Leveraging Financial Technologies to Enhance Firm Performance in Vietnamese Retail Smes: A Proposed Research Framework

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ABSTRACT

Financial technology (FinTech) has undergone a profound evolution over the past century, fundamentally transforming financial services and markets. Leveraging financial technologies to create customer-centric value are especially pertinent to small and medium-sized enterprises in emerging economies. While there is an expanding body of global research on SME digital transformation and technology adoption, studies focusing on developing countries (and Vietnam in particular) remain relatively limited. This research zeroes in on four pivotal technologies including Blockchain, Internet of things (IoT), Artificial Intelligence (AI), and Big Data Analytics (BDA) - chosen for their profound capacity to reshape Vietnamese retail SMEs. By reviewing previous studies and arguing for the support of such underpinning theories as Technology–Organization–Environment (TOE), Diffusion of Innovations (DOI) theory, Resource-Based View (RBV) and Dynamic Capabilities View (DCV), this study has developed a conceptual framework that explicates how fintech adoption influences performance in Vietnamese retail regarding specific perspectives sales growth, Net Profit Margin, Inventory Turnover and ROA. Findings of this study will serve as a foundation to conduct further empirical research, thereby contributes to extant literature and help SME owners and managers gain clarity on which fintech solutions are most beneficial under various conditions in order to make informed investment and operational decisions

1. INTRODUCTION

Financial technology (FinTech) has undergone a profound evolution over the past century, fundamentally transforming financial services and markets. In recent decades, the rise of internet banking and mobile devices has accelerated FinTech adoption, expanding the scope from online payments to encompass blockchain, cloud computing, machine learning, and data analytics. According to the [50], FinTech is now "a cornerstone of the modern financial system," driving global financial inclusion and efficiency. [11] similarly observe that both incumbent banks and fintech startups are leveraging these innovations to create customer-centric value. These shifts are especially pertinent to small and medium-sized enterprises

(SMEs), which constitute roughly 90% of firms and up to 40% of GDP in emerging economies [4]. Empirical evidence suggests that SMEs embracing digital tools tend to see gains in productivity, efficiency, and innovation [6,30]. Conversely, Peters et al. (2024) warn that failure to adopt new technologies can leave SMEs at a competitive disadvantage [31]. In sum, the global FinTech revolution has become integral to enhancing SME performance and resilience in the modern economy.

Vietnam's economy provides a salient context for studying FinTech and SMEs. The country is home to roughly 900,000 operational enterprises, over 97% of which are classified as SMEs, together contributing about 45% of national GDP and a substantial share of government revenue [20]. In recent years Vietnam's digital economy has grown at breakneck speed: the 2022 "e-Conomy SEA" report [7] projects Vietnam's internet-economy GMV to rise from roughly USD 23 billion in 2022 to USD 49 billion by 2025, one of the fastest growth rates in Southeast Asia. Fueling this growth has been a surge in e-commerce, ubiquitous mobile internet access and the proliferation of digital payment platforms (e.g., MoMo, ZaloPay). Vietnamese consumers are highly digitally engaged, and the government has launched ambitious initiatives to accelerate SME digitalization. For instance, the national e-commerce development master plan (2021–2025) mandates that 50–55% of firms (primarily SMEs) should sell products through online platforms by 2025 [18]. Partnerships between industry and business associations also support this agenda; notably, Visa (2024) recently teamed with the Vietnam Association of SMEs (VINASME) to promote contactless payments among small retailers.

Despite these favourable conditions, deeper digital adoption among Vietnam's retail SMEs remains limited. Many small retailers pivoted to social media and e-marketplaces during the COVID-19 lockdowns, but according to Walsh et al. (2023), only a minority have moved beyond basic tools [47]. Most micro and small retail firms still lack advanced technologies such as AI, IoT sensors, or analytics, primarily due to constraints in capital, technical skills, and awareness [47]. Qualitative studies highlight additional barriers: SME owners often juggle multiple roles and have a low tolerance for risk, making it hard to invest in new systems; many operate informal or traditional business models that are difficult to upgrade [47]. Thus, a gap exists between Vietnam's fintech potential and the level of uptake in the SME sector. Overcoming these barriers is crucial if Vietnamese retail SMEs are to harness digital tools for efficiency gains, market access, and improved competitiveness.

To capture these opportunities and challenges, this research zeroes in on four pivotal technologies—Blockchain, Internet of things (IoT), Artificial Intelligence (AI), and Big Data Analytics (BDA)—chosen for their profound capacity to reshape Vietnamese retail SMEs. On the one hand, previous studies have proven that each individual fintech tool is a key enabler of driven performance in SMEs generally and Vietnamese retail SMEs specifically. Initially, Blockchain, a distributed ledger protocol, can greatly enhance transaction security, transparency, and trust; for example, retailers might use blockchain to authenticate product provenance, streamline supply-chain records, or facilitate secure digital payments. Recent studies in emerging markets link blockchain adoption to improved SME outcomes [12]. Additionally, Blockchain's secure, transparent framework can bolster trust in supply chains and payments, addressing credit access woes by enabling alternative lending models [26].

While, The IoT comprises networks of smart sensors and devices that capture real-time data: for instance, in retail, it enables automated inventory tracking, environmental monitoring (e.g., temperature control), and insight into customer behavior (e.g., via smart cameras or RFID tags). IoT's real-time data networks also promise to overhaul inventory and operational efficiency, cutting waste and costs—a boon for SMEs grappling with resource constraints [13]. Next, AI-driven tools can analyze sales and customer data to forecast demand trends, personalize promotions, or automate service interactions (e.g. chatbots), thereby boosting sales performance and customer satisfaction. Recent research finds that AI marketing systems enhance SME performance in emerging economies [1] or predict insights, enhance productivity and customer engagement, as evidenced by studies showing its impact on SME innovation [6]. Finally, BDA extends these capabilities by extracting insights from large, complex datasets. Even resource-constrained retailers can leverage analytics platforms to identify patterns in sales or social media feedback, improving decision-making on inventory, pricing, and expansion. Wamba et al. (2017) emphasized that big data capabilities significantly strengthen firms' strategic decision processes and innovation potential [48]. In Vietnam retail industry, BDA, meanwhile, equips SMEs to decode market trends and consumer preferences, sharpening their edge in Vietnam's competitive retail arena.

On the other hand, Blockchain, IoT, AI, and Big Data Analytics collectively form a powerful suite of digital tools poised to transform retail innovation for Vietnamese SMEs by creating synergistic effects that amplify performance beyond individual contributions. For instance, integrating Blockchain with IoT ensures secure and transparent supply chain management, reducing costs and improving metrics like Inventory Turnover and Net Profit Margin, while combining AI with Big Data Analytics enhances predictive capabilities for better demand forecasting and personalized marketing, boosting Sales Growth and Return on Assets (ROA) [1].

A holistic adoption of all four technologies addresses multiple aspects of SME operations - finance (Blockchain), operations (IoT), marketing (AI), and decision-making (Big Data Analytics) - tackling entrenched challenges like financial exclusion and operational inefficiencies, ultimately fostering comprehensive performance improvements. However, despite these potential benefits, adoption in Vietnam's SME sector is hindered by significant barriers, including high upfront costs, technical complexity, and a shortage of technical expertise [47]. In practice, most retail microenterprises in Vietnam still rely on basic digital tools, struggling to implement these advanced systems due to resource constraints and skill deficits.

Consequently, while these technologies serve as vital levers for bridging operational and financial gaps and fostering resilience and growth, their impact in the Vietnamese retail context remains tempered by practical challenges that limit widespread adoption among SMEs.

A review of existing literature reveals several gaps that this study seeks to address. First, while there is an expanding body of global research on SME digital transformation and technology adoption, studies focusing on developing countries (and Vietnam in particular) remain relatively limited. Much of the extant literature on FinTech and SMEs is concentrated on either developed economies or larger emerging markets (China, India), or it examines a single technology in isolation (for example, mobile payments or cloud computing), rather than a multi-technology framework. In Vietnam's case, academic studies to date have often centred on consumer fintech adoption (e.g., digital banking usage by individuals) or on large financial institutions, leaving a gap in understanding how Vietnamese SMEs engage with FinTech.

As Walsh, Nguyen and Hoang (2023) note, most research on Vietnamese firms has emphasized manufacturing or integration into global supply chains, with few studies examining the emergent service and tech-oriented SME sector [47]. Consequently, factors specific to retail SMEs – such as customer-facing fintech applications, or the interplay of multiple technologies in a single SME – are under-represented in the literature. Besides, prior studies that do focus on SME technology adoption frequently use a single-theory lens or consider generic e-business adoption, without delving into how cutting-edge technologies (AI, blockchain, IoT, big data) collectively influence firm performance.

There is a fragmentation in the literature: for instance, one stream examines AI in SMEs (often highlighting technical barriers), another explores blockchain for supply chains, etc., but integrated studies that simultaneously consider diverse FinTech tools are scarce. This siloed approach overlooks possible synergies or trade-offs between technologies. Peters et al. (2024) identify that existing research on AI in SMEs offers a fragmented view and often neglects important dimensions like trends and legal requirements [31]. Similarly, we find that multi-technology adoption frameworks for SMEs are not well-developed – researchers have called for more holistic models to understand digital transformation in smaller firms [22]. Moreover, there is a knowledge gap regarding performance outcomes and measurement when SMEs adopt FinTech solutions. Many studies focus on adoption determinants (what factors lead SMEs to adopt a given technology) rather than the post-adoption impact on business performance indicators (such as sales growth, productivity, customer satisfaction, or profitability). Especially in emerging markets like Vietnam, empirical evidence linking fintech adoption to concrete performance improvements (or highlighting any unintended negative consequences) is limited. This gap makes it difficult for policymakers and practitioners to justify investments in technology for SMEs

2. THEORETICAL FOUNDATIONS AND PROPOSITION DEVELOPMENT

2.1. Underpinning theories

2.1.1 Technology-Organization-Environment (TOE) Framework

Tornatzky and Fleischer (1990) developed Techonology-Oraganization-Environment (TOE) framework, a comprehensive lens through which to understand technology adoption within organizations, including SMEs [46]. The framework, TOE, affirms that the decisions of adoption are affected by the interplay among three contexts: technological, organizational, and environmental. Making it is essential for business to navigate in the horizon of complexities of modern technological integration and innovation which especially right to the dynamic environment of developing country. In this study, regarding Vietnamese retail SMEs, Technological context includes attributes such as relative advantage, compatibility, complexity, and observability of the technology [40]. For instance, the potential of blockchain is to decrease the cost of transaction may become a factor for adoption if seen as beneficial and compatible with current systems. Besides, Organizational Context: Significant elements are the scale of business, resources, and top management. The commitment of senior managers is often recognized as a critical factor in the decision to adopt financial technologies [45]. Finally, Environmental Context includes the pressure from external environment such as government policies, the fierce of competitive dynamics, the support of suppliers, adoption sharing. The National Blockchain Strategy of Vietnam [36] is a prime example of government initiatives to promote the usage of technology.

According to a study by Qiu et al. (2023) on the adoption of digital technology in Indonesian SMEs - a setting that is comparable to Vietnam - adoption behavior is greatly influenced by organizational, environmental, and technological factors, with top management support mediating a number of interactions [37]. This implies that the TOE framework is a good fit for examining how financial technology is being adopted by retail SMEs in Vietnam. Studies that employ TOE to analyze blockchain adoption include [12] and Unlocking the potential: investigating the drivers behind blockchain and its influence on SMEs performance within TOE framework [5], which emphasizes the importance of TOE in comprehending the adoption of financial technology in SMEs.

2.1.2 Resource-Based View (RBV)

Wernerfelt (1984) and Barney (1991) developed the Resource-Based View (RBV), which holds that a company's competitive advantage stems from its rare, valuable, unique, and non-substitutable (VRIN) assets and competencies [3,49]. Financial technology adoption can improve the resource basis of Vietnamese retail SMEs, allowing for operational efficiency and

differentiation.

While blockchain offers safe transaction capabilities that are hard for rivals to imitate, technologies like artificial intelligence (AI) and big data analytics can offer SMEs distinctive data-driven insights. IoT can improve consumer interaction and inventory, which will benefit operations. The relevance of RBV in this context is supported by a study on blockchain adoption in Indian SMEs conducted by Kumar et al. (2024), which discovered that technology adoption improves business capacities, resulting in enhanced market and financial performance [12]. Furthermore, in a study to demonstrate how AI in marketing improves SME performance, Abrokwah-Larbi and Awuku-Larbi (2024) used RBV, encouraging the notion that technologies are essential tools for gaining a competitive edge [1].

2.1.3 Diffusion of Innovations Theory

Rogers (1962) established the Diffusion of Innovations Theory, which divides adopters into innovators, early adopters, early majority, late majority, and laggards [39]. This theory describes how new technologies spread within a social system. Five characteristics - relative advantage, compatibility, complexity, trialability, and observability - are identified by the theory as having an impact on adoption rates. Vietnam's tech-savvy populace and high level of digital engagement (75 percent of consumers are excited about AI, JDI Group (2024) point to a conducive atmosphere for the quick spread of technology [10]. Relative advantage and compatibility substantially impact adoption intention, according to a study by Pham et al. (2022) on AI adoption in Vietnamese firms [33]. This suggests that retail SMEs are likely to adopt financial technologies with obvious benefits and ease of integration fast.

2.1.4 Dynamic Capabilities Theory

Teece et al. (1997) introduced the Dynamic Capabilities Theory, which highlights a company's capacity to integrate, develop and reorganize competencies in response to quickly changing circumstances [44]. Financial technologies can improve dynamic capacities for Vietnamese retail SMEs, allowing them to recognize shifts in the market, take advantage of opportunities, and adapt their business practices. For example, blockchain and IoT enable operational transformation, AI automates opportunity capturing, and big data analytics enables market sensing. Technology adoption improves performance recovery and sustainability, according to a study on Indonesian MSMEs by Sudirman et al. (2025), underscoring the need of dynamic capacities in volatile markets like the retail industry in Vietnam [43]. Relevant to Vietnam's dynamic retail industry. Recent empirical studies emphasize that the adoption of artificial intelligence technologies significantly enhances the ability of Vietnamese retail SMEs to develop dynamic organizational capabilities, ensuring their long-term success and adaptability in a competitive marketplace [14].

2.2 Financial technologies variables

2.2.1 Blockchain

Blockchain is a decentralized ledger technology that is revolutionary for retail SMEs because it provides cost effectiveness, security, and transparency. With the goal of making Vietnam a regional leader by 2030, the National Blockchain Strategy promotes blockchain adoption in the nation [19]. Moreover, blockchain can improve supply chain management for retail SMEs, lower the number of fake goods, and increase consumer confidence.

Blockchain adoption by Indian SMEs is fuelled by competitive pressure, senior management backing and relative advantage [12]. This results in better market and financial performance. As SMEs encounter comparable resource limitations, blockchain is a promising technology in Vietnam because it has the ability to improve trust and expedite processes. Blockchain is a distributed database that is intended to monitor assets and enable transactions. As a decentralized ledger, it keeps track of transactions across numerous computers and makes sure that they cannot be changed in the past without the network's approval.

Blockchain can simplify supply chain management and save operating expenses for Vietnamese retail SMEs by improving transaction efficiency, security, and transparency. Because it is decentralized and unchangeable, blockchain is an effective tool for Vietnamese retail SMEs. In order to ensure product authenticity and foster client trust in the retail industry, it can help protect payment systems, lower fraud, and offer transparent supply chain tracking. Blockchain technology can authenticate product origins, a significant advantage in Vietnam's retail sector, where counterfeit goods are prevalent. However, SMEs may face challenges such as high implementation costs and a lack of technical expertise, which could impede adoption [32].

2.2.2 Internet of Things (IoT)

Real-time inventory management and customized consumer experiences are made possible by the Internet of Things (IoT), which links devices to gather and share data. From 2023 to 2030, Vietnam's IoT market is expected to expand at a compound annual growth rate (CAGR) of 17.1%, reaching USD 11 billion [15]. IoT can be used by retail SMEs for shop optimization, smart shelving, and tracking consumer behavior.

The Internet of Things (IoT) denotes a network of physical entities equipped with sensors, software, and advanced technologies designed to connect and exchange data with other systems via the internet. For Vietnamese retail SMEs, IoT enables real-time data acquisition and analysis, fostering improved customer engagement, refined inventory oversight, and

heightened operational effectiveness. This connectivity allows businesses to monitor inventory status, customer interactions, and in-store activities instantaneously. For instance, sensors can track customer movements to refine store layouts, while smart shelves signal low stock levels to managers. Despite the potential for cost reduction and enhanced customer satisfaction, the adoption of IoT by Vietnamese SMEs is often impeded by the substantial expense of equipment and the necessity for stable internet infrastructure [27].

2.2.3 Artificial Intelligence (AI)

Retail SMEs can benefit greatly from artificial intelligence (AI), which makes it possible to perform tasks like personalized marketing, customer service automation, and predictive analytics. Although AI adoption in Vietnam is still in its infancy, government measures aim to establish regional leadership by 2030 [36]. 60% of Vietnamese SMEs say that money is a barrier to using AI, according to a 2022 survey [2]. As stated in a study by Nguyen (2022), the adoption of AI in Vietnamese enterprises is significantly affected by managerial skill, technical compatibility, and involvement by the government [25]. AI could boost customer engagement and decision-making for retail SMEs, giving them a competitive edge.

The simulation of human intelligence in computers that have been programmed to think and learn similarly to humans is known as artificial intelligence (AI). Artificial intelligence (AI) technologies, such as computer vision, natural language processing, and machine learning, allow robots to carry out activities that typically call for human intelligence. Artificial Intelligence (AI) offers Vietnamese retail SMEs the capacity to enhance decision-making, automate repetitive operations, and derive actionable insights into consumer preferences and market dynamics, thereby strengthening their market position [35].

Vietnamese retail SMEs have the capacity to predict market trends, evaluate customer data, and automate processes through the use of AI technologies. To increase sales, machine learning algorithms can suggest products based on past purchases, while AI-powered chatbots can respond to consumer inquiries. While AI presents considerable opportunities to elevate efficiency and competitiveness, its implementation poses challenges for Vietnamese SMEs, including the intricate nature of AI technologies and the demand for proficient personnel to oversee their deployment and maintenance [35].

2.2.4 Big Data Analytics

SMEs may improve marketing, inventory, and customer interaction through the utilization of big data analytics, which extracts insights from massive datasets. Although they lack funding and human resources, SMEs in Vietnam are ready to adopt big data in decision-making culture and data security [23]. The retail industry stands to gain many benefits from its data-rich environment. Based on a study on Malaysian SMEs by Maroufkhani et al. (2023), top management support acts as a mediator between organizational, environmental, and technological factors that influence the adoption of big data analytics [16]. Similar factors may impact adoption in Vietnamese SMEs, making our findings important. Examining vast and diverse datasets - big data - to find hidden patterns, correlations, market trends, consumer preferences, and other pertinent information that aids in well-informed decision-making is known as big data analytics. Big data analytics provides actionable insights to enhance operational efficiency, optimize resource allocation, and drive innovation for Vietnamese retail SMEs. However, implementing big data analytics necessitates a robust data architecture. SMEs may encounter obstacles, including high implementation costs and a lack of technical know-how, which could restrict adoption [23]. In order to make sound decisions, Vietnamese retail SMEs may leverage big data analytics to process enormous amounts of data from sources including sales records, customer reviews, and industry trends. Analytics, for instance that can forecast demand or determine which products are most popular, allowing for improved inventory management. However, implementing big data analytics necessitates a robust data architecture. SMEs may encounter obstacles, including high implementation costs and a lack of technical know-how, which could restrict adoption. [23].

2.3. SME Performance Metrics variables

2.3.1 Sales growth

As a measure of market expansion and consumer demand, sales growth is an essential aspect of SME success. Financial technologies can increase sales by improving customer satisfaction and optimizing marketing. Sales growth refers to the percentage increase in a firm's sales revenue over a designated timeframe, typically benchmarked against the prior year's equivalent period. It serves as a pivotal metric for assessing a company's ability to expand its market footprint, generate income, and address consumer needs. For Vietnamese retail SMEs, sales growth underscores the efficacy of strategies such as leveraging financial technologies to extend market reach and enrich customer interactions [8].

Sales growth is a key indicator of a business's capacity to grow its revenue since it shows how well it can draw clients, increase its market share, and adjust to changing consumer needs. With Fintech-backed digital transformation that expands customer reach through online platforms and focused marketing, sales growth is crucial for Vietnamese retail SMEs in a competitive marketplace. For example, AI-driven personalized marketing can elevate sales by aligning offerings with individual customer preferences. However, Vietnamese SMEs often face barriers such as limited capital access and inadequate technological foundations, which may obstruct sustained sales growth [8].

2.3.2 Net Profit Margin

A net profit margin is the portion of income that is left over after all costs, such as interest, taxes, operating expenditures, and cost of products sold, have been subtracted. Net profit margin, determined by dividing net income by total sales, gauges a firm's profitability and operational efficiency. For Vietnamese retail SMEs, a robust net profit margin reflects proficient cost management and highlights the value of integrating AI and big data analytics to streamline operations [24].

When all costs are taken into consideration, a company's net profit margin gives information about its capacity to turn sales into profit. High net profit margins for Vietnamese retail SMEs are a sign of strong cost control and operational efficacy, which Fintech solutions like blockchain for transaction cost reduction and AI for cost optimization may improve. But SMEs retail enterprises in Vietnam often face considerable obstacles, such as increasing operational costs and intricate regulatory compliance demands, which can significantly impact their profitability [29].

2.3.3 Inventory Turnover

Inventory turnover is a measure of the effectiveness of inventory management. Big data analytics forecasts demand, cutting waste and increasing turnover, while IoT offers real-time tracking [30]. A financial ratio called inventory turnover calculates how frequently a company's stock is exchanged for new ones over time, usually a year. It measures the effectiveness of inventory management and is computed by dividing the cost of products sold by the average inventory. An elevated inventory turnover ratio among Vietnamese retail SMEs signals strong sales outcomes and the adept application of IoT technologies for real-time inventory tracking [44].

A company's inventory turnover indicates how well it manages its stock, which is important for retail SMEs since stock management has a direct impact on cash flow and customer satisfaction. IoT and big data analytics deliver real-time inventory insights and demand projections, mitigating overstocking and stock shortages to optimize inventory management. Nevertheless, Vietnamese retail SMEs may experience diminished turnover rates due to persistent reliance on manual processes and limited technological assimilation [24].

2.3.4 ROA

The efficiency of asset usage is measured by return on assets, or ROA. IoT tracks performance, blockchain secures transactions, and AI maximizes maintenance, all of which increase ROA (Forbes, 2024). The financial ratio known as return on assets (ROA), which is computed by dividing net income by total assets, indicates how well a business uses its assets to produce profit. It shows a company's profitability in relation to its asset base when expressed as a percentage. Return on Assets (ROA) underscores how financial innovations, such as blockchain for expedited transactions, can enhance asset utilization within Vietnamese retail SMEs [38].

ROA gives a thorough picture of operational efficiency by gauging how well a business uses its resources to turn a profit. Fintech adoption can increase return on assets (ROA) for Vietnamese retail SMEs by optimizing resource utilization (e.g., AI for demand forecasting) and streamlining processes (e.g., blockchain for safe transactions). However, SMEs often grapple with significant challenges, including their inherently limited asset bases and the prohibitive costs associated with the adoption and maintenance of advanced technological systems [21].

2.4. Hypothesised relationships between variables

2.4.1 Blockchain and sales growth, net profit margin, inventory turnover and ROA

Blockchain technology bolsters transaction transparency, security, and efficiency, thereby elevating SME performance indicators. Research indicates that blockchain reduces transaction costs and enhances transparency, positively influencing sales growth and net profit margins—an insight particularly pertinent to Vietnam as an emerging economy [38]. Additionally, this perspective is further corroborated by evidence suggesting that blockchain drives economic advancement by offering payment solutions that enable SMEs in emerging markets to tap into new markets, thereby improving market access, financial efficiency, sales growth, and ROA [52]. Furthermore, This argument gains additional support from studies exploring blockchain's role in facilitating SME internationalization, a process highly relevant to Vietnamese retail firms [38], demonstrated how blockchain helps SMEs expand internationally by simplifying foreign operations, which is connected to ROA and sales growth. Insights drawn from research on high-tech SMEs in India offer valuable lessons for Vietnam's retail sector, given the parallels in their emerging market contexts [38]. It is sound that there might be an existence of a correlation between Blockchain and sales growth, net profit margin, inventory turnover and ROA.

Proposition P1a, b, c: Blockchain positively influences sales growth, net profit margin, inventory turnover and ROA

2.4.2 IoT and sales growth, net profit margin, inventory turnover and ROA

The Internet of Things (IoT) enables continuous, instantaneous tracking and fine-tuning of operations, with a particular focus on the intricate processes of supply chain logistics and inventory control systems. This technological integration significantly bolsters the overall performance metrics of small and medium-sized enterprises (SMEs), allowing them to compete more effectively in today's digital marketplace. A detailed analysis published by the World Economic Forum (2020) underscores the transformative role of Industrial IoT in enhancing operational workflows and fostering greater flexibility in technological adoption [51]. This, in turn, directly contributes to improved inventory management cycles and increased profitability margins by streamlining supply chain operations. Furthermore, recent academic research, as documented in IvyPanda (2024),

provides empirical evidence of IoT's beneficial effects on the servitization of products, the optimization of supply chain networks, the facilitation of business expansion, and the promotion of sustainable practices [9]. These advancements are intrinsically linked to key performance indicators such as revenue growth, efficient stock rotation, and enhanced return on assets, all achieved through heightened operational agility and responsiveness. The convergence of these evidence-based insights forms a robust foundation for proposing a strategic framework regarding the adoption and implementation of IoT technologies in SME contexts. These supporting arguments help formulate the following proposition.

Proposition P2a, b, c: IoT positively influences sales growth, net profit margin, inventory tunrover and ROA

2.4.3 AI and sales growth, net profit margin, inventory turnover and ROA

AI empowers these businesses by enhancing decision-making through real-time data analysis, offering precise insights that guide strategic choices. It also facilitates personalization by leveraging customer data to craft tailored experiences, boosting engagement and loyalty. Additionally, AI streamlines operational efficiency by automating repetitive tasks, minimizing errors, and optimizing resource use, which collectively enhance productivity.

Research by Abrokwah-Larbi and Awuku-Larbi (2024) underscores AI's impact on marketing within emerging markets [1]. Their study reveals that AI-driven tools, such as predictive analytics and targeted campaigns, refine internal processes and elevate customer outcomes, leading to notable increases in sales growth and net profit margins. This dual benefit strengthens SMEs' financial health and market position.

Furthermore, Springer (2023) highlights that integrating AI into SME knowledge systems drives efficiency and innovation [42]. By automating processes and fostering creative solutions, AI enhances Return on Assets (ROA) and accelerates sales growth, positioning Vietnamese retail SMEs for long-term success in a competitive environment. Therefore, the proposition will be as follow:

Proposition P3a, b, c: AI positively influences sales growth, net profit margin, inventory turnover and ROA

2.4.4 Big Data Analytics and sales growth, net profit margin, inventory turnover and ROA

Big Data Analytics has emerged as a transformative tool that SMEs to sharpen their understanding of customer preferences and market dynamics. By systematically analyzing vast volumes of structured and unstructured data, businesses can identify hidden patterns, forecast trends, and tailor strategies that align closely with consumer behavior. This analytical capability not only improves marketing effectiveness but also enhances strategic planning across various business functions. According to a comprehensive review published by MDPI (2023), big data plays a significant role in boosting SMEs' operational efficiency, facilitating more effective revenue generation strategies, and elevating their position in competitive markets [17]. These improvements are directly linked to measurable gains in key financial metrics such as sales growth, net profit margins, and return on assets (ROA). Further support for these findings comes from earlier research reported in ScienceDirect (2016), which underscores big data's capacity to deliver real-time operational solutions and promote data-informed decision-making [41]. This agility allows SMEs to respond quickly to changing market demands, optimize resource allocation, and sustain long-term profitability—solidifying big data's role as a catalyst for SME growth and resilience. This study proposes the following proposition:

Proposition P4a, b, c: Big Data Analytics positively influence sales growth, net profit margin, inventory turnover and ROA

3. PROPOSED RESEARCH FRAMEWORK

This study employs a qualitative synthesis of existing literature (a form of structured literature review). Methodologically, the research will begin with a structured literature review to synthesize global and Vietnam-specific evidence on SME fintech adoption and outcomes. Based on this review, a conceptual framework will be constructed to map the relationships among technology adoption factors and performance outcomes. Specifically, we systematically review and synthesize findings from prior studies on SME technology adoption, fintech impacts, and Vietnam's digital economy (2020–2025). Through this synthesis, we derive an integrated set of propositions and a conceptual model that bridges the identified gaps. This approach allows us to draw on a broad knowledge base, combining insights from global research with localized studies on Vietnamese SMEs. The resulting framework is an "integration of integrations," weaving together disparate strands of knowledge – from adoption determinants to dynamic capability outcomes – into a cohesive model tailored for Vietnamese retail SMEs.

In details, the framework will be informed by four complementary theories. First, the Technology-Organization-Environment (TOE) framework [46] will guide the inclusion of contextual factors that enable or inhibit fintech adoption at the technological (e.g. compatibility, complexity), organizational (e.g. firm size, managerial support), and environmental (e.g. regulatory and competitive) levels. Second, Diffusion of Innovations (DOI) theory [39] will inform the analysis of how characteristics of fintech (such as relative advantage, trialability, and observability) affect SMEs' adoption decisions. Third, the Resource-Based View (RBV) [3] will direct attention to firm-specific resources and capabilities (financial resources, human capital, network partnerships) that SMEs leverage to implement fintech successfully. Finally, the Dynamic Capabilities View (DCV) [44] will capture the SMEs' ability to adapt, integrate, and reconfigure their resources and routines over time in response to fintech innovations. By integrating these four perspectives, the framework will address multiple angles: for example, TOE and DOI emphasize why and how SMEs decide to adopt fintech given their context, while RBV

and DCV explain the resources and capabilities needed to convert adoption into sustained performance gains. In sum, this multi-theoretical approach will enable a richer, more complete understanding of fintech-driven performance in Vietnamese retail SMEs.

The below research model (Figure 1.) visually represents the proposed positive relationships between four independent variables (financial technologies) including Blockchain, IoT, AI, and BDA and four dependent variables (performance metrics) are Sales Growth, Net Profit Margin, Inventory Turnover, and ROA. Each technology is linked to all four performance metrics with arrows marked by "+" signs, indicating positive correlations. This fully connected structure suggests that the adoption of these technologies is expected to enhance various aspects of SME performance comprehensively.
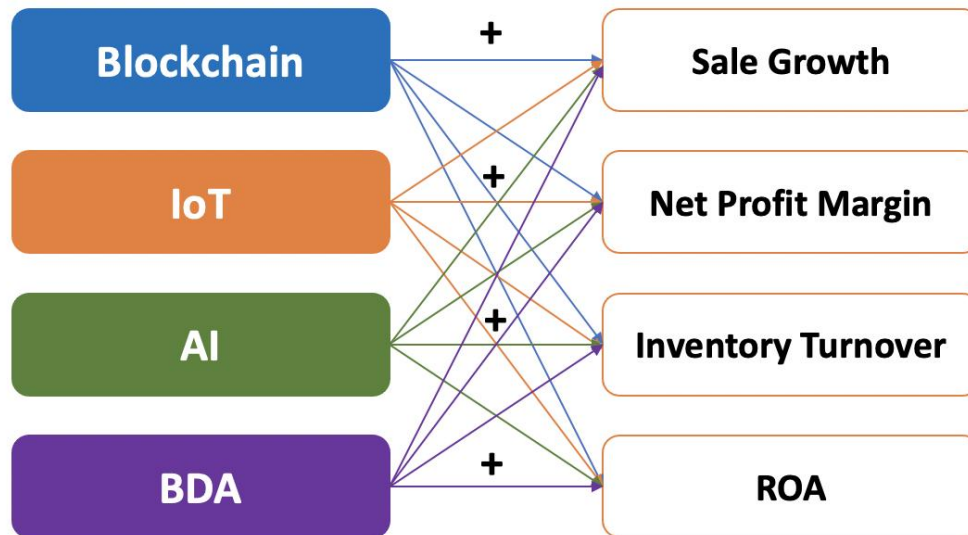

Figure 1. Proposed research framework

(Source: Author, 2025)

The following proposed relationships are:

Proposition P1a, b, c, d: Blockchain positively influences sales growth, net profit margin, inventory turnover and ROA

Proposition P2a, b, c, d: IoT positively influences sales growth, net profit margin, inventory turnover and ROA

Proposition P3a, b, c, d: AI positively influences sales growth, net profit margin, inventory turnover and ROA

Proposition P4a, b, c, d: Big Data Analytics positively influence sales growth, net profit margin, inventory turnover and ROA

4. CONCLUSION

This conceptual study hopes to advance knowledge by integrating the TOE, DOI, RBV, and DCV frameworks into a single model of fintech adoption and performance. This addresses prior calls for multi-theory approaches in SME digitalization [28] and helps overcome the fragmentation noted by Walsh et al. (2023) [47]. By explicitly considering multiple fintech innovations and linking them to a variety of performance outcomes, the framework embodies a multi-technology perspective that is rare in existing SME research [47]. Furthermore, focusing on Vietnamese retail SMEs yields novel context-specific insights. For instance, Pham and Nguyen (2022) lamented the absence of comprehensive models tailored to Vietnam's institutional and market context; this study will fill that void by capturing local constraints (such as regulatory support and market digital literacy) and resource profiles unique to Vietnamese firms [34]. In doing so, it contributes knowledge that can be generalized to similar emerging-market contexts while grounding the analysis in Vietnam's unique setting. Addressing this question theoretically sets the stage for future empirical validation and provides a blueprint for stakeholders interested in SME digital transformation

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