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Chapter 10
Digital Financial Inclusion and Entrepreneurship Growth:
A Case of Esusu Africa

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ABSTRACT

This chapter examines how digital financial inclusion boosts African entrepreneurship and competitiveness. Using Esusu Africa—a FinTech company that solves the problems of informal savings schemes and financial exclusion across the African continent—as a case study, we reveal insights into how businesses across the continent can harness digital financial tools for growth. We start with Esusu Africa's approach to digital financial inclusion's fundamentals, then evaluate empirical and theoretical research. We illustrated how financial technology is increasing financial access, how digital financial inclusion affects entrepreneurship, and how financial literacy and digital finance adoption interact. We explore how digital financing boosts SME competitiveness, informal economies, and inclusive economic growth. The chapter also discusses government policies behind digital financial inclusion, the problems and possibilities it brings for informal sector enterprises, and how financial literacy may maximise these benefits.

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INTRODUCTION

The digital revolution has significantly altered the global financial system over the past three decades. This transformation, particularly in African economies, has substantially changed the financial infrastructure, improving efficiency and financial stability (Panagariya, 2022). One of the most significant consequences of rapid advancement in digital technology is its impact on inclusive finance, which has made financial services accessible to all. Digital technology overcomes barriers like high costs, lack of competition, and limited information, making financial services more accessible. This benefits governments, financial service consumers, digital financial providers, and the general economy (Ji et al., 2021).

As a result of this evolution, government payment systems have advanced, allowing direct payments to individuals and businesses through bank accounts. These developments facilitate the seamless transfer of funds between individuals and the engagement of businesses and consumers in real-time digital transactions. Also, digital technologies have empowered more households and firms to engage in the economy by democratising innovation and entrepreneurship (Panagariya, 2022). However, it is pertinent to note that traditional financing principles are the foundation for digital financial inclusion, utilising digital technology to expand financial services. As a result, digital inclusive finance looks at how much digitalisation there is in financial development and how simple it is for people to get financial services (Ji et al., 2021).

The expansion of digital financial inclusion has also significantly affected entrepreneurial performance, particularly among small and medium-sized enterprises (SMEs). The development and application of new electronic financial tools and FinTech solutions have alleviated SMEs' financing challenges, thereby promoting the growth of new enterprises and the innovation and upgrading of existing ones. Digital financial inclusion has significantly influenced the expansion of the consumer internet, leading to the development of innovative business models and operational methods (Ren et al., 2023).

Furthermore, digital financial inclusion has become crucial for encouraging entrepreneurship and increasing access to financial services in the informal sector. Financial technology (FinTech) solutions can creatively get around the problems that traditional financial institutions have. They can give entrepreneurs in the informal sector, especially those who work with underserved communities, access to important financial resources that help their businesses grow and stay open. Ren et al. (2023) stated that digital financial services could greatly increase economic growth in developing countries by releasing the informal sector's potential and removing structural barriers to financial inclusion. Business competition also pushes many firms in emerging nations to use the sophisticated digital financial services of financial institutions. These services boost market share and profitability (Abbas et al., 2024). Organisations strategically deploy digital technology to exploit market possibilities and expand into new business areas. FinTech, for instance, helps companies set themselves apart from rivals and modify their business plans appropriately (Manjunath et al., 2024).

In light of these developments, this chapter reveals how businesses can leverage digital technology to enhance their financial inclusion and drive growth and competitiveness. Using insights from Electronic Esusu Africa as a case study, we provide learning points for other business owners.

The case study with Esusu Africa also provides possibilities and convolution of digital financial inclusion, with interest on what it infers for business owners in the informal sector.

Esusu Africa Limited is a FinTech company that solves the problems of informal savings schemes and financial exclusion across the African continent (Electronic Esusu, 2020). They do this through ELECTRONIC ESUSU, a digital finance platform designed for microfinance institutions, cooperative

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societies, and financial services agents to automate and simplify thrift savings, collections, and micro-credit to enhance the delivery of digital financial services to the last mile (Electronic Esusu, 2020).

Therefore, this chapter explores the concept of digital financial inclusion for entrepreneurship in developing countries by (1) Assessing the role of financial technology (FinTech) in expanding financial access, (2) Examining the impact of digital financial inclusion on entrepreneurship development, (3) Analysing the relationship between financial literacy and digital finance adoption, (4) Investigating the competitiveness of SMEs enabled by digital finance (5) Assessing the impact of digital finance on the informal economy (6) Exploring digital finance as a tool for inclusive economic growth (7) Evaluate the role of government and policy in promoting digital financial inclusion (8) Assessing the challenges and opportunities of digital financial inclusion for informal sector entrepreneurs (9) Assessing the role of financial literacy in enhancing digital financial inclusion.

While evidence in the literature links financial inclusion to economic growth, the role of digital financial literacy in enabling the effective adoption of financial tools remains underexplored, particularly in underserved communities. Also, there is a lack of sufficient insight into the informal sector and SMEs. Previous studies have also failed to adequately examine the impact of regulatory frameworks on financial inclusion. The chapter provides answers to the following research questions:

1. How does digital financial inclusion expand access to financial services, particularly for underserved populations, and drive inclusive economic growth?
2. How does digital financial inclusion influence the growth, competitiveness, and operational efficiency of entrepreneurial ventures and small and medium-sized enterprises (SMEs)?
3. What is the relationship between financial literacy and the adoption of digital financial services, and how does this impact financial inclusion?
4. What are the challenges and opportunities of implementing digital financial inclusion in the informal economy, and how can these initiatives foster formalisation and economic resilience?
5. How can government policies and regulatory frameworks support the adoption and success of digital financial inclusion initiatives, particularly for informal sector entrepreneurs and SMEs?

Operational Definition of Terms

Digital Financial Inclusion: Digital financial inclusion has become a cornerstone in the pursuit of poverty reduction, economic development, and enhanced social equity on a global scale. The concept is fundamentally concerned with empowering underserved and financially marginalised populations by providing them affordable access to essential financial services and products through digital channels. Such inclusivity particularly aims at individuals often overlooked by conventional banking systems, collectively called the "unbanked." The core belief driving digital financial inclusion is that access to financial services should be a universal right, regardless of an individual's socioeconomic standing, geographic limitations, or proximity to traditional banking infrastructure (Tipalti, 2023).

Entrepreneurship: Entrepreneurship is the process through which individuals or groups identify opportunities, create innovative solutions, and create new business offerings or ventures that satisfy unfulfilled desires or improve existing products and services. This process is associated with risk-taking, resource mobilisation, creativity and innovation to proffer solutions and earn profit (Palanivelu & Manikandan, 2015; Chiles *et al.*, 2017).

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Financial Inclusion: Financial inclusion seeks to dismantle the barriers that prevent individuals and businesses from accessing essential financial services, comprising credit, investments, savings, insurance, and payment platforms. It aims to establish a framework that ensures financial services are affordable, safe, and accessible to all economic participants, fostering economic participation and security.

Informal Economy: The informal economy includes a range of economic activities conducted by workers and enterprises that need more coverage under formal systems, whether by law or practice. This sector often thrives in environments marked by high unemployment, underemployment, poverty, gender inequality, and precarious working conditions. It is notable for its widespread poverty and significant deficits in decent work. Workers and enterprises within this sector typically encounter low-quality employment opportunities, limited access to social protection, weak governance structures, and diminished productivity, creating a “trap” of informality that is difficult to escape (International Labour Organisation, 2024).

Financial Technology: Financial technology represents a transformative approach to financial services through technology integration. According to Jalal et al. (2024), FinTech encompasses a broad spectrum of innovations that enhance and streamline financial processes. It is characterised by its ability to propose technological solutions tailored to various business situations, thereby improving the efficiency and accessibility of financial services (Leong & Sung, 2018).

The term “FinTech” itself is derived from the fusion of two fundamental concepts: “Financial” and “Technology.” This combination highlights the synergy between financial services and technological advancements, revolutionising how individuals and businesses interact with money. From mobile banking applications to blockchain technology, FinTech innovations are reshaping traditional financial landscapes, offering new opportunities for consumers, enterprises, and investors (Kumari & Devi, 2022).

Digital Financial Literacy: Digital financial literacy is defined as the intersection of FinTech and financial literacy. Digital Financial Literacy combines objective financial knowledge with four characteristics of digital literacy: digital knowledge, awareness of digital financial services, tacit understanding of how to use digital financial services, and the ability to prevent digital fraud.

Financial Literacy: Financial literacy is defined in various ways by organisations such as non-governmental organisations and think tanks, but in its broadest meaning, it means understanding money. others of the descriptions below are closely associated with “skills and knowledge,” while others take a broader view, and others are based on tested and validated academic research.

Small Medium Enterprises: Small and medium enterprises (SMEs) are essential economic activity drivers, especially in developing economies. They make up most businesses globally and significantly contribute to job creation and economic growth. According to the World Bank (2020), SMEs are the backbone of most economies, supporting local communities and fueling global economic progress. Generally, SMEs are defined as businesses with limited employees, falling below specific thresholds determined country by country.

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METHODOLOGY

A case study and an in-depth literature review underpinned the methodology of this study. Esusu Africa was used as a case study, and dominant literature discussing financial inclusion, such as digital financial inclusion, financial literacy, financial technology, and entrepreneurship, was extracted from notable scholarly databases such as Google Scholar, EBSCO, Elsevier, and Emerald. The interview with Mr AbdulAzeez Oguntoyinbo, CEO, Esusu Africa, was combined with scholarly discussion on digital financial inclusion for entrepreneurship growth and competitiveness. Importantly, ethical considerations, such as consent during the interview with the CEO of Esusu Africa, were adhered to throughout the interview.

THE CASE OF ESUSU AFRICA

Esusu Africa Limited is a FinTech company that solves the problems of informal savings schemes and financial exclusion across the African continent (Electronic Esusu, 2020). Esusu is peculiar not only to Nigeria but in different African countries. It is the informal method of saving and accessing credit, individually and in group formations. They do this through ELECTRONIC ESUSU, a digital finance platform designed for microfinance institutions, cooperative societies, and financial services agents to automate and simplify thrift savings, collections, and microcredit to enhance the delivery of digital financial services to the last mile (Electronic Esusu, 2020). Esusu has achieved significant growth as a startup, progressing organically to its current level without external investment. The company's strategy has focused on generating traction to boost revenue, which has proven effective. Esusu has successfully onboarded over 150 thrift and credit institutions, supporting a combined staff of more than 3,000 individuals. In terms of customer reach, the fin-tech company has served approximately 150,000 customers.

> *We have also developed several partnerships with financial service providers, including six banks for Application Programming Interface (API) integration and agency banking, as well as insurance companies to integrate micro-insurance products. Additionally, we work with various development organisations like EFInA, GIZ, and Financial Service Innovators, through which we have received several local and international accolades. We were the winner of the Better Half for Financial Inclusion, a Pan-African competition, and also represented Nigeria in Rwanda in a major financial inclusion event supported by the Sustainable and Inclusive Digital Financial Services (SIDFS) at Lagos Business School.* (A. Oguntoyinbo, personal communication, November 5, 2024)

> *We have been selected for various prestigious programs, including Catapult Inclusion Africa in Luxembourg, and have established multiple proof-of-concept partnerships with banks to deploy our platform. Last year, we were also recognised by the Central Bank of Nigeria and received regulatory sandbox approval for our innovation, marking an important milestone in our journey.* (A. Oguntoyinbo, personal communication, November 5, 2024)

The interview with the CEO of Esusu was embedded with existing literature to provide robust insights into the development of digital financial inclusion and entrepreneurship growth. The following sections will combine academic literature discussions and excerpts from the interview with the CEO. The sections will centre on the nine objectives of this book chapter which includes FinTech in expanding financial access; digital financial inclusion on entrepreneurship development; financial literacy and digital finance adoption; competitiveness of SMEs enabled by digital finance; digital finance on the informal

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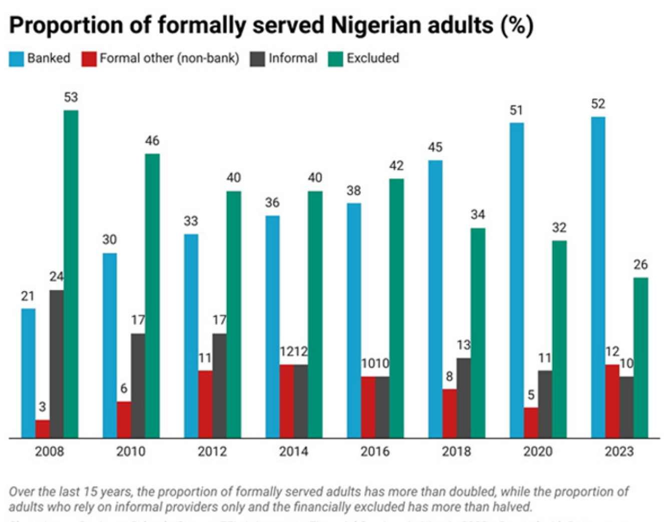
economy; digital finance as a tool for inclusive economic growth; government and policy in promoting digital financial inclusion; challenges and opportunities of digital financial inclusion for informal sector entrepreneurs and financial literacy in enhancing digital financial inclusion.

FINANCIAL TECHNOLOGY FOR FINANCIAL ACCESS EXPANSION

In recent years, financial technology, or FinTech, has emerged as a transformative force in the financial services landscape, revolutionising how individuals and businesses access financial products and services. The integration of technology in financial systems has significantly improved process efficiency and broadened access to essential financial services, especially for communities that have historically been underserved. By leveraging digital tools, financial institutions can streamline operations, reduce transaction times, and lower costs, which collectively make financial services more accessible and inclusive. This technological shift has been especially impactful in developing regions where traditional banking infrastructure is limited (Bhattacharjee *et al.*, 2024).

For example, as illustrated in the figure below, the data reflects the changes over recent years in the proportion of Nigeria's population that is formally banked or excluded from formal financial services. This trend reflects the tangible outcomes of digital transformation, as more individuals gain access to financial resources previously unavailable to them

Figure 1. Proportion of formally served Nigerian adults in percentage



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Bridging the Gap

Historically, access to financial services has been limited by various factors, including geographical barriers, high costs, and a need for more trust in traditional banking institutions. FinTech uses technology to develop solutions that meet various financial needs. By utilising mobile applications, online platforms, and digital payment systems, FinTech companies are breaking down the barriers that have long excluded certain demographics from the financial ecosystem (Oriji et al., 2023). One of the most significant impacts of FinTech has been its ability to reach unbanked and underbanked populations. According to the World Bank (2019), approximately 1.7 billion adults remain unbanked, lacking access to basic financial services. In Nigeria, this figure is 28.9 million adults. FinTech solutions, such as mobile banking and digital wallets, have enabled individuals in remote or underserved areas to access financial services without needing a physical bank branch. This shift facilitates financial inclusion and empowers individuals to participate more fully in the economy.

Innovative Solutions

FinTech companies are continuously developing innovative solutions that enhance financial access. For example, peer-to-peer lending platforms enable individuals to borrow money directly from other individuals, bypassing traditional financial institutions. This model reduces the cost of borrowing and provides borrowers access to funds that may not be available through conventional banks. Similarly, crowdfunding platforms have democratised access to capital for entrepreneurs and small businesses. By allowing individuals to raise funds directly from a large number of people, these platforms have opened up new avenues for financing that were previously inaccessible to many. This particularly benefits startups and small enterprises in developing regions, where traditional funding sources may be limited. Digital payment solutions, such as mobile money services, have expanded financial access by providing secure and convenient ways for individuals to send and receive money. In many developing countries, mobile money services have become a lifeline for millions, enabling them to conduct transactions, pay bills, and access savings accounts without needing a traditional bank account. This technology facilitates everyday transactions and fosters economic growth by enabling small businesses to operate more effectively.

Enhancing Financial Literacy

While FinTech plays a pivotal role in expanding access, it is equally important to address the financial literacy gap among many potential users. FinTech solutions can incorporate educational components that empower users with the knowledge they need to navigate financial products and services effectively. By providing resources and tools that enhance financial literacy, FinTech companies can help users make informed decisions, ultimately leading to better financial outcomes. For instance, some FinTech applications offer personalised financial advice and budgeting tools that guide users in managing their finances. Using data analytics, these platforms can provide tailored insights and recommendations based on individual spending habits and financial goals. This proactive approach increases engagement and fosters a sense of ownership over one's financial well-being.

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Regulatory Considerations

As FinTech expands financial access, it is essential to consider the regulatory landscape governing these innovations. Policymakers must strike a balance between fostering innovation and ensuring consumer protection. Regulations that promote transparency, data security, and fair lending practices are crucial to building trust in FinTech solutions. In many regions, regulators are beginning to recognise the potential of FinTech to enhance financial inclusion and are adapting their frameworks to accommodate these innovations. Initiatives such as regulatory sandboxes allow FinTech companies to test their products in a controlled environment, fostering experimentation and collaboration between startups and regulators.

> *Esusu Africa provides a digital savings wallet to expand financial access, especially in underserved areas where formal financial institutions are unavailable. Because the savings wallet derives from the local 'thrift collection model', the digital savings model is not especially complicated for the users to learn. Through this digital model, the initially financially excluded population can now access credit through this informal savings scheme.* (A. Oguntoyinbo, personal communication, November 5, 2024)

Traditional thrift systems, which rely on manual record-keeping and physical visits by collectors, can be cumbersome for both savers and collectors. This process often involves using passbooks and regular home visits to collect contributions. To streamline this process and make it more efficient, the adoption of modern technology is essential.

> *The manual record-keeping and reconciliation are prone to frequent errors, leading to losses, fraud, and customer mistrust. We developed a digital platform designed for thrift collectors and institutions to address these issues. There are two main types of thrift collectors: independent collectors, who work independently, and institutional collectors, with staff supporting them. Our platform aims to streamline their operations and reduce errors, making the process more secure and trustworthy for everyone involved. This helps to automate the whole thrift process.* (A. Oguntoyinbo, personal communication, November 5, 2024)

> *We provide digital platforms and tools to these thrift collectors to digitise the savings they regularly do with them at the first level. The second level now gives them access to digital financial services by embedding digital financial products such as account opening because we collaborate with banks and insurance companies. They then have access to a bank account. They can have access to instant ATM cards.* (A. Oguntoyinbo, personal communication, November 5, 2024)

Using a recent client in Enugu as an example, Esusu's CEO noted that the client has over 30,000 customers and over 60 staff members. Staying with them for a week, he saw that what they collected from customers regularly was tens of millions in cash.

> *I discovered many of those 30,000 customers do not have bank accounts. Some of them are reluctant to go to the banks. This is an opportunity for agency banking for digital financial services. To solve this issue, we automated savings and collections. We provided micro-credit and embedded account opening and card issuance to enhance savings and unlock opportunities for them to be financially included. They can now put their money in the bank account at the end of the savings period; they're able to use that to create a savings history so that they can access credit for many financial service products.* (A. Oguntoyinbo, personal communication, November 5, 2024)

> *We use technology to streamline the traditional thrift process. We digitise the process by providing thrift collectors with tablets and mobile printers, from customer registration to transaction confirmation. This eliminates manual record-keeping and physical visits, making it more efficient for collectors and savers. Additionally, our technology platform enables us to offer various financial services beyond*

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traditional thrift, such as microinsurance, bank accounts, and credit access. By leveraging digital technology, we can provide these services to underserved populations and contribute to financial inclusion."

Furthermore, we are working to address the digital identity challenge by partnering with organisations like NIMC to help our customers obtain their National Identification Numbers (NINs). This will enable them to access a wider range of financial services and participate more fully in the formal economy. While much work must be done to advance financial inclusion, we believe technology can be crucial in empowering individuals and communities. By leveraging digital solutions, we can create a more inclusive and equitable financial system. (A. Oguntoyinbo, personal communication, November 5, 2024)

DIGITAL FINANCIAL INCLUSION AND ENTREPRENEURSHIP DEVELOPMENT

Entrepreneurship is the process that comprises the actions a person undertakes to establish an enterprise (Palanivelu & Manikandan, 2015). It entails the activities involved in innovatively creating, managing and growing a new business that caters to unmet desires or met ones in a new way (Chiles et al., 2017). Since the process of entrepreneurship is an output of the actions of an entrepreneur, they are often referred to as agents of change. This is because entrepreneurship, more times than not, challenges the status quo by exploiting opportunities that address various societal challenges (Sussan & Acs, 2017; Shepherd & Patzelt, 2015).

The process of entrepreneurship, initially referring to an individual or group of entrepreneurs identifying an opportunity and creating an innovative solution, has now grown to include social entrepreneurship and corporations (Beirne, 2018). Entrepreneurship has been so transformed by the emergence of digital technologies and the Internet of Things (IoT) that this has caused entrepreneurs to not only innovate new products but also to transform traditional business models and industries and even create new sectors entirely (Fernandes et al., 2022).

Furthermore, the impact of digitalisation on entrepreneurship has more far-reaching effects. Digitalisation has removed previously daunting entry barriers and challenged the limits of innovation. Digital platforms allow entrepreneurs to have a global product market, pool capital from various sources, and scale faster (Sussan & Acs, 2017). Similarly, new methodologies for innovation, like lean methodology and design thinking, have made it possible for entrepreneurs to innovate better. These methodologies leverage digital technologies to enhance flexibility and multiple iterations through real-time data on customer preferences (Kraus et al., 2019).

Entrepreneurship has proven to be a veritable solution to unemployment and poverty, improving a country's gross domestic product (GDP) and its overall economy. This is true even in developing countries and emerging markets. In Nigeria, entrepreneurship has become critical to economic development by addressing issues of unemployment and financial exclusion and harnessing the immense creative potential of the Nigerian populace (Ihugba *et al.*, 2013). Given Nigeria's cultural heritage and diversity, the opportunities for innovation are copious. Consequently, it transcends the conventional understanding of entrepreneurship by integrating various social issues and local values (Estrin et al., 2013).

In the same vein, entrepreneurship has facilitated poverty alleviation in most developing countries by making alternative sources of income available and providing a livelihood to marginalised people (Ndofor et al., 2020). In several traditional and novel training programs and mentorships, like the Igbo

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Indigenous Apprenticeship System, commonly known as '*igba-boi*', the number of enterprises has multiplied, and the standard of living of many individuals and families improved (Adeola, 2020). Consequently, addressing societal ills and fostering economic growth.

In light of all these, entrepreneurship has become critical to promoting resilience, inclusivity and sustainability in a country's economy. Given the benefits of entrepreneurship, it is an area that requires special attention from policymakers as well as educational institutions. Entrepreneurs must be equipped with the skills and resources necessary to build successful enterprises, not negating the importance of a conducive business environment that fosters innovation and sustainability.

Impact of Digital Financial Inclusion on Entrepreneurship Development

Digital financial inclusion has a lot of prospects if successfully executed. It has the potential to make financial services available to the unbanked population. This can be achieved through mobile banking, digital platforms and even USSD technology (Demirgüç-Kunt et al., 2018). Consequently, it enables previously financially excluded individuals to save, invest, and access credit.

Similarly, digital financial inclusion enhances the ease of transactions. Services like mobile wallets and cash transfers made available to individuals through platforms like Opay and M-Pesa make daily transactions seamless for the previously unbanked (Mbiti & Weil, 2016). These platforms and FinTech companies have also decreased the use of cash for daily transactions, reducing the associated risks of theft and fraud (Aron, 2018).

Given the myriad benefits of digital financial inclusion, the following impact on entrepreneurship development is evident.

Bridging the Funding Gap: Access to credit has been a significant challenge for entrepreneurs in the informal sector. This is due to the need for financial records to show creditworthiness and the means of receiving and refunding the credit and conventional collateral, among many other challenges. Digital financial inclusion, however, has surmounted many of these challenges, making it possible for businesses to access credit. Alternative credit scoring methods have been utilised by entrepreneurs to facilitate access to capital (Cull et al., 2014), thereby boosting the establishment and performance of enterprises.

Facilitating the Formalisation of Businesses: Digital financial platforms and companies encourage businesses to give their businesses a formal structure. Businesses that initially lacked a legal status register their businesses after being included. Digital financial inclusion also eases record-keeping and compliance with regulatory requirements. This fosters the legitimacy of enterprises and structured business activities.

Fostering Financial Literacy: Digital financial platforms offer some advisory services to their customers. These services increase the financial acumen of entrepreneurs. They are empowered with knowledge of expenditure, investment and savings. This improves enterprises' overall health. Entrepreneurs can now easily monitor their cash flow and act financially responsibly.

Improving Resilience to Economic Shocks: Digital Financial Inclusion facilitates the ability of enterprises to respond to disruptions that threaten their survival. During cash scarcity and foreign currency fluctuations common in developing countries like Nigeria, digital financial inclusion has facilitated resilience. In the case of Nigeria, businesses began to rely on FinTechs for seamless transactions. Enterprises can also access loans and cash in on several savings or investment products to bolster their ability to absorb shocks.

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Ensuring Cost Efficiency in Business Operations: Digital financial solutions are crucial in streamlining and automating various organisational financial processes, including payroll management and budget tracking. By utilising these technologies, businesses can reduce the time and effort spent on manual financial tasks, leading to greater efficiency and accuracy. For example, automated payroll systems ensure employees are paid accurately and on time while minimising human error. Additionally, budget management tools provide real-time insights into spending and revenue trends, allowing businesses to adapt their strategies promptly.

Relationship Between Financial Literacy and Digital Financial Adoption

Individual and global economic stability relies heavily on digital financial literacy. It assists people in navigating the complexities of digital financial services and empowering them to make informed financial decisions (Lusardi, 2015; Respati *et al.*, 2023). Prasad *et al.* (2018) state that digital financial literacy entails understanding how to use online systems to conduct financial activities such as online payments and digital banking services. Digital financial literacy consists of two essential principles, financial and digital literacy, and supporting components like risk awareness and product attributes. (Widyastuti, Respati, & Mahfirah, 2024). According to Morgan *et al.* (2019), digital financial literacy encompasses numerous characteristics, including knowledge of digital services and products, digital financial risk management, awareness of digital financial risks and consumer rights and compensation procedures.

Digital finance has demonstrated significant potential for reaching previously excluded and underserved people by providing more personalised financial services and solutions. The current literature demonstrated that improvements in digital finance generate new and cheap investment alternatives, resulting in significant welfare gains and financial inclusion (Cocco et al., 2005; Demir et al., 2020; Demirguc-Kunt et al., 2018; Shen et al., 2020). Furthermore, by competing with traditional finance businesses, digital finance strengthens the financial system and increases financial stability (Jack and Suri, 2014; Buchak et al., 2018; Ozili, 2018). However, rising financial innovations, such as mobile banking, online financial management tools, peer-to-peer (P2P) lending, automated portfolio managers (robo-advisors), and advanced trading platforms, combine technology, regulation, user behaviour, and global market dynamics.

Digital financial inclusion, achieved via technology, risk management, and effective oversight, contributes to financial stability in a healthy digital economic ecosystem. Digital financial inclusion refers to the public's ability to gain widespread access to financial services by implementing digitalisation principles (Naumenkova et al., 2019). As in (Lauer & Lyman, 2015), digital financial inclusion is defined as the digital access and utilisation of formal financial services by people who were previously marginalised from traditional financial services, and there are three main elements of digital financial inclusion, including (1) digital transaction platforms; (2) retail agents; and (3) devices. It is also explained that digital financial inclusion can reduce the risks that may arise when using.

As a result, the value of financial literacy in influencing household decision-making and improving financial outcomes has been acknowledged. However, information about its operational mechanism is still restricted. Most studies in this discipline focused on determining causation, with little attention dedicated to investigating the causes of the effects. We research how financial literacy promotes consumer adoption of digital finance. Specifically, consider how financial literacy helps consumers save money on information, increases their faith in digital technologies, and makes them more vulnerable to financial risk. Understanding the dynamics of consumer and social acceptance of digital banking is vital

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to filling a gap in academic research and influencing governmental policy on building more efficient financial education efforts.

Cole et al. (2011) show that financial literacy instruction in emerging market countries only increases the likelihood of establishing a bank account for households with low education or financial literacy. According to Grohmann et al. (2018), surveying 143 countries, financial literacy improves financial inclusion. We contribute to the literature by looking into digital financial inclusion. Despite the promise of affordable, accessible, and adaptable financial services, many emerging economies, including China, continue underutilising digital finance.

> *We need to educate people about the opportunities for financial prosperity. Once people understand these opportunities, they'll realise that to unlock them, they need to be digitally included—not only financially included but also economically integrated. This allows them to build a digital profile, creating a transaction history that opens doors to various opportunities, like accessing credit, insurance, and more. However, when people rely solely on cash transactions, they miss these benefits. Many individuals are still reluctant to move away from cash, especially in markets. Even customers with bank accounts sometimes prefer cash transactions, sticking with thrift collectors or institutions rather than embracing digital options.* (A. Oguntoyinbo, personal communication, November 5, 2024)
> *Besides the usual security challenges, cybersecurity concerns also play a role. For example, recent core banking migrations in some banks have left people struggling with transaction issues—money in limbo, compromised balances, and a general sense of uncertainty. This erodes confidence. By contrast, I spent nearly two weeks transacting seamlessly in Kenya using M-PESA, even with just a basic feature phone and no internet access. This is why people need to understand the value of moving towards digital-based transactions and the security and convenience they can bring. We can work with SIDF at Lagos Business School to provide capacity building and training.* (A. Oguntoyinbo, personal communication, November 5, 2024)

Digital Financial Inclusion and Entrepreneurship Development

Entrepreneurship, defined as the innovative creation, management, and scaling of businesses to address unmet needs, has evolved to encompass social enterprises and corporations, positioning entrepreneurs as agents of change (Palanivelu & Manikandan, 2015; Sussan & Acs, 2017). Digitalisation has significantly transformed entrepreneurship, dismantling traditional barriers, enabling global market access, and fostering economic resilience (Fernandes et al., 2022). In Nigeria, entrepreneurship has become a key solution to unemployment and poverty, integrating local values, such as the Igbo apprenticeship system, to create alternative income sources and support social and economic development (Ihugba et al., 2013; Adeola, 2020).

Digital financial inclusion enhances entrepreneurship by addressing critical funding gaps, formalising informal businesses, and fostering financial literacy. Platforms like mobile wallets and FinTech innovations have revolutionised access to financial services, enabling entrepreneurs to streamline operations and improve resilience during economic shocks (Cull et al., 2014; Mbiti & Weil, 2016; Aron, 2018). AbdulAzeez Oguntoyinbo, CEO of Esusu Africa, highlights the transformation of an Igbo entrepreneur who digitised her operations, leading to significant client growth and business expansion across Lagos markets. *Recognising the advantages of being digitally and financially included over traditional methods, she plans to scale further* (A. Oguntoyinbo, personal communication, November 5, 2024).

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However, challenges persist. Regulatory issues, financial illiteracy, stakeholder distrust, and inadequate infrastructure limit the full potential of digital financial inclusion (Giwa-Osagie & Osiobe, 2021). For instance, forex instability impacts savings-based purchases, complicating pricing for businesses and customers alike. Innovative financial products and partnerships with financial institutions are critical for overcoming such obstacles and empowering entrepreneurs to scale effectively.

The benefits of digital financial inclusion extend beyond individual enterprises to broader economic impacts. Research suggests that increasing digital payments by 10% annually for five years could boost global GDP by up to $1.5 trillion, reflecting the potential of digital finance to reduce cash dependence and expand economic activity (Schneider, 2018). Platforms like Kenya's M-Pesa demonstrate how digital finance can revolutionise economic systems, replacing cash-based transactions with seamless digital interactions. *This level of financial inclusion empowers individuals to manage their finances more effectively and is an inspiration for emerging economies* (A. Oguntoyinbo, personal communication, November 5, 2024).

Financial inclusion is essential for poverty alleviation and economic progress as evidenced in Indonesia, India, China, and Zimbabwe. Studies have shown that financial inclusion plays a significant role in poverty alleviation and economic growth. For instance, evidence from Indonesia shows the positive impact of financial inclusion on reducing poverty (Gunarsih et al., 2018; Erlando et al., 2020). Similarly, for India, financial inclusion is linked to improved economic outcomes for marginalised populations (Inoue, 2019). In China, digital financial inclusion has been considerable in sustainable development and poverty alleviation (Lee et al., 2023). While, in Zimbabwe, financial inclusion supports smallholder farmers, thereby contributing to poverty reduction (Mhlanga et al., 2020).

Studies have shown that enhanced financial access improves well-being, reduces income inequality, and supports socioeconomic growth by enabling productive investments and resilience to shocks (Sarma & Pais, 2011; Brune et al., 2011; Park & Mercado, 2018; Diniz et al., 2012). By confronting these challenges such as limited access to affordable credit and developing bespoke financial solutions for underserved populations, digital financial inclusion can considerably contribute to equitable growth and entrepreneurship development.

More so, the need for innovative financial products to intervene in the credit challenges faced by the informal sector. *Many individuals in this sector struggle to obtain loans due to a lack of credit history and collateral. To overcome this, financial institutions must create bespoke solutions that cater to the specific needs of underserved populations while ensuring affordability and sustainability* (A. Oguntoyinbo, personal communication, November 5, 2024).

Such customised solutions can drive the formalisation of informal businesses, enhancing their legitimacy and access to credit. Also, digital financial platforms simplify record-keeping and regulatory compliance, fostering structured business activities and increasing entrepreneurs' capacity to expand and innovate. For instance, the integration of digital finance in operations enables enterprises to utilise tools for automated payroll management and real-time budget tracking, reducing operational costs and improving efficiency (Aron, 2018).

Despite the challenges, the opportunities presented by digital financial inclusion are immense, especially in Africa. Studies show that Sub-Saharan Africa leads in mobile money accounts, with significant contributions to financial inclusion and economic development (Wen, 2019). These advancements are attributed to the active involvement of mobile network operators, FinTech companies, and other stakeholders, who leverage digital platforms to lower costs and increase accessibility for underserved

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populations. By adopting these approaches, countries like Nigeria can replicate successes seen in Kenya with M-Pesa, fostering a more inclusive and resilient financial ecosystem.

Ultimately, digital financial inclusion plays a pivotal role in entrepreneurship development. By bridging funding gaps, fostering innovation, and enabling entrepreneurs to respond to economic disruptions, it supports sustainable economic growth. Policymakers, financial institutions, and other stakeholders must collaborate to address existing barriers, enhance digital infrastructure, and build trust within the financial ecosystem. This integrated approach will empower entrepreneurs, strengthen SMEs, and accelerate the transition towards a digitally inclusive economy, driving equitable development for Nigeria and other emerging markets.

Government and Policy in Fostering Digital Financial Inclusion

Esusu Africa provided effective pathways the government of a country to engage in to foster not just financial inclusion but digital financial inclusion. It laid emphasis on how the Nigerian government should intentionally support the development of financial inclusion.

> *The government is trying their best, but much needs to be done. In the national financial inclusion strategy, there needs to be a lot of focus on the saving thrift and credit sector, particularly the savings and credit, cooperative sectors, and savings groups, because there are a lot of informal savings. There are a lot of ways the government can drive digital financial inclusion. One is driving strategic collaboration and partnerships with all the key stakeholders within this ecosystem.* (A. Oguntoyinbo, personal communication, November 5, 2024)

> *The government has to work with people in the non-financial sector, which includes the thrift institutions, non-bank, microfinance institutions, the cooperative sectors, and develop social intervention programmes tailored towards digital financial inclusion. The regulators need to work with the right stakeholders. Having the right framework will allow these to thrive at the macro level. Collaborate with the right stakeholders and tailor it into an intervention that will uplift people from poverty. The government should drive a lot of financial literacy and localise financial literacy within respective languages locally. Another way we are fostering digital financial inclusion is by providing e-wallet, which these businesses can use to transfer wallet-to-wallet to an agent.* (A. Oguntoyinbo, personal communication, November 5, 2024

> *Kenya's success in digital finance is partly attributed to strong government support. By creating an enabling environment, the government facilitated the growth of a competitive ecosystem. This support and the right conditions allowed various players to thrive and innovate in digital finance.* (A. Oguntoyinbo, personal communication, November 5, 2024)

A cooperative license is essential to operate in the thrift and credit space. As a technology solutions provider, Esusu works with organisations that want to enter this field. The cooperative license, supervised by the state government under the Ministry of Cooperatives, Trade, and Commerce, is the minimum requirement for these institutions and varies by state.

> *Ideally, the Central Bank of Nigeria (CBN) could establish a regulatory framework for thrift and credit cooperatives, similar to microfinance banks. The financial ecosystem has various levels: commercial banks, microfinance banks, and then cooperatives or thrift institutions, which often can't secure a microfinance banking license. Cooperatives serve a crucial role at the grassroots level, but they lack regulatory support. For example, a thrift business in Kaduna manages a portfolio exceeding ₦ billion, with over 15,000 customers and 50 staff members—larger than some microfinance banks. This*

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demonstrates the substantial impact of cooperatives, which is why we've been selected for the regulatory sandbox, allowing us to test innovative solutions and help regulators understand what policies could support these organisations. (A. Oguntoyinbo, personal communication, November 5, 2024)
Ghana, for example, implemented a system to regulate and standardise thrift and credit cooperatives, enhancing trust and confidence after shutting down many unregulated institutions in 2019. If the CBN were to establish similar protections in Nigeria, it would help prevent cases where a thrift collector might mismanage or disappear with customer funds. We already provide standard operating procedures and insurance for funds, but a regulatory framework would reinforce accountability and security. Just as NIC and CBN oversee microfinance banks, having thrift and cooperative-level oversight would protect last-mile customers and foster a more trustworthy system. Apart from government and policies, Nigeria's infrastructure needs to be developed. To get to Kenya's level, we must work on our infrastructure, security, and broadband. (A. Oguntoyinbo, personal communication, November 5, 2024)

DISCUSSION AND FINDINGS

Relationship Between Financial Literacy and Digital Financial Adoption

Digital financial literacy is a key enabler of financial inclusion, empowering underserved populations to make informed decisions about digital financial products. This capacity, however, is limited by challenges like cybersecurity concerns and low trust in digital systems. Targeted educational programmes are essential to bridge these gaps (Lusardi, 2015; Morgan et al., 2019; Prasad et al., 2018). Consequently, the combination of financial and digital knowledge empowers people to utilise digital platforms effectively, raising awareness about risks and consumer rights (Widyastuti et al., 2024). However, many individuals still need to be convinced to shift from cash transactions due to concerns about cybersecurity and trust, as highlighted by AbdulAzeez Oguntoyinbo, CEO of Esusu Africa, who noted how issues with digital migration in banking systems can affect user confidence.

Digital finance offers a pathway to economic inclusion by providing accessible financial tools and services, particularly for those without traditional financial access (Naumenkova et al., 2019; Lauer & Lyman, 2015). Individuals can build financial profiles through digital transaction platforms and retail agents, creating transaction histories that open doors to credit and insurance (Oguntoyinbo, 2023). Despite the benefits, the transition to digital finance requires targeted financial literacy efforts to increase public trust and adoption. This can be achieved through capacity-building initiatives and education programs, fostering consumer and social acceptance of digital finance and reinforcing global financial stability (Demirguc-Kunt et al., 2018; Grohmann et al., 2018).

Impact of Digital Finance on the Informal Economy

By simplifying accessibility, cost, and formalisation procedures, digital finance has the potential to revolutionise the informal sector, especially in tackling issues related to financial inclusion. Previously excluded people may now access financial services because of the widespread use of digital payment methods and mobile money, particularly in places like Africa, where traditional banking infrastructure is sometimes lacking (Global Partnership for Financial Inclusion, 2018). By decreasing reliance on physical

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currency and expanding access to financial products like loans and insurance, this digital shift—allows informal businesses to function more effectively and securely (Klapper et al., 2019; Schneider, 2018). *Digital finance can strengthen financial stability and stimulate economic growth in marginalised regions by streamlining transactions and facilitating record-keeping* (A. Oguntoyinbo, personal communication, November 5, 2024).

However, constraints, including high transaction costs, poor infrastructure, and digital illiteracy, hinder digital financial inclusion in the unorganised sector. Informal businesses encounter obstacles such as restricted access to digital literacy initiatives and reasonably priced technology, which hinder their capacity to fully participate in the digital economy despite the attractive prospects presented by digital finance (Arendse & Van Den Berg, 2024). Digital disparities, system incompatibilities, and regulatory concerns hinder the transition to formal financial systems, particularly in areas with limited digital infrastructure (Lv et al., 2024). Policymakers must close these gaps to guarantee that digital finance reaches and empowers all informal businesses and fosters a more equitable economic environment (Kelikume, 2021).

Digital Finance for Inclusive Economic Growth

In Africa, where mobile money has greatly extended financial access, especially for underprivileged groups, digital finance has become indispensable for equitable economic development. With 64% of world transactions expected in Sub-Saharan Africa using mobile money in 2020, this shows its ability to reduce financial access gaps (Ugwuanyi et al., 2022). Digital finance lets low-income families join the official financial system by lowering prices and streamlining access to basic services, encouraging wealth generation and economic resilience. Particularly in areas underdeveloped by traditional banking, the provision of digital financial services, including mobile savings and payments, offers a specific possibility for sustained economic development (Beirne & Ngoc, 2023).

Therefore, the effect of digital finance on economic growth goes beyond personal access as it improves the productivity of micro, small, and medium-sized businesses (MSMEs) through reasonable lending, higher investments, and better transactions (Khera et al., 2021). Projections show that, mostly through productivity improvements and lower transaction costs, digital finance might boost GDP in emerging nations by 6% by 2025. Since governments can provide quick payments, this development increases household resilience, empowers women, and supports openness. As such, digital finance is a transforming instrument for reducing financial disparity and promoting equitable economic development (Manyika et al., 2016).

Digital Financial Inclusion and Entrepreneurship Development

Entrepreneurship helps solve social problems and boost economic growth by fostering innovation and reducing poverty. The entrepreneurship ecosystem keeps expanding to accommodate new groups like social entrepreneurs and corporate businesses (Palanivelu & Manikandan, 2015; Sussan & Acs, 2017; Fernandes et al., 2022). Furthermore, digitalisation continues to blur entry barriers, making access to global markets feasible (Kraus et al., 2019). Consequently, fuelling digital financial inclusion. This is

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because digitalisation has precipitated the founding of several FinTech companies offering accessible financial services to previously financially excluded populations.

Given this, the now financially included have access to credit, investment and financial advisory services (Demirgüç-Kunt et al., 2018), and their entrepreneurial activities are bolstered. Therefore, it suffices to say that entrepreneurship fuels digital financial inclusion, further improving a region's entrepreneurial activities. The reason for this is apparent: informal sector members can digitise their financial processes, overcome funding barriers and grow through financial advisory services (Cull et al., 2014).

In conclusion, entrepreneurship fosters digital financial inclusion, while digital financial inclusion fosters entrepreneurship development. Given the myriad of benefits offered by entrepreneurship, such as job creation, contribution to GDP, addressing societal issues and improving the standard of living, it is vital that educational institutions to foster entrepreneurship education. Policymakers, on the other hand, need to develop policies that promote digital financial inclusion to amplify the impact and protect their respective countries from predators.

Financial Technology for Financial Access Expansion

FinTech has transformed financial services by enhancing access and efficiency, particularly for underserved populations. It addresses historical barriers, such as geographical limitations and distrust in traditional banks, enabling access through mobile applications and digital payment systems. Innovations like peer-to-peer lending and crowdfunding democratise capital access for individuals and small businesses. While FinTech expands financial inclusion, improving financial literacy is crucial; educational features in FinTech apps empower users to make informed decisions. Regulatory considerations are necessary to balance innovation with consumer protection, and initiatives like regulatory sandboxes promote collaboration between FinTech companies and regulators.

Esusu Africa offers a digital savings wallet that modernises the traditional thrift collection model, enhancing financial access in underserved areas. The platform reduces errors and fraud by digitising manual record-keeping and streamlining operations for thrift collectors, building user trust. By collaborating with banks and insurance companies, it enables users to access essential financial services, including bank accounts and micro-credit. Also, Esusu is addressing digital identity challenges by partnering with organisations to help customers obtain National Identification Numbers (NINs). Overall, Esusu Africa leverages technology to promote financial inclusion and empower communities.

Digital Finance for SME Competitiveness

Digital finance significantly enhances SMEs' competitiveness by streamlining operations, improving customer engagement, and enabling access to crucial financial resources (Istuk, 2023; Sanga & Aziakpono, 2024). The growth of digital finance tools, such as mobile money, peer-to-peer lending, and Artificial Intelligence (AI) driven credit assessments, allows SMEs to overcome financing gaps and adapt to market demands without the traditionally high transactional costs and collateral requirements.

> *This digital shift is essential in regions like Africa, where SMEs are pivotal yet often financially constrained. Esusu Africa's intervention in digitising operations for local entrepreneurs, such as a distributor in Idumota, illustrates how digital finance facilitates scalability and expansion into new markets by enhancing transparency and customer trust.* (A. Oguntoyinbo, personal communication, November 5, 2024)

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Beyond basic financing, digital finance offers SMEs strategic advantages in navigating fluctuating market conditions and managing operational risks. Digital solutions enable precise risk assessments, reducing credit challenges associated with information asymmetry (Li et al., 2022). Esusu Africa's support demonstrates that providing SMEs with digital tools and financial connectivity allows businesses to expand while effectively managing challenges, such as price fluctuations, that impact their purchasing power. In turn, SMEs are better positioned to respond to customer needs, enhance market visibility, and secure affordable financing for growth (Oguntoyinbo, personal communication).

Government and Policy in Fostering Digital Financial Inclusion

Through recommendations from Esusu Africa, it is imperative that the government focuses on the saving thrift and credit sector, particularly the savings and credit, cooperative sectors, and savings groups, because there are a lot of informal savings. It was suggested by the CEO that one key way boost digital financial inclusion is to engage in strategic collaboration and partnership with all key stakeholders within the ecosystem.

Prospects of Digital Financial Inclusion for Informal Sector Entrepreneurs

The future of digital financial inclusion for informal sector entrepreneurs in Africa holds immense potential, driven by technological progress, regulatory support, and an increasing recognition of the importance of accessible financial services. With mobile penetration rates continuing to rise, digital platforms are well-positioned to empower informal entrepreneurs, granting access to financial tools that can transform business operations and amplify economic contributions. This occurs in the form of:

1. **Technological Progress:** Advancements in technology are at the forefront of driving digital financial inclusion. The integration of artificial intelligence (AI) and machine learning into credit risk assessment is particularly transformative. Traditional credit scoring methods often exclude informal sector entrepreneurs due to a lack of formal financial histories. However, AI and machine learning can analyse alternative data sources, such as transaction histories, mobile usage patterns, and even social media activity, to offer customised financial solutions. This enables FinTech companies to address the unique needs and behaviours of informal entrepreneurs, improving their access to credit and other essential financial services. Simultaneously, blockchain technology is revolutionising transaction security and transparency. Its decentralised structure ensures secure, tamper-proof transactions, which is critical in regions where trust in financial systems may be low.
2. **Regulatory Frameworks:** Regulatory frameworks are evolving to support the expansion of digital financial services. African governments, for instance, are increasingly recognising the need to build environments conducive to FinTech innovation. For instance, several countries have introduced regulatory sandboxes that allow FinTech companies to test new products and services under controlled conditions, ensuring both innovation and consumer protection. In Nigeria, for instance, initiatives such as the National Financial Inclusion Strategy (NFIS) exemplify how targeted policies can promote digital financial inclusion. It is believed that the government can create supportive regulatory environment that will enable FinTech companies to design services customised to the specific needs of informal entrepreneurs, in order to bridge the gap between underserved populations and the formal financial system.

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3. **Collaborative Models:** Collaborative approaches between FinTech firms and traditional financial institutions are critical to drive digital financial inclusion. These partnerships can combine the agility of FinTech with the stability and experience of established banks, leading to the creation of hybrid financial products. Moreover, collaborations with non-governmental and community-based organisations are instrumental in enhancing financial literacy. Educational initiatives can raise awareness among informal entrepreneurs about the benefits of digital financial services, encouraging greater adoption and improved utilisation of these tools.
4. **Increasing Awareness and Access:** Rising awareness of digital financial services is gradually changing perceptions among informal sector entrepreneurs. Mobile money services, for example, have already demonstrated how digital platforms can transform financial access, allowing users to conduct transactions, save, and access credit. Similar FinTech solutions are proliferating across Africa, with many specifically designed to meet the needs of informal entrepreneurs. However, expanding access to reliable internet and mobile technology remains critical. In underserved and rural areas, the availability of smartphones and stable internet connections is essential for entrepreneurs to harness the full potential of digital financial services. Investments in digital infrastructure are, therefore, important to sustaining this momentum and driving inclusive growth.

CONCLUSION

This chapter explores the significant role of digital financial inclusion and how it can empower business competitiveness and growth for businesses. Findings suggest that digital finance drives economic inclusion by enabling access to banking and credit services, with mobile payment solutions significantly boosting financial access in the informal sector. However, challenges such as high transaction costs, digital illiteracy, and limited infrastructure hinder full adoption, especially among SMEs and informal businesses. FinTech innovations, exemplified by Esusu Africa's digital wallet, modernise traditional savings practices, improve accessibility, and reduce errors, providing scalable solutions to underserved populations. Digital finance not only enhances SMEs' competitiveness by reducing costs and expanding market reach but also supports economic growth through accessible, secure financial services. To maximize impact, policy support and targeted financial literacy programs are crucial to bridging gaps and fostering trust. Future prospects for digital finance are promising, with advances in AI, blockchain, and collaborative FinTech-banking models paving the way for tailored financial solutions that boost productivity and foster inclusive growth across Africa's informal economy. These strategies, if adopted by developing countries in Africa will foster digital financial inclusion and foster economic development.

The future of digital financial inclusion is promising, particularly in emerging market regions like Africa, where mobile penetration continues to rise. However, it is important to tackle the structural barriers, regulatory barriers, digital illiteracy, limited infrastructure, and distrust among stakeholders. Consequently, this chapter recommends:

1. Strengthening Digital Infrastructure: Governments should prioritise investments in robust digital infrastructure, including stable internet connectivity and reliable and affordable mobile networks, to support the widespread adoption of digital financial services.
2. Enhancing Financial Literacy: Targeted educational programmes should be developed to equip underserved populations with the skillset to use digital financial tools effectively.

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3. Regulatory Support and Innovation: Regulatory authorities should create enabling frameworks to encourage innovation while ensuring consumer protection, particularly for entrepreneurs in the informal sector.
4. Public-Private Partnerships: Collaboration between FinTech companies, traditional banks, and community organisations is essential to develop inclusive financial products.
5. Advanced Technologies: Technologies such as AI and blockchain should be leveraged to create secure, transparent, and accessible financial services. These advancements can enable better credit assessments and reduce fraud.

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