

An Investigation on the Effect of Fintech Adoption on Customer Experience Among Insurance Companies in Zambia

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Abstract: This study explored the impact of Financial Technology (FinTech) on the Zambian insurance industry, emphasizing operational efficiency and customer experience, as well as the sector's challenges. Utilizing a mixed-methods approach, the research combined quantitative data from a survey of 384 respondents across 50 insurance companies with qualitative insights from 18 key stakeholders. Results revealed a moderate to high adoption of FinTech, yielding significant improvements in operational efficiency ($B = 0.65$, $p = 0.001$) and customer experience ($B = 0.52$, $p = 0.002$). Areas such as claims processing and customer support showed notable enhancements. Nonetheless, 51.7% of firms cited regulatory barriers, 41.4% faced technological issues, and 48.4% struggled with high implementation costs. It was therefore recommended that insurance companies need to collaborate with FinTech startups, engage in incremental adoption, targeted training and improved regulatory engagement. The findings highlight the need for coordinated strategies and supportive policies to maximize FinTech's potential in Zambia's insurance sector, along with recommendations for future research to investigate broader trends in developing economies.

Keywords: *FinTech Adoption, Customer Experience, Insurance. Operational Efficiency, Technological Innovation.*

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I. INTRODUCTION AND BACKGROUND

Financial technology (FinTech) refers to the innovative application of technology to improve and automate the delivery of financial services, spanning areas such as mobile banking, online payments, crowdfunding, insurtech, and robo-advisory (Arner, Barberis & Buckley, 2016). Over the past decade, the rapid rise of FinTech has significantly transformed the global financial industry, challenging traditional business models and increasing the efficiency, accessibility, and inclusiveness of financial services (Philippon, 2016). The widespread adoption of digital technologies particularly smartphones and internet connectivity has played a pivotal role in fueling FinTech's global growth, with a pronounced impact in emerging markets where traditional financial infrastructure is often lacking (Gomber et al., 2018). These technological advancements have enabled FinTech companies to reach previously underserved populations, thereby promoting financial inclusion and accessibility (Ozili, 2018). FinTech's influence is multifaceted, extending beyond banking and payments to revolutionize lending, investment, and the insurance sector, with each area experiencing its own set of opportunities and disruptions (Vives, 2017).

In Africa, FinTech adoption has gained considerable momentum due to the continent's expanding digital infrastructure, increasing rate of mobile phone penetration, and the pressing need to address financial exclusion (Mothobi & Grzybowski, 2017). Many African countries have leveraged FinTech solutions, particularly mobile banking and digital payments, to bridge long-standing gaps in traditional financial systems (Demirgüç-Kunt et al., 2022). Within this context, Zambia's insurance sector has historically struggled with challenges such as low market penetration, limited technological innovation, and a dependence on manual processes (PWC Zambia, 2022). Insurance in Zambia was traditionally characterized by cumbersome procedures, reliance on brokers and agents, and slow, costly access to insurance products. However, the landscape is rapidly evolving, as advances in technology, regulatory reforms, and increased usage of mobile devices create new avenues for innovation and growth (Zambia Information and Communications Technology Authority, 2022).

The insurance industry, with roots tracing back to risk-sharing agreements in ancient civilizations and formalization in seventeenth-century Europe, has undergone significant evolution, particularly in the twentieth and twenty-first

centuries (Harper, 2017; Outreville, 2013). Modern innovations such as online policy management, automated claims processing, and predictive analytics have further reshaped the industry (Deloitte, 2022). In Zambia, insurance companies are now embracing digital platforms, automating claims processes, and employing artificial intelligence-driven customer service tools to boost operational efficiency and improve customer experience. Despite these advancements, the sector continues to face hurdles such as regulatory barriers, cybersecurity concerns, and infrastructural constraints that impede the full adoption and integration of FinTech solutions (Chowa et al., 2020).

This study investigates the transformative impact of FinTech adoption on Zambia's insurance industry. It aims to identify the key factors driving FinTech adoption, evaluate the benefits and challenges associated with its implementation, and examine the overall effect on operational efficiency, customer experience, and the competitiveness of insurance firms within Zambia. By addressing these aspects, the research seeks to provide valuable insights to industry stakeholders and policymakers on how to harness FinTech's potential for sustainable growth and improved service delivery in the Zambian insurance sector.

➤ *Statement of Problem*

Despite the transformative potential of Financial Technology (FinTech) in streamlining operations and enhancing customer experience within the insurance industry, Zambia remains significantly behind regional benchmarks, with an insurance penetration rate of just 2.8% compared to 14.3% in South Africa and 3.3% in Kenya (African Insurance Organisation, 2021; Pensions and Insurance Authority, 2022). Contributing factors include infrastructural deficits, persistent rural-urban digital divides, and systemic challenges such as low insurance literacy, regulatory fragmentation, and high costs of technology adoption (Moonga & Katongo, 2019; Bank of Zambia, 2023). Existing studies indicate that only a minority of Zambian insurers have integrated basic digital tools, and a substantial proportion of customers remain excluded from mobile-based insurance solutions (Kanyembo et al., 2020; Mutanga et al., 2019).

While global research highlights operational efficiency gains of 30–40% from FinTech adoption (McKinsey & Company, 2022), localized empirical evidence from Zambia is notably lacking. This knowledge gap hampers evidence-based policymaking and industry innovation. This study addresses this deficiency by offering a rigorous, context-specific analysis of the drivers, effects, and barriers of FinTech adoption in Zambia's insurance sector, ultimately aiming to inform policy, support strategic investments, and facilitate the sector's digital transformation.

➤ *Research Aim*

The aim of this research was to investigate the effects of FinTech in the Zambian insurance industry.

➤ *Research Objectives*

- To assess the Effect of FinTech adoption on the operational efficiency and customer experience in the insurance industry in Zambia.
- To propose strategies and recommendations for insurance firms and policymakers to enhance FinTech adoption in Zambia.

II. LITERATURE REVIEW

➤ *Global Insurtech Landscape*

The global insurtech landscape is characterized by rapid technological innovation and the emergence of disruptive business models that challenge the status quo of the insurance industry. Insurtech, a portmanteau of “insurance” and “technology,” encompasses startups and technology-driven firms that leverage digital solutions to streamline insurance processes, enhance customer engagement, and create new products tailored to contemporary consumer needs (OECD, 2020).

Insurtech firms have introduced a variety of novel models, including on-demand insurance, which allows customers to purchase coverage for specific activities or time periods (such as travel, sports, or car sharing) via a mobile app, and usage-based insurance, where premiums are dynamically adjusted based on real-time data, such as driving habits or health metrics collected through wearable devices (Ernst & Young, 2018). Peer-to-peer insurance platforms, which pool resources among groups of individuals with similar insurance needs, promise lower costs and greater transparency by reducing administrative overhead and aligning incentives between policyholders and providers.

The proliferation of digital platforms facilitates direct-to-consumer sales, streamlined onboarding, and self-service policy management, reducing the need for intermediaries and significantly lowering customer acquisition costs. This democratization of insurance access is especially impactful in emerging markets, where traditional distribution channels are often limited (PwC, 2023). Insurtech solutions also foster financial inclusion by making microinsurance and affordable coverage accessible to underserved populations.

Globally, established insurers are responding to the insurtech wave by investing in digital transformation, launching in-house innovation labs, and forming strategic partnerships or acquiring promising startups (KPMG, 2019). These collaborations enable incumbents to adopt agile development practices and rapidly bring innovative products to market. However, the insurtech boom also intensifies competition, pressuring traditional insurers to modernize legacy systems and improve customer-centricity.

Despite these advances, challenges persist. Many insurtech startups struggle with scalability, regulatory compliance, and customer acquisition in highly regulated environments. Moreover, the rapid pace of technological change can strain the ability of both new entrants and incumbents to adapt, requiring continuous investment in

research and talent development (Boston Consulting Group, 2023).

➤ *FinTech Adoption in the Insurance Industry Globally*

The global insurance industry has experienced a profound transformation with the adoption of FinTech, a movement that has reshaped traditional business models, enhanced operational efficiency, and improved customer engagement. FinTech, and specifically its insurance-focused subset Insurtech encompasses a wide array of advanced digital technologies, including artificial intelligence (AI), blockchain, big data analytics, and cloud computing (Baker & Dellaert, 2019; Gomber et al., 2017).

A synthesis of academic and industry literature reveals that FinTech adoption is driven by the need for greater efficiency, competitive differentiation, and responsiveness to changing consumer expectations (Biener, Eling, & Wirfs, 2015; Chen, Liu, & Wang, 2020). Digitalization has enabled insurers to move beyond rigid legacy systems, allowing for the optimization of underwriting, automation of claims processing, and the development of highly personalized insurance products and services (Bharadwaj et al., 2013). For example, AI-powered analytics now facilitate precision in risk assessment, leading to dynamic pricing models and tailored offerings that cater to diverse consumer segments (Dorflleitner, Hornuf, Schmitt, & Weber, 2017).

Insurtech startups have become central to this global shift. They offer innovative solutions that target long-standing pain points in the industry, such as fraud detection, process inefficiencies, and customer service bottlenecks (Schenck, 2021). According to Chen et al. (2020), Insurtech investments have surged globally, reflecting the insurance sector's recognition of the necessity to innovate or risk obsolescence. Notably, the adoption of FinTech in insurance is not confined to developed markets. Emerging economies in Southeast Asia, Latin America, and Africa are witnessing leaps in mobile-based insurance models, which address unique market challenges such as financial exclusion and low insurance penetration (Arner, Barberis, & Buckley, 2016; KPMG, 2021).

This global phenomenon demonstrates that FinTech is not only revolutionizing established markets but is also acting as an enabler for financial inclusion and improved risk mitigation in developing contexts (Sia, Soh, & Weill, 2016).

➤ *Digital Transformation in Insurance*

Digital transformation in the insurance sector is a multidimensional process that involves the integration of technology into every aspect of the business, from product design to distribution and customer service (Schmidt & Drews, 2017; Eling & Lehmann, 2018). This transformation is characterized by the implementation of digital platforms, automation of manual processes, and the adoption of customer-facing technologies such as chatbots and self-service mobile apps (Bharadwaj et al., 2013).

A key driver of this transformation is the strategic imperative for insurers to enhance operational agility and cost

efficiency. The migration to cloud-based systems, for instance, has enabled real-time data access and improved collaboration across organizational silos, leading to faster decision-making and reduced overhead (Standaert, Muyllé, & Basu, 2021). At the same time, insurers are leveraging machine learning to refine risk models and deliver personalized customer experiences, further aligning products with evolving consumer expectations (Sun, Chang, & Lee, 2021).

Empirical studies highlight that digital transformation is now recognized as a critical success factor in the highly competitive insurance landscape. For example, a comparative analysis by Puschmann (2017) found that digitally mature insurers outperformed their peers in terms of customer satisfaction and operational efficiency. The COVID-19 pandemic has further accelerated this shift, as remote work and increased digital service demand forced insurers to rapidly adapt and invest in digital infrastructure (Deloitte, 2022; Eling & Lehmann, 2018). Importantly, digital transformation also supports insurers' efforts to comply with evolving regulatory requirements, as automated systems enhance reporting accuracy and reduce compliance costs (Gao & Gurd, 2019).

• *The Role of Insurtech and Innovation*

Insurtech companies are at the forefront of insurance innovation, driving both incremental and disruptive changes across the value chain (Gomber et al., 2017; Dorflleitner et al., 2017). Their agility and technological prowess enable them to experiment with new business models and rapidly deploy solutions that address gaps in traditional insurance offerings. For instance, the use of IoT devices in insurance has enabled real-time monitoring of insured assets, leading to more accurate risk pricing and proactive loss prevention (Schenck, 2021).

AI and machine learning are central to Insurtech's impact, automating claims processing, detecting fraudulent activities, and powering sophisticated chatbots for instant customer support (Biener et al., 2015; Sun et al., 2021). Blockchain technology is increasingly utilized for secure, transparent, and immutable record-keeping, facilitating trust and streamlining transactions involving multiple parties (Philippon, 2016; Schenck, 2021). These technologies not only enhance operational efficiency but also address industry-wide concerns about data security and transparency.

Furthermore, Insurtech has democratized access to insurance, particularly in previously underserved or financially excluded populations. Microinsurance, peer-to-peer risk pooling, and usage-based insurance models have emerged as viable solutions for low-income and informal sector workers in emerging markets (Arner et al., 2016; Capgemini, 2023). Such innovations are narrowing the protection gap and supporting financial stability for vulnerable communities. Research also indicates that established insurers are increasingly collaborating with or investing in Insurtech startups to accelerate their own innovation agendas. This partnership model fosters knowledge transfer and enables incumbents to stay

competitive in a rapidly evolving digital ecosystem (Baker & Dellaert, 2019; Eling & Lehmann, 2018).

Synthesizing the academic literature and industry evidence, several key themes emerge regarding the global adoption of FinTech and Insurtech in insurance. First, universal drivers such as efficiency, personalization, and competitive pressure are at the core of FinTech adoption. However, the ways in which solutions are implemented are adapted to local regulatory, economic, and technological contexts, reflecting significant contextual differences across regions (Gomber et al., 2017; Sia et al., 2016). A notable trend in emerging markets is the phenomenon of “leapfrogging.” Innovations like mobile-based insurance and microinsurance allow countries in Africa and Southeast Asia to bypass traditional insurance models and rapidly adopt advanced digital solutions. This has enabled these markets to accelerate financial inclusion and deliver insurance services to underserved populations more efficiently (Arner et al., 2016; KPMG, 2021).

Regulatory evolution plays a critical role in the successful adoption of FinTech. The relationship between innovation and regulation is dynamic, and adaptive approaches such as regulatory sandboxes have proved effective. These frameworks support innovation while ensuring consumer protection and financial stability, allowing regulators and industry players to understand and manage emerging risks more effectively (Gao & Gurd, 2019; Schenck, 2021). Collaboration has emerged as a powerful catalyst for innovation. The convergence of Insurtech startups and established insurers is fostering an environment of co-innovation, knowledge exchange, and mutual growth. This collaborative approach enables both new entrants and incumbents to leverage their respective strengths and drive industry progress (Eling & Lehmann, 2018).

Finally, customer-centric transformation underpins much of the industry’s digital evolution. The increasing focus on personalized offerings, seamless digital experiences, and enhanced transparency is driving greater customer engagement and loyalty. By placing the customer at the center of transformation efforts, insurers are able to meet rising expectations and build stronger, longer-lasting relationships (Biener et al., 2015; Sun et al., 2021). These developments are challenging traditional paradigms, enhancing operational efficiencies, and expanding access to insurance. The synthesis of academic and industry sources makes it clear that the future of insurance will be shaped by continued digitalization, collaborative innovation, and customer-centric business models.

- *Big Data, AI and Advanced Analytics*

The advent of big data, artificial intelligence (AI), and advanced analytics has marked a paradigm shift in the global insurance industry, fundamentally altering how insurers assess risk, price products, engage with customers, and manage operations. Traditionally, insurance companies relied on actuarial science and historic datasets to estimate risks and set premiums. However, these approaches often lacked the

granularity and predictive power required in today’s dynamic and data-rich environment (Cather & Carter, 2015).

Big data refers to the massive volume, velocity, and variety of data generated from numerous sources, including online transactions, social media, telematics, wearable devices, and connected sensors. Insurers now harness this wealth of data to perform more sophisticated and nuanced risk assessments. This enables the creation of highly individualized risk profiles, which support more accurate underwriting and dynamic pricing models. For instance, telematics data from vehicles allows auto insurers to price policies based on actual driving behavior rather than broad demographic categories, rewarding safe drivers with lower premiums and thus promoting safer roads (Deloitte, 2023).

AI, particularly machine learning and deep learning algorithms, further amplifies the capabilities of insurers. AI systems are deployed to automate claims processing, fraud detection, and customer interactions. In claims management, AI-driven tools can quickly analyze images of damaged vehicles or property, estimate repair costs, and even approve straightforward claims without human intervention, thereby reducing processing times from weeks to hours or even minutes (McKinsey & Company, 2017). In underwriting, AI models can process complex and disparate datasets such as medical records, credit history, and behavioral data—to assess risk more holistically and efficiently than manual methods.

Advanced analytics also enable insurers to move beyond risk selection and pricing, allowing them to predict customer lifetime value, identify cross-selling opportunities, and tailor marketing efforts (Deloitte, 2023). Predictive models can flag customers at a higher risk of lapsing or switching providers, enabling proactive retention strategies. Moreover, analytics facilitate early detection of fraudulent activities by recognizing patterns that would likely elude traditional rule-based approaches.

These technologies collectively drive a shift toward personalized, data-driven insurance, where customer experience and operational efficiency are optimized. However, the integration of big data and AI is not without challenges, such as ensuring data quality, managing privacy concerns, and addressing algorithmic biases (Accenture, 2023). Insurers must also invest in talent, infrastructure, and governance frameworks to fully realize the benefits of these innovations.

➤ *Regional Perspective*

The literature on FinTech and insurtech adoption in the Southern African Development Community (SADC) is relatively nascent, but studies at the national level, particularly from Zambia and neighboring countries, provide valuable insights for the broader region. Within the SADC, the insurance industry faces persistent challenges, including low penetration rates, limited product offerings, and infrastructural constraints. FinTech presents a promising avenue to address these gaps by enhancing operational efficiency, expanding access, and improving risk

management (Kanyembo et al., 2020). Research in Zambia highlights several factors influencing FinTech adoption in insurance. Kanyembo et al. (2020) applied the Technology Acceptance Model (TAM) and found that perceived usefulness and perceived ease of use are significant determinants. Trust, perceived risk, and regulatory environment also play crucial roles in shaping adoption decisions, echoing findings from FinTech studies in other developing markets.

Mutanga et al. (2019) explored the impact of FinTech on financial inclusion in Zambia's insurance sector. Their study revealed that digital platforms, particularly mobile insurance, have enabled insurers to reach previously underserved populations by reducing costs and logistical barriers. However, the study also noted that a supportive regulatory framework is essential for maximizing FinTech's impact and ensuring consumer protection. Comparative insights from Kenya, though outside the SADC, further inform the regional perspective. Maghanga et al. (2021) identified trust, perceived risk, usability, and regulatory clarity as significant drivers of FinTech adoption in insurance. The development of interoperable digital payment systems and supportive policy frameworks in Kenya has contributed to rapid growth in mobile insurance and other digital insurance products.

Despite these positive trends, the SADC region faces persistent challenges related to digital infrastructure, regulatory harmonization, and consumer education. The limited availability of high-speed internet, uneven distribution of digital literacy, and varying regulatory approaches across member states create obstacles to broader FinTech adoption (World Bank, 2022). Furthermore, the lack of comprehensive data on insurtech in the SADC underscores the need for further research and regional collaboration. Nonetheless, the evidence suggests that with targeted policy support, investment in infrastructure, and cross-sector partnerships, FinTech has the potential to drive significant improvements in insurance accessibility, efficiency, and innovation within the region.

➤ *Zambian Perspective*

The Zambian insurance industry, much like its counterparts in other developing economies, has traditionally been characterized by low penetration, limited product variety, and widespread insurance illiteracy. These challenges have constrained the industry's ability to contribute effectively to financial sector development and socio-economic resilience. However, the advent of FinTech is catalyzing significant transformation within the sector (Dai & Kauffman, 2020).

Several studies have examined the drivers and outcomes of FinTech adoption in Zambia's insurance industry. Dai and Kauffman (2020) emphasized the role of changing customer preferences, regulatory support, and digital infrastructure in shaping FinTech uptake. With an increasingly young and tech-savvy population, Zambian insurers recognize the need to offer digital channels, mobile insurance, and personalized products to meet evolving consumer expectations.

Copestake et al. (2018) highlighted the role of mobile technology in advancing financial inclusion. Their research found that mobile insurance products help bridge the gap for underserved populations by offering affordable, accessible, and convenient coverage. The study also underscored the importance of collaboration between insurers, mobile network operators, and regulators in driving FinTech adoption and ensuring successful scale-up. Insurtech startups are playing an increasingly prominent role in Zambia's insurance ecosystem. These firms leverage data analytics, AI, and blockchain to deliver innovative solutions that address local market needs. Accenture (2017) noted that partnerships between traditional insurers and insurtech startups can accelerate digital transformation, allowing incumbents to modernize operations and introduce new, customer-centric products.

Moonga and Katongo (2019) specifically investigated the adoption of mobile insurance in Zambia, finding that perceived usefulness, ease of use, and trust significantly influence individuals' intention to adopt. These findings align with global evidence and suggest that successful FinTech integration in Zambia's insurance sector hinges on both technological capability and consumer perceptions. Despite these promising developments, challenges persist. The sector continues to grapple with infrastructural limitations, particularly in rural areas, and a shortage of digital skills. Regulatory frameworks are still evolving, sometimes lagging behind the pace of technological innovation and creating uncertainty for market participants (World Bank, 2022). Nonetheless, Zambia's experience demonstrates that FinTech adoption can drive operational efficiency, enhance customer experience, and expand access to insurance services. Strategic investments in digital infrastructure, regulatory capacity, and consumer education will be essential for unlocking the full potential of FinTech in Zambia's insurance industry.

➤ *Effect of FinTech on Operational Efficiency and Business Models*

FinTech has transformed operational efficiency and business models within Zambia's insurance sector, mainly through automation, data analytics, digital distribution, and advanced risk management. Automation of routine processes, such as claims processing and underwriting, using robotic process automation (RPA) and artificial intelligence, has dramatically reduced processing times and costs while improving accuracy and compliance (Ernst & Young, 2023; McKinsey & Company, 2023). Employees can now focus on value-added activities, leading to more agile and customer-focused operations. Sophisticated data analytics enable personalized insurance offerings by analyzing behavioral and demographic data, allowing for more precise risk assessments and customized pricing (Deloitte, 2023; Accenture, 2023). Usage-based models, like telematics in auto insurance, exemplify this trend, enhancing both customer satisfaction and retention.

Digital distribution channels such as mobile apps and online platforms have broadened market reach and improved customer engagement, especially for previously underserved

populations (Boston Consulting Group, 2023; PwC, 2023). Customers benefit from greater accessibility and convenience, strengthening their relationship with insurers. Advanced risk management tools, including AI-driven fraud detection and blockchain for secure data management, further enhance operational integrity and reduce fraud-related losses (Gartner, 2023; World Economic Forum, 2023). Blockchain's transparency and immutability provide robust safeguards against data manipulation. Overall, FinTech adoption is driving more efficient, adaptable, and customer-centric business models in Zambia's insurance industry, positioning companies for growth and resilience in a rapidly evolving financial landscape (Gomber et al., 2018).

➤ *Gaps in the Literature*

Despite increasing research on FinTech adoption in the insurance sector, significant gaps remain, particularly regarding the Zambian and broader African context. Most studies focus on developed markets, offer limited insights into the specific impacts on operational efficiency and customer experience, and do not deeply explore regulatory or infrastructural barriers. Additionally, there is a lack of longitudinal and comparative research, insufficient examination of user perceptions and digital literacy, and minimal analysis of effective collaboration models between insurers and FinTech firms. Few studies evaluate the long-term business and customer outcomes post-adoption, underscoring the need for more comprehensive, context-specific research.

➤ *Theoretical Framework*

The study of FinTech adoption in the insurance industry can be analyzed through three theoretical frameworks: the Technology Acceptance Model (TAM), the Diffusion of Innovations Theory, and the Resource-Based View (RBV). Each framework presents unique perspectives on technology adoption and change within organizations.

- *Technology Acceptance Model (TAM)*

The Technology Acceptance Model (TAM), formulated by Fred Davis in 1989, emphasizes perceived usefulness and perceived ease of use as critical factors influencing technology adoption. Within the insurance sector, perceived usefulness refers to the belief that FinTech solutions can improve operational efficiency, expedite processing times, and enhance customer service. Empirical studies reveal that a strong perception of these benefits correlates with higher adoption rates. Conversely, perceived ease of use signifies the degree of effort required to utilize a technology. The insurance industry, where digital literacy levels can vary greatly, finds that user-friendly and intuitive platforms are more readily embraced. Therefore, both perceived usefulness and ease of use significantly impact FinTech adoption, particularly in evolving markets like Zambia.

- *Diffusion of Innovations*

The Diffusion of Innovations Theory by Everett Rogers introduces five attributes that affect innovation adoption: relative advantage, compatibility, complexity, trialability, and observability. Relative advantage assesses whether FinTech solutions outperform existing practices, while compatibility considers alignment with current values and experiences in Zambian insurance companies. Complexity relates to the perceived difficulty of adopting innovations; those deemed overly complex may face slower uptake. Trialability allows stakeholders to experiment with innovations on a limited basis to reduce perceived risks, and observability involves how visible the benefits of FinTech adoption are. The adoption process proceeds through stages: knowledge, persuasion, decision, implementation, and confirmation. Understanding these stages helps explain the uneven rate of FinTech diffusion across firms in Zambia, highlighting possible barriers during persuasion, decision-making, and implementation stages.

- *The Resource-Based View (RBV)*

The Resource-Based View (RBV), initially proposed by Birger Wernerfelt and furthered by Jay Barney, asserts that a firm's competitive advantage derives from its ability to acquire valuable, rare, inimitable, and non-substitutable resources. FinTech solutions can be perceived as strategic resources enabling insurers to achieve cost efficiency and enhanced customer engagement. The rarity and inimitability of these resources, influenced by factors such as technological complexity and organizational culture, differentiate insurers in their competitive landscape. Furthermore, merely possessing such resources isn't enough; firms need to develop internal capabilities to leverage these resources effectively, which includes training staff and fostering an agile culture that can adapt to technological advances. In Zambia, enterprises that cultivate these capabilities are more likely to convert their FinTech assets into improved operational results and customer experiences, demonstrating the RBV's relevance in the context of digital transformation and sustained competitive advantage.

➤ *Conceptual Framework*

The conceptual framework for this study is designed to illustrate the relationship between FinTech adoption and its effects on operational efficiency, customer experience, business models, and challenges in the Zambian insurance industry. The framework also outlines the factors influencing this relationship, such as regulatory frameworks, technology infrastructure, and organizational readiness. The following figure depicts these relationships:

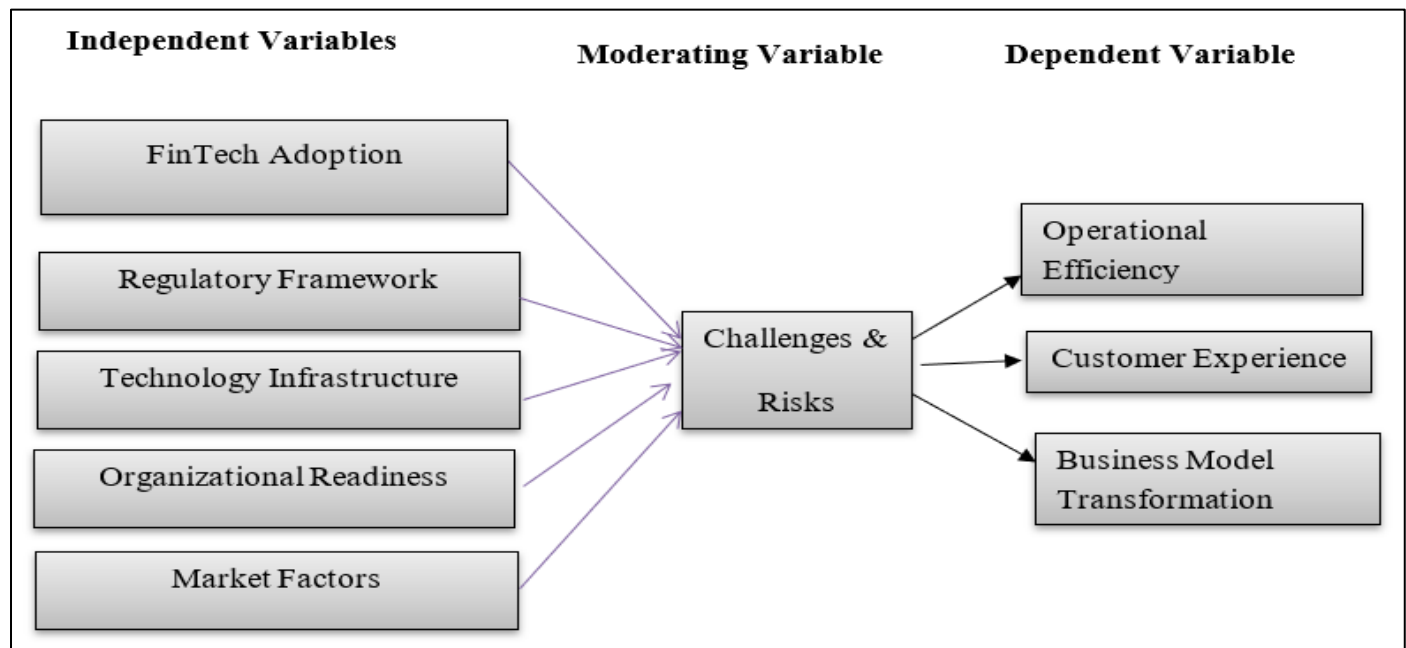


Fig 1 Conceptual Framework Showing Factors Influencing FinTech Adoption in the Insurance Industry in Zambia
Source: Authors Own Design, 2025

III. METHODOLOGY AND DESIGN

➤ Introduction

This chapter outlines the research methodology used to investigate FinTech adoption in Zambia's insurance industry. The main aims were to explore the factors influencing FinTech adoption, assess its impacts on operational efficiency and customer experience, and identify related challenges and opportunities. The methodology integrates philosophical underpinnings, research design, sampling strategies, data collection, pilot testing, analysis, and ethical considerations to ensure rigor and credibility.

➤ Research Philosophy and Approach

A pragmatic philosophy guided the research, combining positivist and interpretivist paradigms through a mixed-methods framework. This approach enabled the study to benefit from both quantitative empirical measurement and qualitative contextual insights, allowing for triangulation and enriched interpretation.

➤ Research Design

A mixed-methods case study design was used, integrating structured surveys of all 29 registered insurance companies with semi-structured interviews and focus groups among key stakeholders, including executives, FinTech innovators, regulators, and customers. This design was chosen to capture both statistical trends and nuanced, contextual information. The research was anchored in established theoretical frameworks, including Rogers' Diffusion of Innovations Theory, Davis's Technology Acceptance Model, and the Resource-Based View.

➤ Target Population and Sampling Frame

The target population comprised all 29 registered insurance companies, relevant FinTech startups, regulatory bodies (such as the PIA and Bank of Zambia), and key

stakeholders including executives, IT managers, FinTech entrepreneurs, regulators, and customers. This broad approach ensured diverse perspectives and comprehensive findings representative of the Zambian insurance and FinTech ecosystem.

➤ Sample Size

• Quantitative Sample Size

The study used Cochran formula to determine the quantitative sample size, and a minimum of 384 survey respondents was determined for statistical validity.

The formula is:

$$n = Z^2 \times p \times (1 - p) / d^2$$

Where:

n is the required sample size,

Z is the Z-score corresponding to the desired confidence level (1.96 for 95%),

p is the estimated proportion of the population (0.5, maximizing sample size due to lack of prior data),

d is the margin of error (set at 0.05).

$$n = (1.96)^2 \times 0.5 \times (1 - 0.5) / (0.05)^2$$

$$n = 3.8416 \times 0.25 / 0.0025$$

$$n = 0.9604 / 0.0025$$

$$n = 384.16$$

- **Qualitative Sample Size:**

Eighteen purposively selected participants were included for qualitative analysis, achieving data saturation and balancing depth and breadth.

- **Sampling Techniques**

Census sampling for quantitative surveys ensured full representation of the industry, while purposive sampling for qualitative research targeted informants with direct experience in FinTech implementation and innovation.

- **Data Collection Instruments and Procedure**

Primary data was collected using structured electronic surveys, semi-structured interviews, and focus groups, supported by participant observation. Secondary data included literature, reports, and policy documents. Pilot testing refined the instruments, and sequenced data collection maximized efficiency and response rates.

- **Pilot and Diagnostic Testing**

Pilot testing improved clarity and reliability. Tools like the Shapiro-Wilk test, Cronbach's Alpha, and expert reviews ensured the validity and reliability of scales and instruments.

- **Data Preparation and Analysis**

Qualitative data underwent thematic analysis, while quantitative data was analyzed using descriptive and inferential statistics (with SPSS). Integration of both datasets enabled comprehensive interpretation and validation of findings.

- **Ethical Considerations**

Ethical standards were upheld through informed consent, confidentiality, secure data management, and voluntary participation. Bias was minimized through anonymity and data triangulation.

- **Limitations of the Methodology**

Limitations included restricted access to detailed financial data, potential bias in self-reported responses, and the risk of rapid FinTech change making findings quickly

outdated. Generalizability to other contexts may be limited due to differing regulatory and market conditions. Overall, this methodology provided a robust, credible framework for analyzing FinTech adoption in Zambia's insurance sector.

IV. RESULTS

- **Introduction**

Chapter Four presents the data analysis and findings from a study on FinTech adoption in Zambia's insurance industry. It addresses research objectives by analyzing current FinTech adoption levels, its impact on operational efficiency and customer experience, the challenges the sector faces, and strategies for enhancing adoption. Both primary data from surveys and interviews with industry stakeholders and secondary data from reports and literature were utilized. A mixed-methods approach employed descriptive and inferential statistics to summarize key characteristics and analyze relationships between FinTech adoption and its effects. Visual aids enhance clarity, and each section correlates with specific research objectives, providing detailed interpretations. The chapter culminates by synthesizing results and offering recommendations for fostering FinTech innovation in Zambia's insurance sector.

- **Demographic Variables**

Table 1 presents the demographic profile of survey respondents. Out of 384 participants, a slight majority were male (56%), with female respondents comprising 44%. The age distribution indicated a relatively young workforce, as 28.1% were under 30 years old, 46.1% fell within the 30–45 range, and 25.8% were over 45. A significant proportion (62%) occupied managerial or supervisory roles, while 38% were either technical or frontline staff, suggesting input from individuals with both strategic and operational perspectives. In terms of company size, 34.1% worked in large insurance firms, 40.9% in medium-sized, and 25% in small companies, providing a representative view across the sector. Notably, 71.1% of respondents had more than five years of experience, supporting the credibility and reliability of the insights gathered.

Table 1 Respondent Demographics

Variable	Category	Frequency	Percentage (%)
Gender	Male	215	56
	Female	169	44
Age	Under 30	108	28.1
	30–45	177	46.1
	Over 45	99	25.8
Position	Manager/Supervisor	238	62
	Technical/Frontline	146	38
Company Size	Large	131	34.1
	Medium	157	40.9
	Small	96	25
Sector Experience	>5 years	273	71.1
	≤5 years	111	28.9

Source: Primary Survey, October, 2024

➤ *Current Level of FinTech Adoption*

• *Types of Insurance Products Offered*

Life insurance was the most commonly offered product, with 210 companies (54.7%) including it in their portfolio. Health insurance was also prominent, reported by 192

companies (50.0%). Auto insurance followed with 145 (37.8%), and property insurance with 124 (32.3%). Other less common products, such as microinsurance and agriculture insurance, were provided by 52 companies (13.5%). This distribution demonstrates that most firms offer multiple products, ensuring a diversified service portfolio.

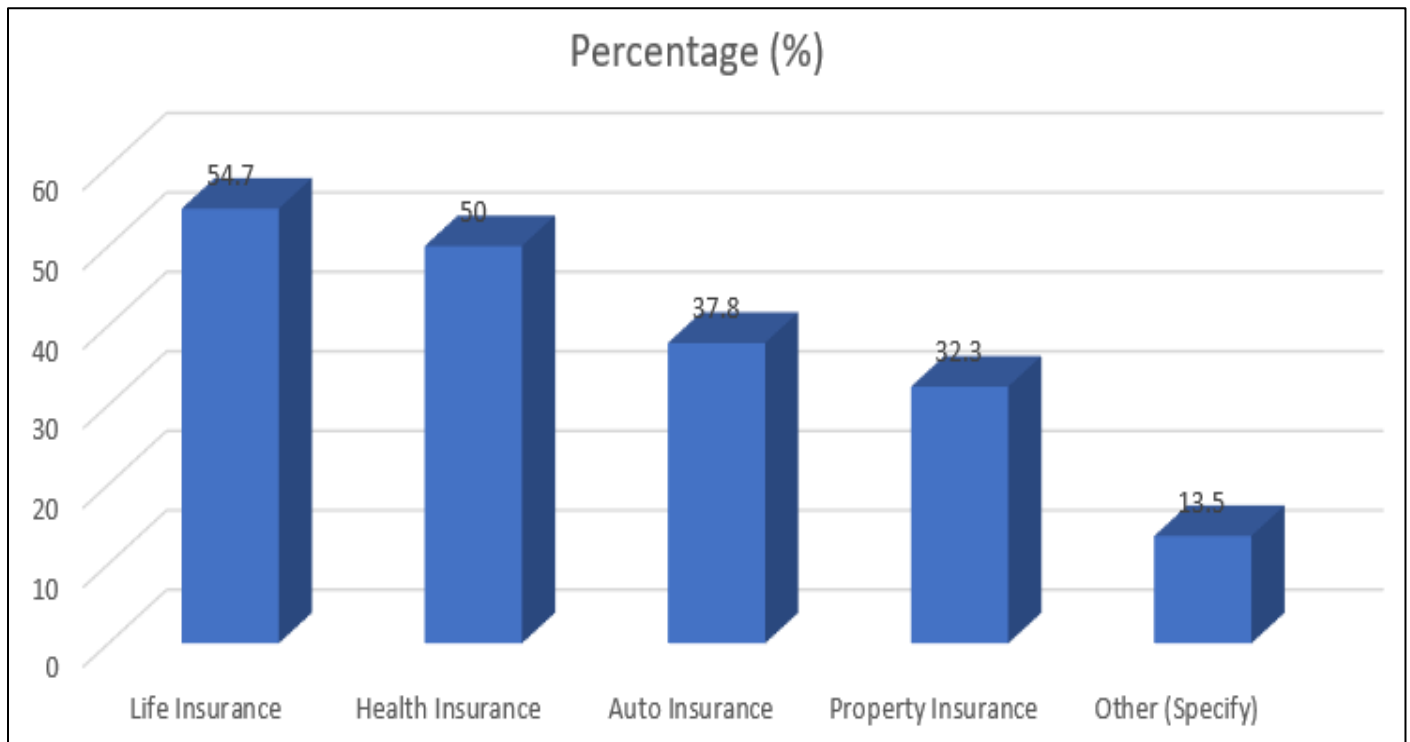


Fig 2 Distribution of Insurance Products Offered
Source: Primary Survey, October, 2024

• *Level of FinTech Adoption*

Out of the total respondents, only 33 companies (8.6%) reported no adoption of FinTech solutions, indicating that the vast majority have started integrating digital technologies. 91 companies (23.7%) had limited adoption, reflecting early or

partial implementation. Moderate adoption was the most common response, with 160 (41.7%) companies actively using several FinTech systems. Extensive adoption, where FinTech is a core part of operations, was reported by 100 companies (26.0%).

Table 2 Extent of FinTech Adoption

Adoption Level	Frequency	Percentage (%)
No adoption	33	8.6
Limited adoption	91	23.7
Moderate adoption	160	41.7
Extensive adoption	100	26.0

Source: Primary Survey, October, 2024

• *Types of FinTech Solutions Implemented*

Digital payment systems were the most widely adopted, used by 242 companies (63.0%). Mobile apps for customer service were also common, with 216 companies (56.3%) using this technology. Automated claims processing was

reported by 180 (46.9%), while 150 (39.1%) utilized data analytics tools for business intelligence and risk management. Blockchain for record-keeping was only implemented by 49 companies (12.8%), indicating it is still emerging. Other solutions, such as chatbots and AI-driven tools, were mentioned by 35 companies (9.1%).

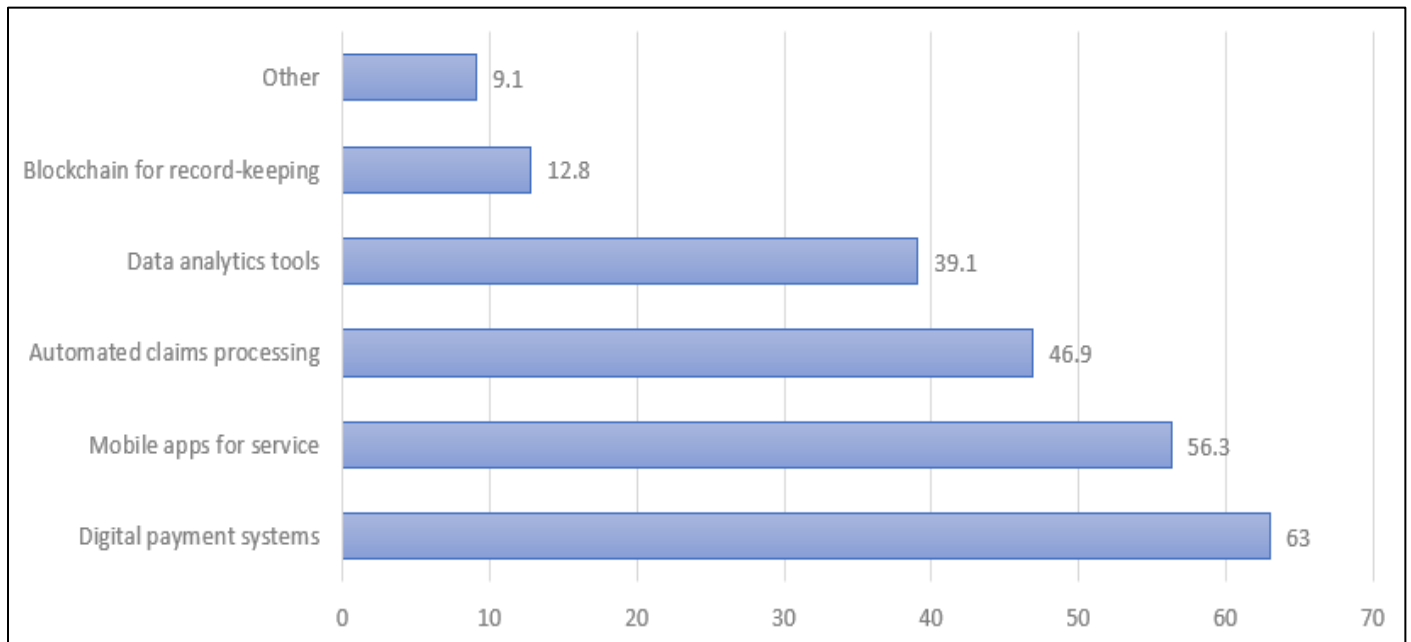


Fig 3 Types of FinTech Solutions Implemented
Source: Primary Survey, October, 2024

• *Factors Influencing FinTech Adoption*

Cost was the most influential factor, cited by 196 (51.0%) companies, suggesting that budget constraints or anticipated returns drive adoption decisions. Technological

readiness was next, considered by 170 (44.3%). Regulatory considerations influenced 130 (33.9%) companies, while customer demand drove adoption in 145 (37.8%). Competitive pressure motivated 102 companies (26.6%). Other factors included internal strategy and market trends.

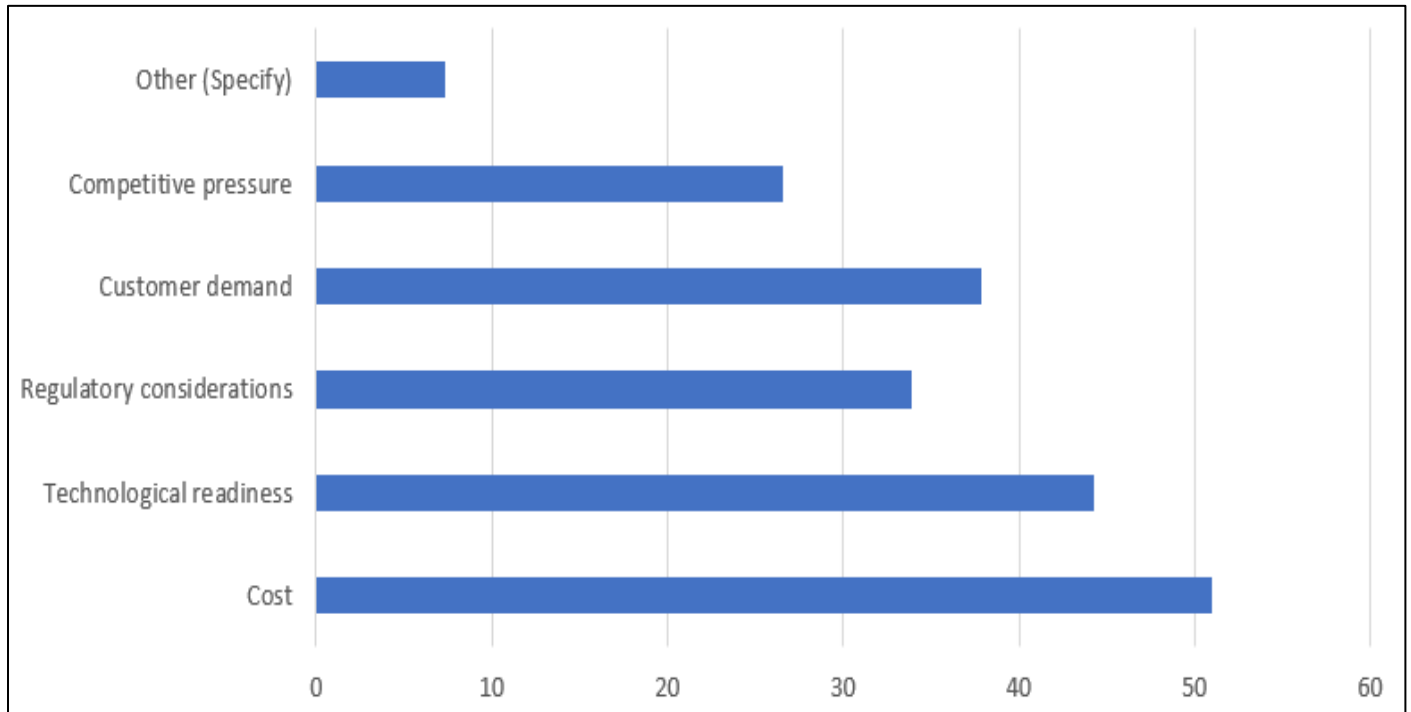


Fig 4 Factors Influencing FinTech Adoption
Source: Primary Survey, October, 2024

• *Drivers and Barriers to Adoption*

Improved operational efficiency, selected by 270 companies (70.3%), was the dominant driver. Enhanced customer experience was also highly valued (238, 62.0%).

Cost reduction (140, 36.5%) and gaining a competitive advantage (128, 33.3%) were both important, while regulatory compliance was a lesser but still significant motivator (84, 21.9%).

Table 3 Primary Drivers for FinTech Adoption

Driver	Frequency	Percentage (%)
Improved operational efficiency	270	70.3
Enhanced customer experience	238	62.0
Cost reduction	140	36.5
Competitive advantage	128	33.3
Regulatory compliance	84	21.9

Source: Primary Survey, October, 2024

- Barriers to FinTech Adoption**

High implementation costs were the greatest barrier, affecting 186 companies (48.4%). Lack of skilled personnel

(169, 44.0%) and regulatory challenges (146, 38.0%) were also major obstacles. Resistance to organizational change was cited by 127 (33.1%), and security concerns by 95 (24.7%).

Table 4 Barriers to FinTech Adoption

Barrier	Frequency	Percentage (%)
High implementation costs	186	48.4
Lack of skilled personnel	169	44.0
Regulatory challenges	146	38.0
Resistance to change	127	33.1
Security concerns	95	24.7

Source: Primary Survey, October, 2024

➤ **Effect of FinTech Adoption**

change. Only 5 companies (1.3%) believed operational efficiency had deteriorated.

- Effect on Operational Efficiency**

A majority of respondents reported positive impacts: 36.2% (139) indicated significant improvement, 47.7% (183) reported moderate improvement, and 14.8% (57) saw no

Table 5 Effect on Operational Efficiency

Effect on Efficiency	Frequency	Percentage (%)
Significantly improved	139	36.2
Moderately improved	183	47.7
No change	57	14.8
Deteriorated	5	1.3

Source: Primary Survey, October, 2024

- Effect on Customer Experience**

Customer experience was reported as significantly or moderately improved by 325 firms (84.6%). Only 53 (13.8%) saw no change and 6 (1.6%) noted a deterioration.

Table 6 Effect on Customer Experience

Effect on Experience	Frequency	Percentage (%)
Significantly improved	151	39.3
Moderately improved	174	45.3
No change	53	13.8
Deteriorated	6	1.6

Source: Primary Survey, October, 2024

- Effect on Operational Efficiency and Customer Experience**

Table 7 shows that both operational efficiency and customer experience received high average ratings after FinTech adoption (means of 4.1 and 4.3, respectively). The relatively low standard deviations indicate consistent positive perceptions across firms.

Table 7 Operational Efficiency and Customer Experience

Metric	Mean	Std. Dev.
Operational Eff.	4.1	0.64
Customer Exp.	4.3	0.58

Source: Primary Survey, October, 2024

- *Efficiency by Operational Area*

Table 8 examines specific operational areas. Customer data management saw the highest improvement (mean = 4.4), indicating that digital solutions have significantly enhanced insurers' ability to store, retrieve, and utilize client information efficiently. Customer support responsiveness

(mean = 4.3) and claims processing (4.2) also benefited considerably from FinTech, likely due to automation and digital communication tools. Underwriting efficiency and risk assessment accuracy, with means of 4.1 and 4.0, respectively, show that FinTech has positively impacted even the more technical and risk-related aspects of insurance operations.

Table 8 Effect of FinTech by Operational Area

Area	Mean	Std. Dev.
Claims Processing	4.2	0.57
Underwriting Efficiency	4.1	0.65
Customer Data Management	4.4	0.55
Risk Assessment Accuracy	4.0	0.62
Customer Support	4.3	0.60

- *Summary Regression Results*

The regression analysis in Table 9 further supports these findings. The FinTech Adoption Index had a strong, positive, and statistically significant effect on both operational

efficiency ($B = 0.65$, $p = 0.001$) and customer experience ($B = 0.52$, $p = 0.002$), even after controlling for company size. Company size itself also positively impacted both outcomes, albeit to a lesser degree, suggesting that larger organizations are better positioned to leverage technological change.

Table 9 Regression Analysis Results

Outcome	Predictor	Coefficient (B)	Std. Error	t-value	p-value
Operational Eff.	FinTech Adoption	0.65	0.14	4.64	0.001
	Company Size	0.21	0.10	2.10	0.045
Customer Experience	FinTech Adoption	0.52	0.12	4.33	0.002
	Company Size	0.18	0.09	2.00	0.050

Significant at $p < 0.05$

V. DISCUSSION

Chapter Five provides a detailed discussion of the key findings from the study on FinTech adoption in Zambia's insurance industry. The findings from this study revealed that FinTech adoption in Zambia's insurance sector is both widespread and varied, with a majority of insurance companies reporting moderate to high levels of digital integration. According to the data, 41.7% of firms described their adoption as moderate, and 26% as extensive, while only a small minority reported no adoption (8.6%) or limited adoption (23.7%). This pattern suggests that digital transformation has become a mainstream strategic priority for Zambian insurers, mirroring trends observed in other emerging markets where FinTech is leveraged to enhance competitiveness and reach underserved populations (Gomber et al., 2018; Chowa et al., 2020). A closer analysis by company focus shows that firms serving corporate and mixed client bases are leading in FinTech adoption. Specifically, among corporate-focused companies, 61 out of 93 reported high levels of adoption, while firms with a mixed operational focus also demonstrated strong digital uptake. In contrast, those targeting primarily individual clients exhibited more dispersed and typically lower levels of adoption, likely reflecting differences in resource availability, customer expectations, and competitive pressures. This aligns with the resource-based view (Barney, 1991), which posits that organizations with greater assets and capabilities are better positioned to pioneer technology-driven transformation.

The types of FinTech solutions currently deployed further underscore the industry's evolving digital landscape. Digital payment systems and mobile customer service apps are the most prevalent, implemented by 63% and 56.3% of companies, respectively. Automated claims processing and data analytics tools are also increasingly common, while blockchain and advanced AI applications remain nascent. These findings are consistent with the global insurance literature, which notes that initial waves of FinTech adoption typically focus on customer-facing improvements and process automation before moving toward more complex, back-end innovations (Philippon, 2016; PwC, 2023).

Factors influencing FinTech adoption in Zambia mirror those cited in empirical studies from similar contexts. Cost and technological readiness were the most significant determinants, followed by regulatory considerations and customer demand. This supports the arguments of Rogers' (2003) Diffusion of Innovations theory, which emphasizes the importance of perceived relative advantage, compatibility, and complexity in determining the pace and breadth of technological change.

Thus, it was established that the current landscape of FinTech adoption in Zambia's insurance industry demonstrates substantial progress, particularly among larger and corporate-focused firms. While the sector has moved beyond basic experimentation, there remains room for further diffusion, especially among smaller companies and those serving individual clients. These findings reinforce the notion

that resource endowment, market orientation, and ecosystem readiness are critical enablers of digital transformation, as found in recent regional (KPMG, 2019) and international (McKinsey & Company, 2022) studies.

The findings of this study clearly indicate that FinTech adoption has had a significant positive effect on both operational efficiency and customer experience in Zambia's insurance industry. Companies reported marked improvements in process speed, accuracy, and data management, with average scores of 4.1 for operational efficiency and 4.3 for customer experience. Areas such as claims processing (mean = 4.2), customer data management (4.4), and customer support (4.3) saw the largest gains, consistent with global literature that finds technology adoption streamlines operations and reduces manual errors (Gomber et al., 2018; Accenture, 2020). Regression results further support these improvements: FinTech adoption was a strong predictor of higher operational efficiency ($B = 0.65$, $p < 0.01$) and enhanced customer experience ($B = 0.52$, $p < 0.01$), even after controlling for company size. This aligns with the work of Deloitte (2022) and Philippon (2016), who highlight that digital innovation empowers insurers to deliver faster, more personalized services, ultimately improving customer satisfaction and loyalty. Larger firms reaped greater benefits, likely because they could invest more in advanced digital tools, echoing the resource-based view that organizational capacity influences innovation outcomes (Barney, 1991; Wade & Hulland, 2004).

These results suggest that, similar to trends observed in Europe and Asia, Zambian insurers leveraging FinTech are closing efficiency gaps and elevating the client experience, moving the industry closer to international benchmarks (PwC, 2023; McKinsey & Company, 2022).

Regarding the strategies and Recommendations to Enhance FinTech Adoption. The study established that insurance companies need to enhance FinTech adoption in Zambia's insurance industry, stakeholders recommended strategies such as fostering collaboration with FinTech startups to drive innovation and share expertise, proactively engaging with regulators to establish clear, flexible guidelines and regulatory sandboxes, and prioritizing incremental adoption and capacity building especially for smaller firms needing phased implementation and targeted training. Continued investment in digital infrastructure was also highlighted as crucial, particularly for bridging the urban-rural divide in access to digital services. From a policy standpoint, calls were made for simplified regulations, incentives for technology investment, and strengthened cybersecurity frameworks, aligning with international best practices that emphasize enabling regulatory environments, public-private partnerships, and digital literacy initiatives (Gomber et al., 2018; PwC, 2023; Financial Stability Board, 2019; Zetsche et al., 2017; Deloitte, 2022; World Bank, 2022; KPMG, 2019; McKinsey & Company, 2022). In summary, the evidence from Zambia's insurance sector aligns closely with global and regional literature: FinTech adoption drives significant gains in efficiency and customer experience but is constrained by regulatory, infrastructural,

and human capital challenges. Overcoming these obstacles requires coordinated action between industry, government, and technology partners, with a focus on collaboration, regulatory clarity, capacity building, and investment in digital infrastructure. These findings provide actionable guidance for insurers, policymakers, and development agencies seeking to accelerate the digital transformation of financial services in Zambia and similar contexts.

All in all, the findings of this study confirm that while FinTech adoption in Zambia's insurance industry is progressing, several challenges must be addressed to fully realize its potential. Regulatory barriers and technological infrastructure remain key obstacles, but the positive Effect of FinTech on operational efficiency and customer experience is evident. The proposed strategies, particularly collaboration with FinTech startups and regulatory engagement, provide a clear path forward for overcoming these challenges. When compared to both African and global contexts, Zambia's FinTech journey reflects many of the same trends seen elsewhere, but with specific local challenges that require tailored solutions.

VI. CONCLUSION

This study explored the adoption of FinTech in Zambia's insurance industry, focusing on its Effect on operational efficiency and customer experience, as well as the challenges faced by firms in the sector. In conclusion, this study found that FinTech adoption has significantly improved operational efficiency and customer experience within Zambia's insurance industry, particularly in areas such as claims processing, data management, and customer service. Despite these benefits, the research identified persistent challenges, including regulatory barriers, technological infrastructure limitations, high implementation costs, and a shortage of skilled personnel, which disproportionately impact smaller firms. To overcome these obstacles and promote further adoption, the study recommends strategies such as fostering collaboration with FinTech startups, engaging proactively with regulators, prioritizing incremental implementation, investing in digital infrastructure, and enhancing capacity building. From a policy perspective, the findings highlight the need for simplified and supportive regulations, targeted incentives for technology investment, and enhanced cybersecurity measures. Collectively, these insights offer a practical roadmap for insurers and policymakers aiming to accelerate digital transformation and strengthen the competitiveness of Zambia's insurance sector. It emphasizes the importance of tailored strategies that consider the unique challenges faced by firms in this sector and provides a foundation for future research on the dynamics of FinTech adoption in emerging markets.

RECOMMENDATIONS

Therefore, to enhance FinTech adoption in Zambia's insurance industry, it is recommended that insurance companies actively pursue partnerships with FinTech firms through joint ventures, incubator programs, and collaborative projects to leverage technological expertise and innovation.

Regulatory bodies should work closely with industry stakeholders to establish clear, supportive regulations and consider creating regulatory sandboxes that allow for the safe testing of new technologies. Investment in technological infrastructure including improved internet connectivity, enhanced cybersecurity, and upgraded IT systems is essential, with collaboration between insurers and telecommunications providers to bridge the digital divide, especially in rural areas. Smaller insurance firms are advised to implement FinTech gradually and to invest in training and capacity-building programs to ensure effective integration. Finally, raising awareness and providing education about FinTech benefits to both consumers and insurance professionals is vital to demystify digital solutions and encourage broader adoption across the sector.

FURTHER STUDIES

Future research should consider longitudinal studies to track how FinTech adoption evolves over time and its long-term effects on operational efficiency and customer experience, helping to identify industry trends and patterns. Comparative studies between Zambia and other developing countries are recommended to highlight best practices in FinTech adoption and regulation, offering valuable lessons for policy and strategy development. Further investigation into the impact of emerging technologies such as artificial intelligence, machine learning, and blockchain on the insurance sector is essential for understanding their potential role in digital transformation. Additionally, research focused on consumer perceptions and attitudes towards FinTech solutions would provide important insights into the factors driving adoption, enabling insurers to better tailor their products and improve customer experience.

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