

# The Contribution of Financial Technology to Financial Inclusion in Tanzania: Accessibility, Usage, Business Growth and Challenges of Financial Technology Adoption

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## Abstract

The study assesses the contribution of financial Technology to financial inclusion in Tanzania. It explored the accessibility and usage of financial Technology, the influence of financial technology on financial inclusion, the contributions of financial technology on business growth and barriers to financial technology adoptions in Tanzania. Innovation dissemination and Technology adoption theory were used to guide the study. The study was an empirical literature review based on observation, experience and evidence. The empirical articles were searched through the Google Scholar search engine using keywords such as financial technology, financial inclusion, accessibility and usage of financial technology, the effects of financial technology on financial inclusion, and barriers to financial technology adoption in Tanzania. Screening procedures for articles searched in Google Scholar were done using the publication date, the title, abstract, and conclusions sections of the articles, and ultimately, 20 articles were selected out of 5534 articles obtained from Google Scholar's search engine. The results indicated that financial technology is currently accessible. Furthermore, the provision of mobile phones has enabled the usage of digital financial services to all who were previously underserved. There is an excellent connection between financial technology, financial inclusion and business growth. Despite the country's widespread adoption of financial technology, challenges remain to make the technology more adoptable. These include digital divide, cybersecurity risks, and limited financial literacy. Policies and infrastructure for financial technology should be in place to push the adoption of the new technology to be inclusive. The study recommends that efforts must be in place to enhance the financial technology spread for economic growth in

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the country, as long as all nations that embrace financial technology have developed financial systems and achieved economic growth.

### Keywords

Financial Technology, Financial Inclusions, Business Growth, Accessibility and Usage

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## 1. Introduction

The issue of financial technology improving financial inclusion is significant not only for financial services delivery but also for economic growth. According to [Morgan \(2022\)](#), financial technology uses software applications and digital platforms to deliver financial services to consumers and businesses. [Leong and Sung \(2018\)](#) contend that financial technology (Fintech) is the use of technology to provide financial services and products to consumers, and [Al-Mudimigh and Anshar \(2020\)](#) described Fintech as an innovative and smart means of providing financial services and products using mobile devices. It is an advanced means of financial delivery, whereas cashless is the means of economic transactions.

Financial technology has been in operation in all countries in the world. It has increased the level of financial inclusion. Worldwide, it is postulated that 76% of the adult population has a bank or mobile phone accounts ([Demirgüç-Kunt, 2022](#)). In the globe, Singapore is recognized as a leading country with highest level of financial inclusion and Argentina ranks the last ([Aguayo & Aros, 2023](#)). [Sarma \(2016\)](#) described that, the higher level of financial inclusion is fueled by strong scores in the government and financial system support pillars.

In Africa, Fintech has revolutionized the adults population and raised the financial inclusions. [Lawson \(2022\)](#) contend that in Sub-Saharan Africa's bank accounts ownership raised from 42.6% to 55% between year 2017 to 2021 as a result of technological innovation and strategic financial initiatives. These statistics imply that digital payments are increasingly common in Sub-Saharan Africa although many adults still receive and make cash transactions. According to Tanzania Financial Inclusion Index (TFII), which monitors national financial inclusion progress, it saw notable improvement in 2023 from 68% to 72% ([Lubawa & Litt, 2025](#)).

People holding account at bank and other financial institutions as well as mobile accounts are likely to access and use financial services, such as credit, insurance and money transfers to grow their businesses and improve their life. According to [Tay, Tai and Tan \(2022\)](#), the use of digital devices to deliver financial services and products is a promising tool to promote financial inclusion. The use of these digital devices to access financial services and products is an effort to reduce financial friction, such as information asymmetries, incomplete markets, negative externalities, misaligned incentives, network effects, and behavioral distortions ([Trapanese & Lanotte, 2023](#)).

Financial technology has been recognised as the means to smoothen the availability and ease of access of financial services and products to all members of the population. Although fintech and government financial policies have been put in place, the level of financial inclusion in the region particularly in Tanzania is still low. The launch of National Financial Inclusion Framework (NFIF) in 2018 targeting to increase access to financial services to underserved populations from 68% in 2017 to 75% by 2025 has not been attained and to date is only 72%. This achievement is still lagging behind the target of 75% beside the efforts put in place. Therefore, this study examines the availability, usage, effects of financial technology to financial inclusion, barriers of fintech platforms and the contribution to business growth.

## 2. Theoretical Framework

The study employed Innovation dissemination and technology adoption theories to guide the study. Innovation dissemination theory, also known as diffusion of innovation (DOI) theory propounded by Rogers' (1987), is a theory that explains how, why, and at what rate new ideas and technologies spread through cultures or social systems. It focuses on how innovations spread through communication channels within a social system. The theory highlights the stages individuals go through when adopting a new idea, as well as the characteristics of the innovation itself that influence its adoption rate. The theory explains the existence, availability and usage of the new technology, the existence of new technology availability and disseminate it to the members of the population to enable them use it. The theory is useful for this study as it has been used in other studies that explores the spread of new technology, its availability, usage, barriers and the effects of financial technology to financial inclusion to underserved population. Although the theory does not cover the issue of barriers and effects but yet it is a suitable guide to the study and is complimented by technology adoption theory propounded by Davis (1989). The theory of technology adoption explains how the individuals and organizations in the system come to accept and integrate the new technologies and put into practices. The theory addresses the processes of adoption from the awareness and full integration and explain the factors influence the process of awareness, acceptance and usage of the new technology highlights the factors that influence the adoption such as perceived usefulness, perceived ease of use, social influence, observability, compatibility and complexity. In this panacea, the theory is able to identify the hindrance and the level of spread of the new technologies in the system.

## 3. Materials and Methods

The study is a review of different literatures regarding the financial technology and financial inclusion. The google scholar was the only search engine used in searching relevant materials relating to financial technology and financial inclusions. The choice of google scholar search engine based on the factor that, is a

broad search engine for scholarly literature and the engine is perceived ease of use compared to other search engine such as SCOPUS, Web of science, Research4life and others (Mayr & Walter, 2007). SCOPUS provides only comprehensive abstracts and citation database for peer-reviewed literature of scientific journals, books and conference proceeding while Research4Life provides access to scientific and professional knowledge for researchers in developing countries only (Fosci, Ficarra, Chiarelli, & Johnson, 2020). The Web of Science search engine requires some one to get registered to the engine and in searching need to know the author's name, hence, it is tedious to do a search. These reasons were the exclusion criteria for the SCOPUS, Web of Science and Reasearch4life search engines. The choice of Google scholar was its ease of use and does not require registration and all scholarly literatures worldwide can be accessed without limitation. The articles searched were from year 2020 to 2025. The search keywords were financial technology, the influence of financial technology on financial inclusion, financial technology and business growth, financial technology policies and barriers of financial technology adoption.

The search engine produced 5534 articles in total for all search keywords (Table 1). These articles were aged from 1980's to 2025. More of the articles were for the influence of financial technology and financial inclusions followed by barriers of financial technology adoption. Besides the results further screening was made to obtain the relevant articles that fit to the study. Among the exclusion criteria was the year of publications only those publications from year 2020 to 2025 were considered and the rest were rejected.

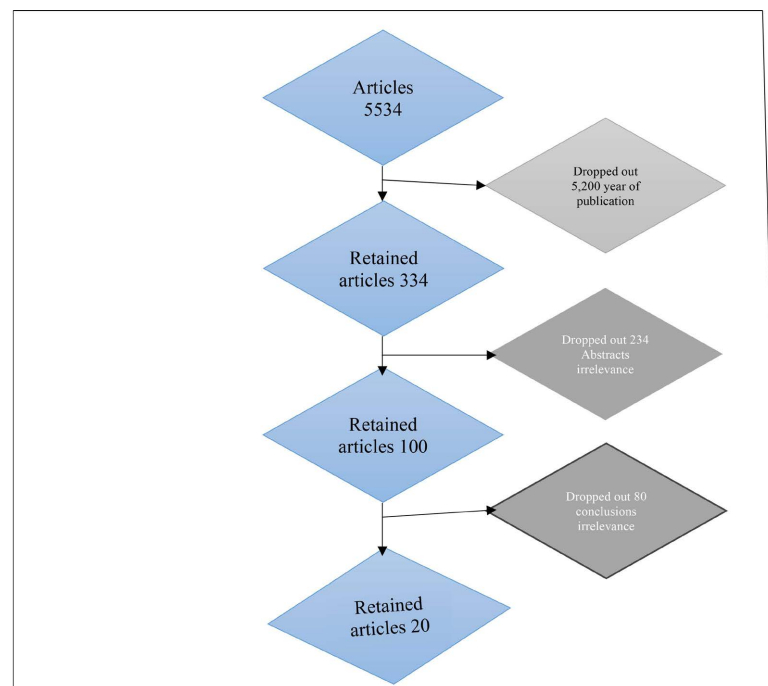
**Table 1.** Keywords.

s/no	Keywords Used in Search Engine	No Articles
1	Financial Technology	335
2	Availability or accessibility of financial Technology	126
3	Usage of financial Technology	150
4	Influence of financial Technology on financial inclusion	2423
5	Financial Technology and business growth	712
6	Financial technology policies	8
7	Barriers of financial technology adoption	1780
<b>Total Articles Searched in Google Scholars</b>		<b>5534</b>

Hermont et al. (2022) describes screening of relevance articles as the process of evaluating search results to identify which articles meet the inclusion criteria for a review. It is a crucial step in systematic reviews and other research projects, ensuring only relevant articles are included in the final analysis. The screening process is important, it eliminates articles that do not meet the pre-defined inclusion criteria for the study (Smela et al., 2023), helps to narrow down the search results to a manageable set of relevant articles (Briscoe & Rogers, 2024) and researchers

can ensure that only high-quality, pertinent articles are included in their review (Satnarine, 2023).

The screening made through reading the publication year and title of the searched articles and the relation to the study. The first screening criteria was the year of publication of an article. Those published before year 2020 were dropped out. The second criteria was the title of the articles, those articles with irrelevant titles to the study were dropped out and those with almost similar title were retained for further screening. The third screening criteria was the reading of abstract. The abstracts were read to find its relevance to the article under study those found not related to study were dropped out and those relevant were retained for further screening. The last criteria was the reading of the conclusion section of the articles. This section is important because it gives final opportunity to reinforce the significance of the research, summarize key findings, and leave a lasting impression on the reader. It's where the writer synthesizes information, connects back to the broader context, and potentially suggests future research directions (Nelson & King, 2023).



**Figure 1.** Screening criteria or process.

The screening results imply that out of 5534 articles only 334 were retained for reason that their publications date was between 2020 to 2025 and their titles were relevant to the study under-review (Figure 1). The retained articles were further screened through reading its abstract, to find its relevance to the study under review. The results implied that only 100 articles were relevant to the current study. In the end the screening was done through reading the conclusion section which the writer synthesizes information, connects back to the broader context, and po-

tentially suggests future research directions and only 20 articles were found relating to what the current study is seeking for. Hence, these 20 articles were the only used in compiling the findings of the study. Using a qualitative research methods themes were used in analysis and a saturation point was reached when no new information was gained as more articles were read (Guest, Namey, & Chen, 2020).

## 4. Study Findings

This research utilizes thematic analysis of existing studies to explore the accessibility, usage, influence of financial Technology and financial inclusion, effects of financial Technology on business growth, barriers of financial technology adoption in Tanzania.

### 4.1. Accessibility of Financial Technology

Accessibility of financial Technology infer to the level of ease access to the financial technology to access financial services by economic agents. The ease of access to financial services imply to underserved population (Hasan, Noor, Gao, Usman & Abedin, 2023). Before the introduction of financial technology access to finance was only to urban population that could open bank accounts and use formal financial services. The majority financial services were largely inaccessible to rural populations, women, and smallholder farmers (Cull et al., 2021). However, financial technology or called digital financial services have significantly expanded access to financial services across Tanzania (Macha & Massawe, 2023).

The accessibility of financial services has been ease due to the existence of digital platform such as mobile devices and internet, that provide convenient, accessible, and secure financial solutions (Aithal, 2016). The digital financial services platforms have expanded the accessibility of financial services in both rural and urban areas (Pazarbasioglu et al., 2020). With mobile phones and bank accounts individuals and organizations can access financial services at their convenient time (Younas & Kalimuthu, 2021). Pazarbasioglu et al. concur that access to affordable financial services is critical for poverty reduction and economic growth. Countries with high technology and more developed financial systems have higher economic growth and larger reductions in poverty and income inequality.

The studies by Kalinkina (2024) identified four principles of accessibility named perceivable, operable, understandable and robust.

#### 4.1.1. Perceivable Accessibility

Perceivable accessibility is the first principle among the four, it infers that the information and user interface components must be presented to users in ways they can perceive, regardless of sensory limitations (Ntoa et al., 2024). The study by Vu (2025) emphasize that perceivable accessibility involves providing alternatives to one sense through another, such as text alternatives for non-text content or captions and transcripts for audio and video, ensuring all users can access content. So the financial technology in Tanzania has taken into account for all disabilities such

as people with vision and hearing impairment have an ability to use the new financial technology embrace perceivable accessibility differentiate itself from competitive digital landscape. In Tanzania, capitation grants have given priority to women, youth and people with disabilities. All the previously underserved population can access a range of financial services including mobile banking, online lending, digital insurance, and blockchain solutions, all aimed at fostering greater financial inclusion.

#### **4.1.2. Operable Accessibility**

Operable accessibility ensures that users can operate and navigate all parts of a digital interface or physical space without encountering barrier (Botelho, 2021). This principle, requires interfaces to be usable with various input methods, such as keyboards, eye-gaze devices, or voice control, and includes providing sufficient time for tasks and avoiding seizure triggers (Ntoa et al., 2024; Al-Qbilat, 2022).

#### **4.1.3. Understandable Accessibility**

The principle of understandable accessibility infers that a person with a disability is afforded the opportunity to acquire the same information, engage in the same interactions, and enjoy the same services as a person without a disability in an equally effective and equally integrated manner, with substantially equivalent ease of use (Piunov, 2023).

#### **4.1.4. Robust Accessibility**

Robust accessibility ensures digital content is interpretable and functional by a wide range of user agents, including assistive technologies, by adhering to web standards and maximizing compatibility with current and future technologies. This principle requires content to be adaptable, reliable, and maintainable over time, as demonstrated by the use of structured and avoiding technology specific methods that could break with updates (Ntoa et al., 2024).

### **4.2. Tools for Financial Technology Accessibility**

#### **4.2.1. Mobile Money Platform**

The existence of mobile money services is the heal to the informal and poor in rural areas in Africa and Tanzania in particular. Mobile money services was introduced in Kenya in year 2007 named it as M-PESA by safaricom telecom company. It has become the ubiquitous way of transferring money among individuals and transforming informal into formal financial inclusion by 80% of the population in Africa (Pazarbasioglu et al., 2020). In Tanzania mobile money is made through different telecom companies such a vodacom call it M-PESA, yas formally called Tigo named it Tigo-pesa and airtel named it airtel money, Halopesa (Halotel) and Z-Pesa (Zantel). Today there is existence of many mobile money services and since its inception in 2008 more than 91.5% of the population have subscribed into mobile money services users. Commercial banks in Tanzania saw an opportunity in mobile money services and decided to partner to expand their services, this includes Vodacom and CBA's digital savings and credit product M-Pawa;

Jumoand Airtel's Timiza digital credit product; and FINCA Microfinance Bank and Halotel's digital savings HaloYako (Pazarbasioğlu et al., 2020).

#### **4.2.2. Digital Payments**

##### **1) Pay by phone**

The dedicated mobile payment system facilitated by the existence of mobile money services provider (tigo, vodacom, halotel and Zantel) which allows merchants to accept payments from different network (Salim, 2022).

##### **2) Tanzania Instant Payment System (TIPS)**

Tanzania Instant Payment System (TIPS) is the interoperable digital payment platform operated by the Bank of Tanzania, enabling real-time payments between various digital financial services providers, including banks and e-money issuers (Macha & Massawe, 2023).

##### **3) Online Payment Gateways**

This is the online payment system that allow transfer payment Gateways and Pesapal allow businesses to accept online payments via various methods, including cards and mobile money.

#### **4.2.3. Innovative Technologies**

##### **1) Insurtech**

This is an innovative platform offering insurance services to the poor. According to Paramesha, Rane and Rane (2024) companies like Jamii Africa leverage digital platforms to offer affordable and accessible microinsurance products, particularly to low-income populations, covering areas like health, life, and agriculture. In Tanzania Insurtech focuses on innovation for financial inclusion and development, as highlighted by the insurance innovation challenge.

##### **2) Blockchain Technology**

Blockchain is among the significant technological innovation in Tanzania's fintech sector. Habib et al. (2022) explain that blockchain is explored for its potential to improve the transparency and efficiency of remittances and supply chain financing, potentially reducing transaction costs and increasing security.

##### **3) Artificial Intelligence (AI) and Machine Learning**

Artificial Intelligence is integrated to offer personalized financial advice, credit scoring, and fraud detection, improving customer satisfaction and transaction efficiency (Paramesha, Rane, & Rane, 2024).

#### **4.2.4. Other Digital Financial Services Tools**

There are other digital financial tools in operation, the first one is Digital Lending Platforms such as Branch and Tala provide quick and affordable access to credit for small businesses and entrepreneurs, based on digital credit scoring models. The second Digital Insurance Services platforms like Pula and Bima Afya leverage mobile technology affordable insurance coverage to farmers, small businesses, and low-income households. The third Agency Banking which allows banks to extend financial services to remote and underserved areas through a network of agents, often leveraging existing mobile money agent networks, according to FSD Tanza-

nia and the forth is SIM Banking which empowers individuals in rural and underserved areas to access banking services through USSD platforms on their mobile phones.

### 4.3. Usage of Financial Technology

Financial Technology is also abbreviated to Fintech which refer to the use of technology to deliver financial services and products to consumers. Financial Technology today have various applications including mobile and digital banking, mobile payments, digital wallet, online lending, peer-to-peer lending, digital insurance, regulatory technology funding platform and blockchain (Kumari & Devi, 2022). These financial technology operation in the country and it is estimated that 72% of the underserved population have an ability to use the services (Adelaja et al., 2024).

### 4.4. The Relationship between Financial Technology and Financial Inclusions

The spread of financial technology to the poor and underserved population to use the service. Financial technology usage enables underserved population to be included in financial services. The study by Macha and Massawe (2023) found that financial technology has significantly improved financial inclusion in Tanzania reaching 72% of the adult population. Similarly, the study conducted by Ngaiyaye (2024) in Malawi found that the use of financial technology improved the lives of the underserved population in rural areas.

Financial technology example Mobile money has purported to promote financial inclusion. For example the study by Osabutey and Jackson (2024) suggests that mobile transactions bridge the financial infrastructural gap for service providers to incorporate new clients who were previously excluded from the financial substructure. The process has enhanced access to credit and deposit facilities, assists the allocation and transfer of financial credit thereby boosting financial inclusion. Osabutey and Jackson confirm that businesses that adopt mobile payments lower transaction cost and decrease cash management which ultimately improves customer service and profitability. Furthermore, there is a view by researchers that, digital payments have enhanced the receipts of payments as well as increasing opportunities for informal insurance networks among poor households in Africa (Kelikume, 2021; Siwela & Njaya, 2021; Yawe et al., 2022; Minarni, 2025).

In Tanzania with large population having access to mobile phones, mobile money has become common (Stark, 2021). Stark continuous by arguing that mobile phone penetration and internet usage are mutually inclusive means through which digital financial services foster financial inclusion. This imply that the advancement of financial technology enables the underserved population to use and therefore promote financial inclusions. Evidence have been shown from Kenya since its establishment of M-Pesa in 2008 financial inclusions has reached 80%,

Ghana also has evidenced a tremendous increase in mobile phones and mobile money usage to both rural and urban areas and in Tanzania through the use of digital financial services financial inclusions stands at 72% and is likely to increase and reach 95%. Stark (2021) further postulate that mobile phone penetration will create opportunities for expansion of financial services and increases the role of non-financial institutions and drives towards financial inclusion by making possible for the mobile phone platforms to not discriminate along the lines of income, class, or age group. The mobile money platform facilitates payments for utility bills, fees, fund transfers and other financial services, hence includes all who were unserved.

#### **4.5. Financial Technology and Business Growth**

The study by Zeidy (2022) contend that FinTech has the potential to significantly enhance economic growth by revolutionising financial access, reducing transaction costs, and improving the efficiency of financial intermediation. This new technology enables business owners to manage their financial operations, process and lives using special software. Zeidy continued by arguing that there is a possibility that, entities driven by Fintech may emerge as competitive alternatives to traditional financial intermediaries, markets, and infrastructures. Through the use of new Technology for example mobile money transfer and payments the number of transactions increases as it accommodates urban and rural dwellers who were previously underserved (Yawe et al., 2022). Mobile Technology enhances business transactions by creating new channels for financial interactions, increasing efficiency, and reaching wider customer bases. This digital connectivity can foster trust through reliable platforms and security measures, leading to increased transactions and, ultimately, greater business profits by improving customer retention and streamlining operations (Islam, 2024).

According to the empirical literatures reviewed new technology enables synergy and connectivity among businesses and increases transactions as well trigger business growth. In a nutshell we conclude that financial technology has become a driving force of business growth. Mobile money and other digital financial services are the vehicles for business growth. Lee and Lim (2021) emphasized that technological advances can be defined as the whole system of information, organization and techniques required in the production processes. With the help of technology, it becomes possible to obtain more outputs with the use of same quantity of inputs in any production process.

#### **4.6. Barriers of Financial Technology Adoption in Tanzania**

In review of different empirical literatures, it was noted that digital financial services have made great strides, challenges such as the digital divide, Lack of financial Literacy and cybersecurity risks remain barriers to the full potential of financial technology adoption.

#### **4.6.1. Digital Divide**

The study by [Elouaourti and Ibourk \(2024\)](#) identified digital divide, as the differences on access to digital devices and use. The difference is explained on the ability to own and use digital tools, for example low income people get harder to own and use digital devices. This also is explained as the differences based on geographical areas, some from rural areas may get difficulties to own digital devices compared to those in Urban areas.

#### **4.6.2. Lack of Financial Literacy**

According to [Ayandibu and Ayandibu \(2024\)](#) lack of financial literacy is among the barriers of financial technology adoption. It refers to an absence of skills, knowledge, and behaviors needed to make informed and effective decisions of financial technology impedes budgeting, saving, investing, managing debt, and planning for financial goals like retirement. Some of the members of the population are not aware of financial technology and also they are ignorance on the use of it. Hence it is not easy for them to use the technology beside being good for them.

#### **4.6.3. Internet Access**

Internet access was also mentioned as among the barriers of technology adoption. [Solarz and Adamek \(2022\)](#) contend that some geographical areas have no access to internet making difficulties for the people in that areas to use mobile technologies while other areas access to internet is without limitation. These barriers exclude women, elderly individuals with limited education and poor social classes from financial inclusion.

#### **4.6.4. Cybersecurity Risks**

The cybersecurity risks have been increasing specifically to the users of mobile finance services. According to [Umoga et al. \(2024\)](#) cybersecurity threats in the financial technology as phishing and malware attacks, pose significant risks to financial institutions and their customers. Phishing attacks involve various methods and techniques, including fake emails and websites designed to steal user credential. These attacks can lead to financial damages, identity theft, loss of private information, and damage to brand reputation, affecting both individuals and financial institutions. The Malware attacks often result in the loss of confidential customer information, financial loss, and the weakening of trust in financial institutions.

#### **4.6.5. Limited Knowledge of Financial Technology**

Limited knowledge on financial Technology is among the main hinterland for digital financial services use specifically in rural areas. In some of the rural areas in Tanzania people are not aware of financial technology, therefore it limits its use and most of the people in these areas do not trust the technology. [Ntoa et al. \(2024\)](#) confirmed that lack of education on new technology limits its spread among the prospective users. The study encourages awareness creation to raise the financial

inclusion through the use of new technology. [Yadav and Kalluru \(2024\)](#) confirm that the reliance on cash bases transactions and low usage of smartphones acts as the barrier of financial technology.

#### **4.6.6. Complex Agent Trust**

The main purpose of agent is to facilitate the delivery of goods or transaction. In financial technology mobile companies acts as agents as they stand between the sender and receiver. These two parties the receiver and sender must have trust on the agent. However, a study by [Bruneel, Spithoven and Clarysse \(2017\)](#) contend that the high level of technology complexity leads to low trust among the users of that technology. The financial technology, specifically the use of digital financial services is complex to some extent, hence it has caused mistrust of this technology and many have lost their money through mobile money services transfer.

#### **4.6.7. Compatibility**

Compatibility with the financial technology firm is a significant factor in leveraging the business potential of the alliance. [Osei et al. \(2021\)](#) emphasize that market segmentation is a starting point for evaluating compatibility. Bank executives need to have a clear idea of what customer segmentation the financial technology targets. Therefore, the technology should be designed to fit the uses needs but not just an innovation that may be not user friendly.

### **5. Conclusion**

The study conducted to assess the financial technology availability, usage, influence to financial inclusions, business growth and barriers hindering technology adoption in Tanzania. Based on the research findings, the study concludes that there is an existence of financial technology in the country and people can access it without limitation. Its usage is influenced by technological infrastructure, economic conditions, human behavioral and country policies about technology adoption. The study further concludes that financial technology enhances financial inclusions to the underserved population. It is evidenced that financial inclusions have increased from 68% in year 2017 to 72 in 2023. The people in rural areas who were not able to access banks and open bank accounts, can do so today due to financial technology. This is possible through the use of mobile phones, they have opened bank accounts or mobile money accounts where banks have made a partnership with mobiles companies. Similarly, the use of financial technology has enhanced business growth. Business owners today can do business using mobile phones and the number of transactions has increased through the use of mobile money transfers. Despite its importance, financial technology has some challenges including digital divide, lack of financial literacy, lack of knowledge, limited internet access, cybersecurity risk and compatibility. Therefore, the financial technology designers should rethink how to curb with these challenges to make financial technology the essence of development of human being.

## Study Limitations

The study used only Google search engine to explore the financial technology and financial inclusions. The google search engine is an ease to use compared to the other search engines that need registration. The study further did not explore policies and infrastructural enablers of financial technology adoptions and also used articles published from year 2020 to 2025.

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## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- Adelaja, A. O., Umeorah, S. C., Abikoye, B. E., & Neziyanya, M. C. (2024). Advancing Financial Inclusion through Fintech: Solutions for Unbanked and Underbanked Populations. *World Journal of Advanced Research and Reviews*, *23*, 427-438. <https://doi.org/10.30574/wjarr.2024.23.2.2379>
- Aguayo, A. J. M., & Aros, P. A. V. (2023). Financial Inclusion, Microfinance, and Financial Education in Latin America. In V. Hartarska, & R. J. Cull (Eds.), *Handbook of Microfinance, Financial Inclusion and Development* (pp. 316-338). Edward Elgar Publishing. <https://doi.org/10.4337/9781789903874.00026>
- Aithal, P. S. (2016). A Review on Advanced Security Solutions in Online Banking Models. *International Journal of Scientific Research and Modern Education (IJSRME)*, *1*, 421-429.
- Al-Mudimigh, A., & Anshari, M. (2020). Financial Technology and Innovative Financial Inclusion. In M. Anshari, M. N. Almunawar, & M. Masri (Eds.), *Financial Technology and Disruptive Innovation in ASEAN* (pp. 119-129). IGI Global. <https://doi.org/10.4018/978-1-5225-9183-2.ch006>
- Al-Qbilat, M. M. I. (2022). *Accessibility Requirements for Human-Robot Interaction for Socially Assistive Robots*. Ph.D Thesis, Universidad Carlos III de Madrid.
- Ayandibu, A. O., & Ayandibu, E. O. (2024). Assessing the Financial Literacy Strategy of Small Businesses Utilizing Information Technology within Umhlathuze Municipality. *The Business and Management Review*, *15*, 21-33. <https://doi.org/10.24052/bmr/v15nu01/art-03>
- Botelho, F. H. F. (2021). Accessibility to Digital Technology: Virtual Barriers, Real Opportunities. *Assistive Technology*, *33*, 27-34. <https://doi.org/10.1080/10400435.2021.1945705>
- Briscoe, S., & Rogers, M. (2024). An Alternative Screening Approach for Google Search Identifies an Accurate and Manageable Number of Results for a Systematic Review (Case Study). *Health Information & Libraries Journal*, *41*, 149-155. <https://doi.org/10.1111/hir.12409>
- Bruneel, J., Spithoven, A., & Clarysse, B. (2017). Interorganizational Trust and Technology Complexity: Evidence for New Technology-Based Firms. *Journal of Small Business Management*, *55*, 256-274. <https://doi.org/10.1111/jsbm.12369>
- Cull, R., Demircug-Kunt, A., & Morduch, J. (2021). *Banking the World: Empirical Foun-*

*dations of Financial Inclusion*. MIT Press.

- Davis, F. D. (1989). Technology Acceptance Model: TAM. In M. N. Al-Suqri, & A. S. Al-Aufi (Eds.), *Information Seeking Behavior and Technology Adoption* (pp. 205-219). Working Paper #529, University of Michigan.
- Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). *The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19*. World Bank Publications.
- Elouaourti, Z., & Ibourk, A. (2024). Financial Technologies for All MENA Citizens: Tackling Barriers and Promoting Inclusion. *Regional Science Policy & Practice*, 16, Article 100019. <https://doi.org/10.1016/j.rspp.2024.100019>
- Fosci, M., Ficarra, V., Chiarelli, A., & Johnson, R. (2020). *Equitable Access to Research in a Changing World: Research4Life Landscape and Situation Analysis*. Commonplace.
- Guest, G., Namey, E., & Chen, M. (2020). A Simple Method to Assess and Report Thematic Saturation in Qualitative Research. *PLOS ONE*, 15, e0232076. <https://doi.org/10.1371/journal.pone.0232076>
- Habib, G., Sharma, S., Ibrahim, S., Ahmad, I., Qureshi, S., & Ishfaq, M. (2022). Blockchain Technology: Benefits, Challenges, Applications, and Integration of Blockchain Technology with Cloud Computing. *Future Internet*, 14, Article 341. <https://doi.org/10.3390/fi14110341>
- Hasan, M., Noor, T., Gao, J., Usman, M., & Abedin, M. Z. (2023). Rural Consumers' Financial Literacy and Access to Fintech Services. *Journal of the Knowledge Economy*, 14, 780-804. <https://doi.org/10.1007/s13132-022-00936-9>
- Hermont, A. P., Cruz, P. V., Occhi-Alexandre, I. G. P., Bendo, C. B., Auad, S. M., Pordeus, I. A. et al. (2022). The Importance of Full Text Screening When Judging Eligibility Criteria in a Systematic Review. *Arquivos em Odontologia*, 58, 160-165. <https://doi.org/10.35699/2178-1990.2022.37521>
- Islam, S. (2024). Impact of Online Payment Systems on Customer Trust and Loyalty in E-Commerce Analyzing Security and Convenience. *SSRN Electronic Journal*, 15 p. <https://doi.org/10.2139/ssrn.5064838>
- Kalinkina, I. (2024). *Creation of Web Accessibility Guidelines for an Organization and Analyzing Their Impact on the Workflow*. Master Thesis, Turku University of Applied Science.
- Kelikume, I. (2021). Digital Financial Inclusion, Informal Economy and Poverty Reduction in Africa. *Journal of Enterprising Communities: People and Places in the Global Economy*, 15, 626-640. <https://doi.org/10.1108/jec-06-2020-0124>
- Kumari, A., & Devi, N. C. (2022). The Impact of Fintech and Blockchain Technologies on Banking and Financial Services. *Technology Innovation Management Review*, 12, Article 22010204. <https://doi.org/10.22215/timreview/1481>
- Lawson, D. (2022). Africa Women Report: Digital Finance Ecosystems: Pathways to Women's Economic Empowerment in Africa. <https://research.manchester.ac.uk/en/publications/a4c193d9-2d40-4d71-9931-3323d3318aef>
- Lee, C., & Lim, C. (2021). From Technological Development to Social Advance: A Review of Industry 4.0 through Machine Learning. *Technological Forecasting and Social Change*, 167, Article 120653. <https://doi.org/10.1016/j.techfore.2021.120653>
- Leong, K., & Sung, A. (2018). FinTech (Financial Technology): What Is It and How to Use Technologies to Create Business Value in Fintech Way? *International Journal of Innovation, Management and Technology*, 9, 74-78.

<https://doi.org/10.18178/ijimt.2018.9.2.791>

- Lubawa, G. G., & Litt, V. K. D. (2025). Advancing Financial Inclusion through Digital Finance Innovations in Tanzania. In E. D. R. S. Gonzalez, V. Kandpal, P. K. Ozili, & P. Chatterjee (Eds.), *Fintech for ESG and the Circular Economy* (pp. 255-287). Wiley.
- Macha, D. P., & Massawe, N. M. (2023). *Financial Technology in Tanzania: Assessment of Growth Drivers*. African Economic Research Consortium.
- Mayr, P., & Walter, A. (2007). An Exploratory Study of Google Scholar. *Online Information Review*, 31, 814-830. <https://doi.org/10.1108/14684520710841784>
- Minarni, E. (2025). Impact of Digital Payment Systems on Financial Inclusion and Small Business Growth in Developing Economies. *International Journal of Innovation and Thinking*, 2, 1-12. <https://doi.org/10.71364/ijit.v2i1.6>
- Morgan, P. J. (2022). Fintech and Financial Inclusion in Southeast Asia and India. *Asian Economic Policy Review*, 17, 183-208. <https://doi.org/10.1111/aepr.12379>
- Nelson, N., & King, J. R. (2023). Discourse Synthesis: Textual Transformations in Writing from Sources. *Reading and Writing*, 36, 769-808. <https://doi.org/10.1007/s11145-021-10243-5>
- Ngaiyaye, P. E. (2024). *Exploring the Effect of Community-Based Financial Organizations on Financial Inclusion in Selected Low-Income Communities of Mchinji District, Malawi*. Doctoral Dissertation, The University of Zambia.
- Ntoa, S., Margetis, G., Adami, I., Balafa, K., Antona, M., & Stephanidis, C. (2024). Digital Accessibility for Users with Disabilities. In *Designing for Usability, Inclusion and Sustainability in Human-Computer Interaction* (pp. 406-460). CRC Press.
- Osabutey, E. L. C., & Jackson, T. (2024). Mobile Money and Financial Inclusion in Africa: Emerging Themes, Challenges and Policy Implications. *Technological Forecasting and Social Change*, 202, Article 123339. <https://doi.org/10.1016/j.techfore.2024.123339>
- Osei, F., Ampomah, G., Kankam-Kwarteng, C., Opoku Bediako, D., & Mensah, R. (2021). Customer Satisfaction Analysis of Banks: The Role of Market Segmentation. *Science Journal of Business and Management*, 9, Article 126. <https://doi.org/10.11648/j.sjbm.20210902.19>
- Paramesha, M., Rane, N., & Rane, J. (2024). Artificial Intelligence, Machine Learning, Deep Learning, and Blockchain in Financial and Banking Services: A Comprehensive Review. *Machine Learning, Deep Learning, and Blockchain in Financial and Banking Services: A Comprehensive Review (June 6, 2024)*.
- Pazarbasioglu, C., Mora, A. G., Uttamchandani, M., Natarajan, H., Feyen, E., & Saal, M. (2020). Digital Financial Services. *World Bank*, 54, 1-54.
- Piunov, V. (2023). The Ratio of Concepts-Clarity-, Understandability-, Accessibility-and Simplicity-in the Field of Language and Law. *Russian Juridical Journal Electronic Supplement*, 14.
- Rogers, E. M. (1987). The Diffusion of Innovations Perspective. In N. D. Weinstein (Ed.), *Taking Care* (pp. 79-94). Cambridge University Press. <https://doi.org/10.1017/cbo9780511527760.006>
- Salim, A. M. (2022). Assessment of Mobile Money Transaction Frauds and Consequences Confronting Zanzibar Telecom Service Providers. *Asian Journal of Economics, Business and Accounting*, 20, 16-31. <https://doi.org/10.9734/ajeba/2022/v22i2030671>
- Sarma, M. (2016). Measuring Financial Inclusion for Asian Economies. In Gopalan, S., & Kikuchi, T. (Eds.), *Financial Inclusion in Asia* (pp. 3-34). Palgrave Macmillan UK. [https://doi.org/10.1057/978-1-137-58337-6\\_1](https://doi.org/10.1057/978-1-137-58337-6_1)
- Satnarine, T. (2023). Systematic Review Methodology: Conducting High-Quality Reviews

- and Understanding Their Significance in Evidence-Based Practice. *Journal For International Medical Graduates*, 2, No. 1. <https://doi.org/10.56570/jimgs.v2i1.76>
- Siwela, G., & Njaya, T. (2021). Opportunities and Challenges for Digital Financial Inclusion of Females in the Informal Sector through Mobile Phone Technology: Evidence from Zimbabwe. *International Journal of Economics, Commerce and Management, United Kingdom*, 9, 60-77.
- Smela, B., Toumi, M., Świerk, K., Francois, C., Biernikiewicz, M., Clay, E. et al. (2023). Rapid Literature Review: Definition and Methodology. *Journal of Market Access & Health Policy*, 11, Article 2241234. <https://doi.org/10.1080/20016689.2023.2241234>
- Solarz, M., & Adamek, J. (2022). Determinants of Digital Financial Exclusion as a Barrier to the Adoption of Mobile Banking Services in Poland. *Ekonomia i Prawo*, 21, 503-525. <https://doi.org/10.12775/eip.2022.028>
- Stark, L. (2021). Mobile Money and the Impact of Mobile Phone Regulatory Enforcement among the Urban Poor in Tanzania. *Human Technology*, 17, 22-44. <https://doi.org/10.17011/ht/urn.202106223977>
- Tay, L., Tai, H., & Tan, G. (2022). Digital Financial Inclusion: A Gateway to Sustainable Development. *Heliyon*, 8, e09766. <https://doi.org/10.1016/j.heliyon.2022.e09766>
- Trapanese, M., & Lanotte, M. (2023). *Financial Intermediation and New Technology: Theoretical and Regulatory Implications of Digital Financial Markets*. Bank of Italy Occasional Paper. <https://doi.org/10.2139/ssrn.4464132>
- Umoga, U. J., Sodiya, E. O., Amoo, O. O., & Atadoga, A. (2024). A Critical Review of Emerging Cybersecurity Threats in Financial Technologies. *International Journal of Science and Research Archive*, 11, 1810-1817. <https://doi.org/10.30574/ijsra.2024.11.1.0284>
- Vu, T. C. (2025). *Human-Centred AI Text: Advocating for Inclusive Digital Practices Through Education*. Master's thesis, New York University Tandon School of Engineering.
- Yadav, R. S., & Kalluru, S. R. (2024). Principal-Agent Trust and Adoption of Digital Financial Services: Evidence from India. *Economic Notes*, 53, e12247. <https://doi.org/10.1111/ecno.12247>
- Yawe, B. L., Ddumba-Ssentamu, J., Nnyanzi, J. B., & Mukisa, I. (2022). Role of Mobile Money and Digital Payments in Financial Inclusion for Sustainable Development Goals in Africa. In *Globalization and Sustainability: Recent Advances, New Perspectives and Emerging Issues* (pp. 1-11). IntechOpen. <https://doi.org/10.5772/intechopen.105858>
- Younas, W., & Kalimuthu, K. R. (2021). Telecom Microfinance Banking versus Commercial Banking: A Battle in the Financial Services Sector. *Journal of Financial Services Marketing*, 26, 67-80. <https://doi.org/10.1057/s41264-020-00085-7>
- Zeidy, I. A. (2022). The Role of Financial Technology (FINTECH) in Changing the Financial Industry and Increasing Efficiency in the Economy. *COMESA Monetary Institute*, 4, 50-66.