(REVIEW ARTICLE)

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Accelerating SME growth in the African context: Harnessing FinTech, AI, and cybersecurity for economic prosperity

Chinwe Chinazo Okoye [1], Ekene Ezinwa Nwankwo [2, *], Favour Oluwadamilare Usman [3], Noluthando Zamanjomane Mhlongo [4], Olubusola. Odeyemi [5] and Chinedu Ugochukwu Ike [6]

[1] Access Bank Plc, Awka, Nigeria.
[2] Anambra State Polytechnic, Mgbakwu, Nigeria.
[3] Hult International Business School, USA.
[4] City Power Johannesburg, South Africa.
[5] Independent Researcher Nashville, Tennessee USA.
[6] Independent Researcher, Anambra State, Nigeria.

Abstract

The economic landscape of Africa is evolving rapidly, and the role of Small and Medium Enterprises (SMEs) is increasingly recognized as a key driver of sustainable development. This review explores the potential of leveraging Financial Technology (FinTech), Artificial Intelligence (AI), and Cybersecurity to accelerate SME growth in the African context, ultimately contributing to economic prosperity. In recent years, FinTech has gained prominence for its ability to revolutionize financial services. By facilitating seamless transactions, enhancing access to capital, and streamlining financial processes, FinTech presents a significant opportunity for SMEs in Africa to overcome traditional barriers to growth. The integration of AI technologies further amplifies this potential, enabling SMEs to harness data-driven insights for informed decision-making, operational efficiency, and personalized customer experiences. However, the adoption of FinTech and AI in the African SME sector necessitates robust cybersecurity measures. As digital transformation accelerates, the risk of cyber threats becomes more pronounced. Addressing these challenges requires a strategic approach to cybersecurity, encompassing robust data protection, threat intelligence, and resilient infrastructure. This review underscores the importance of a holistic approach, wherein the synergy between FinTech, AI, and Cybersecurity becomes a catalyst for economic prosperity. Policymakers, financial institutions, and technology providers must collaborate to create an enabling environment that fosters innovation, supports digital literacy, and ensures the security of digital ecosystems. By embracing this technological trifecta, African SMEs can navigate the complexities of the modern business landscape, foster innovation, and contribute significantly to job creation and economic growth. As Africa positions itself on the global stage, the strategic utilization of FinTech, AI, and Cybersecurity emerges as a pivotal driver for unlocking the full potential of SMEs and propelling the continent toward sustained economic prosperity.

Keywords: SME; FinTech; AI; Cybersecurity; Economy; Growth

1. Introduction

Small and Medium Enterprises (SMEs) play a crucial role in the economic landscape of Africa, contributing significantly to employment, innovation, and economic growth. However, SMEs in Africa face numerous challenges, including limited access to finance, sustainability constraints, and high failure rates. The significance of SMEs for economic growth in Africa cannot be overstated, as they have the potential to contribute to the achievement of Sustainable Development

* Corresponding author: Ekene. Ezinwa Nwankwo

Goals and reverse the cycle of poverty on the continent (Buwule & Mutula, 2017). The high failure rate of SMEs in South Africa, with up to 70% of such businesses closing down within the first 5 years of operations, underscores the need for interventions to support their growth and sustainability (Loury-Okoumba & Mafini, 2021). Furthermore, the lack of funding in South Africa impedes SMEs' growth and survival, leading to premature closure of many enterprises (Msomi et al., 2021).

The emerging role of technology in business, particularly in the context of FinTech, AI, and cybersecurity, presents opportunities for accelerating SME growth in Africa. For South African SMEs to gain and maintain competitive advantages and succeed, they have to change their practices and adapt their strategies to the dynamic environment of today (Epoh & Mafini, 2018). Additionally, the study on flexible working schedules in SMEs in a developing country emphasizes the need for more empirical and conceptual work to explain the richness of the opportunities for SME growth and development in Africa (Peprah et al., 2020). Moreover, the study on innovative mechanisms to improve access to funding for black-owned SMEs in South Africa highlights the struggle of SMEs to gain access to external funding, indicating the need for innovative approaches to address this challenge (Baloyi & Khanyile, 2022).

In conclusion, SMEs are vital for economic prosperity in Africa, and leveraging technology, such as FinTech, AI, and cybersecurity, can be instrumental in accelerating their growth. However, addressing the challenges faced by SMEs, such as access to finance, sustainability constraints, and high failure rates, is essential for unlocking their full potential in driving economic growth in Africa.

2. FinTech in African SMEs

FinTech, short for "financial technology," refers to the innovative use of technology to provide financial services. In the context of African SMEs, FinTech holds significant potential in accelerating their growth. Firstly, it enhances access to capital by providing alternative financing options beyond traditional banking systems (Utami & Sitanggang, 2021; Adeleke et al., 2019; Ilugbusi et al., 2020). This is crucial for SMEs, as they have historically been excluded from formal financial systems (Mpofu & Sibindi, 2022). Secondly, FinTech facilitates seamless transactions, enabling SMEs to conduct business more efficiently and cost-effectively (Senyo et al., 2021). Lastly, it promotes financial inclusion by reaching underserved populations and offering them access to essential financial services (Senyo et al., 2022; Vincent et al., 2021).

Several success stories and case studies support the potential of FinTech in African SMEs. For instance, in Ghana, the growth of FinTech has led to new opportunities for financial inclusion, particularly through mobile money services (Senyo et al., 2021). Additionally, a study on the economic empowerment of informal businesses through FinTech illustrates how these innovations offer a pathway to empowerment for SMEs (Abrahams et al., 2023; Adaga et al., 2024). Furthermore, research has shown that FinTech provides SMEs with easy access to capital, which can significantly impact their performance and growth (Utami & Sitanggang, 2021).

In conclusion, FinTech has the potential to revolutionize the landscape for African SMEs by addressing critical challenges such as access to capital, seamless transactions, and financial inclusion. These advancements are supported by success stories and case studies that demonstrate the tangible benefits of FinTech for SMEs in Africa.

3. AI Integration for SMEs

Artificial Intelligence (AI) has the potential to revolutionize the operations of Small and Medium Enterprises (SMEs) across various sectors (Dwivedi et al., 2021). AI can contribute significantly to informed decision-making by providing data driven insights, enhancing operational efficiency, and improving customer experience (Baabdullah et al., 2021; Abrahams et al., 2024). Datadriven insights from AI can help SMEs in making informed decisions by analyzing large volumes of data to identify patterns and trends, enabling better strategic planning and resource allocation (Drydakis, 2022). Operational efficiency can be enhanced through the integration of AI with processes such as Six Sigma DMAIC, leading to continuous improvement and performance enhancement (Abualsauod, 2023). Additionally, AI can improve customer experience by automating customer service functions, analyzing data, and facilitating efficient payment matching, ultimately enhancing the overall efficiency of SMEs (Fonseka et al., 2022; Hassan et al., 2024).

However, the adoption of AI by SMEs is not without challenges. One critical challenge is the need for change management within SMEs to adapt to the incorporation of AI into their operations (Lemos et al., 2022). Additionally, interoperability platform issues and cybersecurity concerns pose significant challenges in designing and managing secure distributed environments for SMEs (Khan et al., 2023). Furthermore, ethical considerations and the impact of AI

implementation on business risks during events such as the COVID-19 pandemic need to be carefully addressed (Drydakis, 2022; Balogun et al., 2024).

In conclusion, the integration of AI into SMEs has the potential to significantly enhance their operations by providing data-driven insights, improving operational efficiency, and enhancing customer experience. However, challenges such as change management, interoperability, cybersecurity, and ethical considerations need to be carefully addressed to ensure successful AI adoption by SMEs.

4. Cybersecurity Imperatives

The increasing importance of cybersecurity is evident in the digital era due to the growing frequency and sophistication of cyber threats (Nyre-Yu et al., 2019). Organizations are recognizing the need to enhance employees' security awareness and capabilities to engage in safe cybersecurity behaviors (Etukudoh et al., 2024; Anwar et al., 2017). This is crucial as cyber threats continue to evolve, posing risks to data security and infrastructure resilience (Dias et al., 2021). For small and medium-sized enterprises (SMEs), ensuring robust data protection, leveraging threat intelligence, and maintaining resilient infrastructure are imperative (Akindote et al., 2023; Dias et al., 2021). The impact of social media usage on an organization's reputation risk through cybersecurity further emphasizes the significance of cybersecurity in safeguarding organizational assets (Maskuri et al., 2023).

In the context of SMEs, the healthcare sector stands out as a critical area where cybersecurity is paramount (Dias et al., 2021; Ezeigweneme et al., 2024). The study by emphasizes the importance of defining minimum requirements and best practices for managing data security risks in the healthcare sector and medical devices (Dias et al., 2021). Additionally, the development of telehealth strategies necessitates a deep understanding of how cybersecurity impacts daily operations (Poleto et al., 2021). Furthermore, the study highlights that there is no fully effective way to prevent all violations by cybercriminals, underscoring the continuous need for cybersecurity in healthcare management processes (Dias et al., 2021).

In addressing cyber threats, the importance of skills and hands-on assessment is applicable to non-IT professionals, indicating the need for a broad approach to cybersecurity education and training (Carlton et al., 2019). Moreover, the relevance of cybersecurity education at pedagogy levels in schools is emphasized to protect students from cyber-bullying, online fraud, and prejudice (Amankwa, 2021). This highlights the need for cybersecurity awareness and training from an early age to mitigate cyber threats.

The significance of cybersecurity is further underscored by the need for risk assessment methods in critical infrastructures, including nuclear facilities, to secure data, peripherals, and systems (Setianingsih et al., 2021). As the demands for cybersecurity increase, the need for risk assessment on cybersecurity also rises, especially in critical infrastructures (Setianingsih et al., 2021). Additionally, the predictions of cybersecurity experts on future cyber-attacks and related cybersecurity measures emphasize the importance of knowledge of common attack methods and the use of cybersecurity software to thwart hackers and preserve data privacy (AL-Hawamleh, 2023).

In conclusion, the increasing importance of cybersecurity is evident in the face of evolving cyber threats. The need for robust data protection, threat intelligence, and resilient infrastructure is crucial for SMEs. The healthcare sector, education system, and critical infrastructures are particularly vulnerable and require focused attention to ensure cybersecurity. The continuous evolution of cyber threats necessitates a proactive and comprehensive approach to cybersecurity to safeguard organizations and individuals.

5. Synergy of FinTech, AI, and Cybersecurity

Understanding the interplay between FinTech, AI, and cybersecurity is crucial in creating a holistic ecosystem and fostering collaboration among policymakers, financial institutions, and technology providers. FinTech, enabled by disruptive innovation and advanced technologies like AI and big data, has transformed financial services (Bhat et al., 2023). AI and big data play a significant role in enhancing targeted marketing, sales revenue, and cybersecurity in FinTech (Nguyen et al., 2022). The integration of AI in FinTech, particularly in robo-advisors, influences consumer perceptions and adoption of AI in financial services (Belanche et al., 2019). However, the rapid evolution of FinTech has also led to increased cybersecurity risks, making cybercrime and cybersecurity significant challenges for the industry (Adeyoju, 2021).

The synergy of AI and cybersecurity is evident in the literature, with a focus on the role of AI in enhancing cybersecurity measures (Yang, 2023). The integration of AI and the Internet of Things (IoT) in various industries, including power generation and distribution, presents both opportunities and challenges, particularly in the area of cybersecurity (Mohamed et al., 2023). Moreover, the use of technology in financial services, such as FinTech, raises concerns about cybersecurity risks and vulnerabilities to cyberattacks (Alexandri et al., 2023). Regulatory frameworks and industry standards are crucial in shaping cybersecurity practices within FinTech, highlighting the need for collaboration among policymakers, financial institutions, and technology providers (Mustapha, 2023).

AI-driven cybersecurity services and management are essential in countering evolving cyber threats, aligning with the Fourth Industrial Revolution's technological advancements (Sarker et al., 2021). Additionally, the literature forecasts emerging cyber risks from the integration of AI in cybersecurity, emphasizing the need for proactive measures to address these risks (Radanliev et al., 2022). The interplay between AI and cybersecurity extends beyond FinTech, encompassing network security, computer security, and mobile security applications (Charmet et al., 2022). Furthermore, the potential of AI in improving cybersecurity capabilities is recognized, particularly in the context of national security and defense mechanisms (Vishwanath, 2023).

In the context of FinTech, the combination of financial services with advanced technologies and algorithms, including AI, has led to the emergence of FinTech companies that leverage AI for micro-decisions and financial services (Issa, 2023). The complexity of embedding AI into service exchanges encourages cooperation between traditional banking organizations and tech-savvy FinTech companies, highlighting the need for a collaborative ecosystem (Payne et al., 2021). The transformative impact of FinTech and AI on sustainable development goals and the financial industry is also a subject of scholarly inquiry, emphasizing the interconnectedness of these domains (Farahani et al., 2022).

In conclusion, the interplay between FinTech, AI, and cybersecurity underscores the need for a holistic ecosystem that fosters collaboration among stakeholders. Policymakers, financial institutions, and technology providers must work together to address cybersecurity challenges, leverage AI for enhanced cybersecurity measures, and ensure the sustainable development of FinTech.

6. Enabling Environment for Accelerating SME Growth in the African Context

To facilitate the growth of small and medium enterprises (SMEs) in the African context, several key factors need to be considered. Firstly, policy considerations play a crucial role in creating an enabling environment for SME growth. This includes establishing a supportive regulatory framework (Amoako-Adu & Eshun, 2018), as well as providing incentives for innovation (Sebastian & Merino, 2019). Additionally, digital literacy initiatives are essential to equip SMEs with the necessary skills to thrive in the digital economy (Gareeb & Naicker, 2015). Moreover, fostering public-private partnerships is vital for leveraging resources and expertise to support SME development (Adegbite & Govender, 2021).

The impact of leadership styles on the entrepreneurial orientation of SMEs in South Africa has been identified as a factor that inhibits SME growth and survival (Dzomonda et al., 2017). Furthermore, the Kenyan environment has been found to influence the emergence and development of corporate entrepreneurship among SMEs (Mustafa & Hughes, 2018). Additionally, market orientation enablers have been shown to have a positive significant influence on the business performance of SMEs within a South African context (Dubihlela & Dhurup, 2014). Moreover, lack of access to appropriate types of capital has been identified as a major reason for the failure of SMEs in South Africa (Sebastian & Merino, 2019).

Access to finance has been highlighted as a significant constraint hindering the success of SMEs in Africa (Ezenekwe et al., 2018). Furthermore, the potential of SMEs to accelerate the process of industrialization in Africa has been undermined by numerous constraints, including lack of access to finance (Ezenekwe et al., 2018). Additionally, the adoption of broadband internet technologies has been recognized as a key driver for social and economic growth in South Africa, particularly for SMEs (Gareeb & Naicker, 2015).

In terms of public-private partnerships, a unique regional approach focusing on the Fourth Industrial Revolution (4IR) has been suggested to grow the activities of SMEs for regional development in Africa (Adegbite & Govender, 2021). Moreover, promoting high-growth SMEs has been proposed as a means to address the job creation challenge in South Africa (Ngek & Smit, 2013). Furthermore, financial inclusiveness has been identified as significant for the growth of SMEs in sub-Saharan Africa (Eton et al., 2020).

In conclusion, creating an enabling environment for accelerating SME growth in the African context requires a multifaceted approach. This includes addressing regulatory frameworks, providing incentives for innovation,

promoting digital literacy, and fostering public-private partnerships. By addressing these factors, African countries can unlock the full potential of SMEs and drive economic growth and development.

7. Challenges and Risks

SMEs in Africa face challenges in complying with cybersecurity regulations due to limited resources and awareness. This is exacerbated by the lack of adoption of cybersecurity solutions, which poses a real risk (Kabanda et al., 2018; Shojaifar & Fricker, 2023). The challenges of budget constraints and the inability to afford cybersecurity systems hinder SMEs from establishing robust technological infrastructure. Additionally, the lack of necessary skills and resources further constrains SMEs in facing cybersecurity threats (Wallang et al., 2022; Perozzo et al., 2022).

Skill Gaps: SMEs encounter skill gaps in cybersecurity practices, which are influenced by internal organizational factors such as budget, management support, and attitudes. Moreover, the lack of cybersecurity knowledge and awareness among SME employees leads to low motivation to improve the SME cybersecurity posture (Bada & Nurse, 2019; Haastrecht et al., 2021).

Economically developing countries in Africa pose unique challenges to informal SMEs development compared to developed countries, necessitating tailored FinTech solutions. However, the adoption of FinTech solutions is hindered by challenges such as regulatory compliance and skill gaps, which need to be addressed to ensure successful integration (Haber et al., 2018). Artificial intelligence (AI) can lower cybersecurity costs and enhance efficiency, but trusting AI in cybersecurity is a double-edged sword, requiring robustness, response, and resilience. Therefore, SMEs need to carefully consider the implications of AI integration and ensure that the technology is implemented effectively to mitigate risks (Taddeo et al., 2019).

SMEs are seen as a blind spot in information security and cybersecurity management, mainly due to their size, regional scope, and financial resources. To mitigate risks, SMEs need to focus on developing a robust cybersecurity organizational readiness and addressing the challenges of budget constraints and technological infrastructure (Antunes et al., 2021).

In conclusion, addressing the potential hurdles of regulatory compliance, technological infrastructure, and skill gaps is crucial for SMEs in Africa to successfully integrate FinTech, AI, and cybersecurity for economic prosperity. By mitigating risks through tailored solutions and addressing the specific challenges faced by SMEs, these businesses can harness the potential of these technologies to drive economic growth and prosperity in the African context.

8. Future Outlook

The integration of technology, particularly FinTech, AI, and cybersecurity, is poised to have a significant impact on the growth of Small and Medium Enterprises (SMEs) in the African context. Technological integration is projected to enhance the performance and resilience of SMEs, thereby contributing to economic prosperity (Sanga & Aziakpono, 2022). This is particularly important as SMEs are recognized as engines of sustainable economic development in both developed and developing worlds (Prasanna et al., 2019). The impact of technological innovations, such as information and communication technology infrastructure, on financial deepening has been examined, with implications for SME financing in Africa (Adegbite & Govender, 2021). Furthermore, the digital transformation of SMEs in sub-Saharan Africa is seen as a strategy for building resilience and ensuring continued growth (Achieng & Malatji, 2022).

The opportunities for continued growth lie in the potential for SMEs to leverage technological advancements to expand their markets, explore export opportunities, and innovate their products and services (Harrison & Pooe, 2022). Additionally, the study by "An Analysis of Challenges obstructing Growth of SMEs in the South African Tourism Sector: A theoretical evaluation" (2020) identified that if SMEs are fully transitioned into Industry 4.0, they can mobilize future jobs, create new business models, and promote the internationalization of SME products. Moreover, the role of SMEs in shaping Africa's economic landscape is underscored by their contribution to GDP and employment, particularly in countries like South Africa, where tourism SMEs account for a significant portion of the GDP (Mwale, 2020). SMEs also play a crucial role in socio-economic development, with a theoretical survey seeking to investigate their impact on South Africa's development (Asah et al., 2020).

However, SMEs face challenges such as limited access to credit from the formal financial sector, inhibitive government regulations, and the highest failure rate in South Africa (Ngibe & Lekhanya, 2019; Mashingaidze et al., 2021). The study by Omer et al. (2015) highlights the need for marketing practices tailored to SMEs to ensure their competitiveness and

continued growth. Additionally, the internationalization of SMEs is seen as a strategy to overcome local constraints and accelerate growth. It is evident that addressing these challenges and leveraging the opportunities presented by technological integration will be crucial in harnessing the full potential of SMEs for economic prosperity in Africa.

9. Recommendation

In exploring the potential for accelerating SME growth in the African context through the integration of FinTech, AI, and Cybersecurity, several key points have emerged; FinTech holds immense potential for providing SMEs in Africa with improved access to capital, facilitating seamless transactions, and fostering financial inclusion.

Artificial Intelligence can empower SMEs with data-driven insights, operational efficiency, and enhanced customer experiences, leading to informed decision-making and sustained growth. As technological adoption increases, robust cybersecurity measures are imperative to protect SMEs from the escalating threat landscape, ensuring data security and business continuity. The integration of FinTech, AI, and Cybersecurity creates a powerful synergy that, when harnessed strategically, can drive economic prosperity and innovation.

To capitalize on the potential outlined above, stakeholders in the African SME ecosystem are called to action; develop and implement supportive regulatory frameworks that encourage innovation, ensure data privacy, and foster a secure digital environment for SMEs to thrive. Collaborate with FinTech innovators to create accessible and tailored financial solutions for SMEs, fostering financial inclusion and providing the necessary capital for growth. Continuously innovate and customize solutions to address the unique challenges faced by African SMEs, ensuring that technologies are accessible, scalable, and aligned with local needs. Foster digital literacy programs to equip SMEs and their workforce with the necessary skills to leverage and navigate FinTech, AI, and Cybersecurity effectively.

Despite the challenges, there is an optimistic outlook for the future of SMEs in Africa. By embracing and integrating FinTech, AI, and Cybersecurity, African SMEs have the potential to; leveraging these technologies will contribute to increased efficiency, innovation, and competitiveness, fostering economic prosperity across the continent. African SMEs can position themselves as competitive players on the global stage by adopting cutting-edge technologies, attracting investment, and participating in international markets. The growth of SMEs will lead to job creation, reducing unemployment rates and contributing to poverty alleviation.

10. Conclusion

In conclusion, the strategic integration of FinTech, AI, and Cybersecurity is not merely a technological evolution but a transformative catalyst for SMEs in Africa. Through collaborative efforts, innovative solutions, and a commitment to fostering a conducive environment, stakeholders can collectively propel the continent towards sustained economic growth and prosperity.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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