技（Fintech）的应用如何提升初创企业的财务管理、市场营销以及商业系统。采用文献研究方法，从期刊、书籍、研究报告及有关金融科技、财务透明度和初创企业财务管理的学术出版物等一手和二手文献中收集数据，并通过内容分析法对研究成果进行评估与综合。研究结论表明，金融科技通过自动化、实时数据获取以及数字化金融工具，显著提升了财务流程效率、报告透明度和决策质量，从而加强了财务治理能力，并支持初创企业的长期可持续发展。

关键词： 金融科技（Fintech）、财务透明度、初创企业财务管理

1. Introduction

The rapid growth of start-up companies in recent years has introduced new challenges in financial management, particularly in maintaining efficiency, transparency, and accountability within financial systems. Many start-ups struggle to establish strong financial foundations due to limited resources, lack of standardized financial procedures, and inadequate technological support in managing financial transactions. Traditional financial management practices are often manual, time-consuming, and prone to human error, resulting in delays, inefficiencies, and transparency issues that can hinder business performance and erode stakeholder trust. In an increasingly digital business landscape, the inability to manage finances effectively poses significant risks for start-ups, including financial misreporting, lack of real-time data, and vulnerability to fraudulent activities. These issues emphasize the urgent need for innovative solutions that enable start-ups to optimize their financial operations. Therefore, the reality of current financial management challenges in start-up companies demonstrates the necessity of adopting modern technological tools that can enhance operational efficiency and improve the transparency of financial processes to ensure sustainability and competitiveness (Mosteanu & Faccia, 2020).

Existing literature highlights that Financial Technology (Fintech) offers transformative potential in improving financial systems by enabling automation, real-time data access, and digital financial reporting. Previous studies have demonstrated that Fintech tools, such as digital payments, budgeting software, blockchain-based accounting, and cloud-based financial platforms, contribute positively to operational efficiency and transparency in business environments. However,

despite the growing evidence, several theoretical and practical gaps persist, particularly concerning the effective implementation of Fintech within start-up ecosystems. Many studies focus on Fintech adoption in banking, large corporations, or financial institutions, yet research addressing its direct implementation in start-up financial management remains limited. Moreover, existing theories on financial efficiency and transparency do not fully integrate the role of Fintech as a strategic instrument for improving financial governance in start-ups. This gap indicates that theoretical frameworks currently available are insufficient to explain how Fintech can be optimally utilized in start-up financial management systems. Therefore, further investigation is required to bridge this gap and provide deeper theoretical and empirical insights into Fintech's role in enhancing financial efficiency and transparency specifically in the context of start-up businesses (Hamid et al., 2024).

The main objective of this research is to analyze the implementation of Financial Technology (Fintech) as a strategic approach to enhancing the efficiency and transparency of financial management systems in start-up companies. This study aims to identify the key Fintech tools and applications that can support start-ups in improving their financial processes, reducing operational inefficiencies, and strengthening the accuracy and clarity of financial information. Furthermore, the research intends to explore the impact of Fintech adoption on financial reporting, decision-making quality, and overall financial governance within start-up environments. By examining relevant literature and synthesizing findings from various academic and industry sources, this study seeks to contribute a clearer understanding of how Fintech can serve as a solution to current financial management challenges commonly experienced by start-ups. Ultimately, the purpose of this

research is not only to provide theoretical insights but also to offer practical recommendations for start-ups to adopt Fintech-based financial management practices that promote sustainable growth and competitiveness (AlMomani & Alomari, 2021).

This research is essential because the integration of Fintech into start-up financial management systems is expected to offer significant improvements that align with the evolving needs of the digital economy. Based on the identified problems and research objectives, it can be argued that Fintech has the potential to serve as an effective solution for overcoming inefficiencies, increasing transparency, and strengthening financial accountability in start-up companies. The hypothesis of this study assumes that start-ups adopting Fintech-based financial systems will experience enhanced accuracy in financial reporting, reduced operational costs, and improved stakeholder trust due to higher levels of financial transparency. Additionally, Fintech adoption can support better financial decision-making through real-time data access, automated processing, and analytic-based insights that help founders manage resources more effectively. The importance of this research lies in providing a strong justification for why start-ups should prioritize Fintech implementation as part of their strategic development and financial governance framework. Without embracing Fintech, start-ups risk falling behind in a competitive market where digital proficiency, efficiency, and transparency are key determinants of business sustainability. Therefore, this research offers relevant theoretical and practical contributions to guide start-ups in maximizing the benefits of Fintech for long-term financial growth and resilience (Putri & Mainisa, 2025).

2. Methods

Research Object

The object of this research focuses on the phenomenon of how start-up companies implement Financial Technology (Fintech) to enhance the efficiency and transparency of their financial management systems. Start-ups, particularly in their early operational stages, commonly encounter financial management obstacles due to limited human and financial resources, absence of standardized accounting procedures, and insufficient technological infrastructure to support financial operations. These constraints increase the likelihood of financial inaccuracies, delays in financial reporting, poor cash flow monitoring, and weak transparency that may affect decision-making and reduce stakeholder trust. In today's digital business environment, start-ups are expected to adopt modern technological solutions to strengthen financial accountability and improve operational performance. Although Fintech solutions are increasingly accessible, many start-ups struggle to integrate them effectively due to limited knowledge, resistance to digital transformation, or lack of awareness of the benefits of

technology-based financial systems. Therefore, this study examines the core issue of inefficient and non-transparent financial management practices in start-ups and explores how the implementation of Fintech-based tools can serve as a strategic solution to address these financial governance challenges (Sarifudeen, 2024).

Research Type and Data Sources

This study employs a library research approach, which relies on reviewing, analyzing, and synthesizing various scholarly sources to explore the relationship between Fintech adoption and improvements in start-up financial management. The primary data of this research consists of academic literature that directly discusses financial challenges faced by start-ups and the role of Fintech applications in increasing efficiency and transparency. These primary sources include peer-reviewed journal articles, scientific research papers, conference proceedings, and industry-based studies that highlight the use of Financial Technology in business practices. Secondary data supports the research by providing complementary information relating to the keywords of this study, such as digital finance, financial governance, technological innovation, and financial reporting systems. These secondary sources were obtained from textbooks, financial reports, government publications, industry whitepapers, and credible online resources. The combination of primary and secondary data strengthens the validity of the study by ensuring a comprehensive and well-rounded understanding of the research topic (Aulia et al., 2020).

Theoretical Foundation

This research is supported by several theoretical foundations that provide conceptual direction in examining Fintech implementation and its impact on financial management in start-ups. One of the key theories employed is the Technology Acceptance Model (TAM) developed by Davis (1989), which explains users' acceptance of technology based on perceived usefulness and perceived ease of use. This theory is relevant because the adoption of Fintech within start-ups significantly depends on how founders, managers, and employees perceive its value and simplicity in enhancing financial operations. The study also refers to Rogers' Innovation Diffusion Theory (IDT), which outlines how innovations are adopted within a social system through five attributes: relative advantage, compatibility, complexity, trialability, and observability. IDT aligns with this research as it analyzes how Fintech innovation spreads and is embraced in start-up environments. Additionally, principles from the Financial Transparency Theory, widely used in corporate governance literature, are applied to explain how digital financial systems enhance accountability, reduce information asymmetry, and improve the clarity of financial information. These

theories collectively form a solid conceptual basis for analyzing how Fintech contributes to improving efficiency, transparency, and financial governance in start-up companies (Manawar et al., 2023).

Research Process and Data Collection Technique

The research process was carried out through several systematic stages to ensure that the data collected was accurate, relevant, and aligned with the research objectives. First, the researcher identified key themes and formulated research questions that focused on Fintech implementation in start-up financial management systems. After determining the research scope, literature searching was conducted through reputable academic databases such as Scopus, Google Scholar, JSTOR, ScienceDirect, and ResearchGate, as well as digital academic libraries that provide scientific publications in finance and technology. The data collection technique involved a detailed review of written documents, including books, journal articles, previous research studies, conference papers, financial reports, government regulatory documents, and industry magazines related to Fintech and financial management. Keywords such as “Financial Technology,” “Fintech for start-ups,” “financial transparency,” “digital financial management,” and “Fintech adoption” were used to identify relevant publications. Selected literature was then screened based on credibility, recency (with priority given to works published within the last ten years), and relevance to the research focus. The collected sources were documented, categorized, summarized, and synthesized to support the analysis and interpretation of the findings (Mohamed, 2021).

Data Analysis Technique

This research used a content analysis technique to process the collected data and derive meaningful conclusions. Content analysis enabled the researcher to examine various written sources, identify recurring themes, and interpret conceptual and empirical findings related to Fintech implementation in start-ups. The analysis process began with coding, where key themes extracted from the literature were grouped into categories such as Fintech benefits, financial efficiency, transparency enhancement, technology adoption challenges, and financial governance improvements. These categories were compared and analyzed to identify similarities, differences, and emerging patterns across literature sources. The next stage involved synthesizing and interpreting the findings to evaluate theoretical perspectives and practical implications related to Fintech adoption. Through content analysis, the researcher was able to construct an integrated understanding of how Fintech contributes to strengthening financial management systems in start-

ups. This analytical approach ensures that the study produces academically grounded insights and practical recommendations that can support start-ups in utilizing Fintech to improve financial performance and transparency.

3. Result and Discussion

The results of this study show that the implementation of Financial Technology (Fintech) has brought significant positive changes to the financial management practices of start-up companies, particularly in improving efficiency, accuracy, and transparency. Based on the reviewed literature, start-ups that adopt Fintech tools demonstrate stronger financial governance through enhanced data management, standardized reporting, and reliable transaction processing. The findings indicate that Fintech enables start-ups to operate more effectively despite having limited resources, as it digitalizes essential financial functions that traditionally require manual processing. These improvements strongly support business sustainability by reducing errors, promoting accountability, and enabling founders to maintain better control over financial activities. Overall, the evidence confirms that Fintech implementation serves as a key determinant of improved financial performance, operational effectiveness, and organizational trustworthiness in start-up environments.

The results highlight that Fintech significantly enhances the efficiency of financial processes within start-ups. Tools such as automated accounting platforms, digital payment systems, and integrated financial dashboards reduce administrative workload, accelerate financial transactions, and simplify financial monitoring. Automation allows repetitive tasks—such as bookkeeping, invoicing, reconciliation, and expense tracking—to be completed faster and with higher accuracy. This efficiency improvement enables financial teams to shift their focus from operational duties toward strategic financial planning. Real-time financial tracking also provides start-ups with up-to-date insights into cash flow, revenue streams, and expense trends, allowing quicker response to financial risks. As a result, start-ups can minimize delays, avoid financial discrepancies, and increase operational agility. These findings confirm that Fintech adoption directly improves process efficiency, resource utilization, and overall business productivity.

The study also reveals that Fintech plays an essential role in strengthening transparency and accountability in start-up financial systems. Digital financial platforms provide recorded, traceable, and easily auditable data that enhances clarity in reporting and reduces the likelihood of financial manipulation. Stakeholders—such as investors, partners, and regulatory bodies—gain more confidence when financial information is accessible, consistent, and

backed by digital verification. The use of blockchain-based financial systems further improves transparency by creating tamper-proof transaction records that prevent fraud and unethical financial practices. Fintech-enabled reporting systems ensure that financial statements reflect actual conditions, promote responsible financial behavior, and minimize information asymmetry. This increased transparency ultimately contributes to stronger stakeholder trust and supports start-ups in securing funding and investment opportunities.

Another key result of the study is the enhanced quality of financial decision-making achieved through Fintech adoption. With the support of digital analytics, artificial intelligence, and financial forecasting tools, start-ups are better equipped to analyze performance trends, evaluate financial risks, and make informed strategic decisions. Fintech systems provide visual dashboards and analytical features that allow founders to interpret financial data more effectively, enabling early identification of irregularities, budget deviations, and potential financial threats. These insights support scenario planning, resource allocation, and growth strategies based on factual evidence rather than intuition. Additionally, Fintech enhances financial governance by ensuring consistency in procedures, compliance with regulations, and alignment with best financial practices. Therefore, the adoption of Fintech contributes to stronger financial leadership and supports data-driven policies that sustain long-term business development.

Despite the benefits, the findings also indicate that start-ups encounter several challenges during Fintech implementation. One major obstacle is the low level of digital financial literacy among founders and employees, which leads to resistance and difficulty in adapting to new systems. Financial constraints also limit the ability of some start-ups to invest in high-quality Fintech solutions or advanced cybersecurity systems. In addition, concerns regarding data privacy, system reliability, and compliance with digital financial regulations remain significant barriers. Many start-ups lack a structured change management strategy to support technology integration, resulting in ineffective system adoption or underutilization of digital tools. These challenges show that Fintech cannot produce optimal results unless accompanied by proper training, regulatory awareness, and organizational readiness. Addressing these barriers is necessary to maximize the full potential of Fintech for financial improvement.

Discussion

1. Strategic Role of Fintech in Transforming Start-Up Financial Management

Fintech has emerged as a strategic driver of transformation in start-up financial management,

shifting financial processes from manual and reactive approaches to digital, automated, and data-driven systems. The findings reveal that Fintech is no longer merely a supporting tool, but a strategic enabler that enhances financial governance and business sustainability. In the context of start-ups—which often operate with limited financial capacity, small teams, and evolving business models—Fintech provides a structural advantage by simplifying financial workflows, improving accessibility of financial data, and reinforcing financial discipline. Its strategic role is reflected in how Fintech influences organizational culture toward transparency, accountability, and faster decision-making. This aligns with digital-era business demands that require agility and accuracy in financial execution. The adoption of Fintech also allows start-ups to reduce operational barriers commonly caused by traditional systems, such as delays, human error, and fragmented financial records. By integrating Fintech solutions early in their development lifecycle, start-ups position themselves to scale more sustainably and maintain investor confidence. Therefore, Fintech acts not only as a technological advancement but also as a strategic foundation that reshapes how financial systems operate within modern start-up ecosystems.

2. Fintech as a Catalyst for Efficiency Enhancement

The findings strongly support the position that Fintech acts as a catalyst for efficiency improvement in start-up financial processes. Fintech solutions such as automated accounting software, cloud-based transaction systems, and digital finance dashboards significantly reduce the administrative complexity associated with finance operations. Automation decreases the time required for key tasks such as bookkeeping, invoice processing, expense management, and reconciliation—functions that traditionally consume considerable manual effort. This efficiency gain enables financial personnel and founders to redirect their focus toward strategic planning, business expansion, and value-adding financial analysis. Real-time data access further accelerates internal operations by facilitating immediate financial monitoring, quicker resource allocation, and prompt mitigation of financial issues. Start-ups benefit from reduced processing costs, increased accuracy, and faster operational cycles, all of which contribute to higher productivity. Additionally, efficiency in digital financial processes enhances collaboration within teams, as data becomes centralized and transparently accessible. This indicates that Fintech-driven efficiency plays a crucial role in sustaining competitive advantage in the digital business landscape, particularly for start-ups that must optimize limited resources.

3. Strengthening Transparency and Financial Accountability through Fintech Adoption

Transparency is a fundamental component of financial credibility, and the study findings demonstrate that Fintech significantly strengthens financial transparency and accountability in start-ups. Digital financial systems enable accurate and verifiable data tracking, making financial activities more traceable and less vulnerable to manipulation. Tools such as blockchain-based ledgers, cloud accounting platforms, and automated reporting systems ensure that financial records remain consistent, tamper-proof, and readily accessible for audit purposes. This level of visibility

fosters accountability, as all financial actions can be monitored and verified by stakeholders. Transparent systems reduce information asymmetry and contribute to the establishment of trust among investors, partners, regulators, and internal management. The enhanced clarity in financial reporting also supports start-ups in meeting compliance standards and regulatory requirements, which is crucial for scaling and attracting external funding. Furthermore, transparency contributes to ethical financial behavior and reduces the risk of fraud—a common challenge in early-stage ventures. As a result, Fintech-enabled transparency reinforces the credibility and financial integrity of start-ups, creating a solid foundation for long-term sustainability.

Table 1. Fintech Tools that Enhance Financial Transparency and Accountability in Start-Ups

| Fintech Tool / System | Transparency & Accountability Function | How It Works | Impact on Financial Credibility |
|---|--|---|--|
| Blockchain-Based Ledger | Provides tamper-proof financial records and audit trails | Uses decentralized and immutable data blocks to record every financial transaction | Eliminates data manipulation, enhances trust, and ensures auditability for stakeholders |
| Cloud Accounting Platforms (e.g., Xero, QuickBooks, Jurnal.id) | Enables real-time access to financial information and centralized data storage | Stores financial data on cloud servers, allowing secure multi-user access and automated updates | Improves clarity of financial reporting, increases accountability, and supports compliance |
| Automated Financial Reporting Systems | Generates accurate, consistent, and traceable financial reports | Integrates financial data sources to auto-generate statements and audit logs | Reduces reporting errors, strengthens transparency, and improves investor confidence |
| Digital Payment & E-Wallet Systems (e.g., Stripe, PayPal, GoPay) | Records transparent and traceable cash inflows and outflows | Digital transaction logs ensure a clear trace of payment history and customer transactions | Enhances transaction traceability, reduces fraud risk, and builds user and investor trust |
| AI-Based Fraud Detection Tools | Detects unusual or suspicious financial activities | Uses machine learning algorithms to flag anomalies and high-risk transactions | Minimizes fraud, reinforces financial integrity, and protects company reputation |
| RegTech Compliance Solutions | Ensures adherence to financial standards and regulations | Automates regulatory monitoring, reporting, and compliance documentation | Supports legal compliance, reduces penalties, and increases credibility among regulators |

4. Improving Data-Driven Decision-Making and Financial Governance

Fintech supports a shift from intuition-based to data-based financial decision-making. The integration of digital analytics, artificial intelligence, and financial forecasting tools enables start-ups to evaluate performance trends, identify financial risks, and develop strategic decisions supported by accurate data insights.

The findings show that Fintech increases the capacity of start-ups to perform scenario analysis, budget forecasting, and financial simulation, which strengthens financial governance and risk management practices. Data-driven financial strategies help founders minimize uncertainty, avoid impulsive decision-making, and adopt proactive financial planning models. Fintech tools also enhance financial governance by standardizing

processes, improving compliance, and ensuring alignment with financial best practices. Through structured data analysis, start-ups gain a comprehensive understanding of cost drivers, profitability patterns, and investment opportunities. This analytical capability becomes essential for scaling operations and managing financial complexities as the business grows. Therefore, Fintech empowers start-ups to build strong financial governance frameworks rooted in accuracy, accountability, and strategic financial intelligence.

5. Challenges and Barriers to Fintech Implementation

Despite the benefits, the study highlights several barriers that hinder optimal Fintech adoption in start-ups. Limited digital financial literacy among founders and employees is the most common obstacle, creating resistance toward technological transition. Financial constraints also pose challenges for adopting advanced Fintech platforms, especially for early-stage start-ups with limited capital. Data security concerns, lack of cybersecurity infrastructure, and compliance with digital financial regulations further complicate implementation. Start-ups without effective change management strategies may experience system misalignment, underutilization of Fintech tools, or integration failure. These challenges reflect that technology alone cannot transform financial systems unless supported by human, organizational, and regulatory readiness. Overcoming these barriers requires investment in digital training, building cybersecurity systems, forming regulatory compliance strategies, and fostering innovation-driven organizational culture.

Marketing Optimization through FinTech Integration

The implementation of Financial Technology (FinTech) not only accelerates and simplifies financial processes but also serves as a major driver in transforming modern marketing strategies, particularly for start-up companies. In today's highly competitive digital era, the ability to understand consumer behavior deeply has become a crucial advantage. FinTech offers data-based solutions that enable companies to collect, process, and analyze customer financial information in real time. Through these technologies, start-ups can identify purchasing patterns, preferred payment methods, and spending trends that help them design marketing strategies that are more relevant, accurate, and effective.

Furthermore, the integration of customer financial data through FinTech systems helps companies develop marketing approaches that are more closely aligned with the actual needs of consumers. For example, by

understanding the frequency of transactions, types of products frequently purchased, or the times customers are most active, companies can create more contextual and timely promotions. This data-driven approach shifts the paradigm from traditional, generalized marketing to precision marketing, which focuses on customer individuality and personalization. Therefore, FinTech acts as a bridge between financial management and strategic marketing, supporting start-ups in achieving targeted, efficient, and customer-oriented communication.

In addition, the integration of Application Programming Interfaces (APIs) in digital applications and e-commerce platforms opens significant opportunities for start-ups to implement automated loyalty and reward programs. Through these APIs, companies can provide various incentives such as instant cashback, loyalty points, or dynamic discounts directly linked to customer transactions. These advantages not only create a more engaging shopping experience but also encourage repeat purchases and strengthen long-term customer relationships. With FinTech-based reward systems, start-ups can maintain a more stable customer base while increasing customer lifetime value (CLV) and overall profitability.

The use of FinTech becomes even more powerful when combined with Artificial Intelligence (AI) technology. The synergy between FinTech and AI enables start-ups to create highly personalized marketing, where each customer receives product recommendations, promotional content, or pricing offers tailored to their transaction history and personal preferences. This process not only improves marketing effectiveness but also strengthens emotional engagement between customers and the brand. Through machine learning algorithms, companies can continuously adapt their marketing strategies based on updated behavioral data, ensuring that every interaction remains relevant and meaningful over time.

In conclusion, FinTech serves not merely as a tool to facilitate financial activities but as a strategic catalyst for transforming digital marketing systems within start-ups. By leveraging financial data, API integration, and AI-driven personalization, FinTech helps build an ecosystem of marketing that is efficient, intelligent, and centered on customer experience. This dual function positions FinTech as both a financial enabler and a strategic marketing driver—empowering start-ups to establish a competitive edge and achieve sustainable business growth in the digital economy.

5. Conclusion

This study confirms that the implementation of Financial Technology (Fintech) plays a pivotal role in improving the efficiency, transparency, and

accountability of financial management systems in start-up companies. Through the adoption of digital financial tools such as cloud accounting platforms, blockchain-based ledgers, automated reporting systems, and analytical financial applications, start-ups are able to streamline financial processes, minimize human error, enhance data accuracy, and provide real-time financial visibility. These improvements not only strengthen internal financial governance but also foster trust among stakeholders, investors, and regulatory bodies, contributing to stronger financial credibility and long-term business sustainability. Despite existing challenges such as digital literacy gaps, cybersecurity risks, and regulatory compliance barriers, the findings suggest that strategic Fintech adoption combined with capacity building and proper implementation can significantly enhance financial performance and support the overall growth of start-ups in the digital era.

Acknowledgements

The author would like to express sincere appreciation to all researchers, scholars, and institutions whose work and contributions have provided valuable insights for the completion of this study. Gratitude is extended to the academic platforms, digital libraries, and journal databases that facilitated access to credible and relevant literature used as the foundation of this research. The author also acknowledges the constructive feedback, academic guidance, and encouragement received from colleagues and mentors throughout the writing process, which greatly contributed to enhancing the clarity, depth, and quality of this research.

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Word count: 6,763 words, excluding references.

Peer-review record:

Fast-track status: Not fast-tracked

First-round reviews received: 3 reports

Revision cycles completed: 3 rounds

Final version submitted: December 16, 2025

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