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The Impact of Financial Technology Adoption on Savings Groups

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A B S T R A C T

The main purpose of the study was to assess the impact of financial technology adoption on savings groups. The study sought to explore the various financial technology products available for adoption by savings groups. The research also aimed at identifying the benefits and challenges of technology adoption by savings groups. The study further sought to find ways to mitigate the challenges faced by savings groups in financial technology adoption. The literature methodology was adopted in the study. The study found out that savings groups can make use of smartphone mobile applications, mobile money services, peer to peer lending online platforms, automated ledgers and self-help artificial intelligence applications in their operations. The study revealed that it is very important for the savings groups to adopt technology because as it improves efficiency in the calculations of fines, loan repayments and subscriptions. Technology improves the storage of group information and the way the meetings are handled. The study also found that savings groups face various challenges in technology adoption such as lack of trust, illiteracy, religious, cultural and security issues. In order for the savings groups to adopt technology, they need to be assisted to overcome challenges in adoption so that they can efficiently utilize technology. The study recommends that development partners such as non-governmental organisations (NGOs) and government should educate savings groups members on the use of technology and assist them in acquiring technology resources such as smart phones and solar panels that can charge those smart phones in order to assist them in technology adoption.

Keywords: Financial technology; Savings Groups; Adoption; Non-governmental organisations; financial technology products.

1. Introduction

Savings groups (SGs) have become the most proficient ways of financial inclusion specifically for the poor and rural communities (Jarden & Rahamatali, 2018). Collins, Morduch, Rutherford & Ruthven (2009) highlighted that the poor in developing countries reside in rural areas and have limited access to financial services. This is supported by Makina (2019) and Burlando, Goldberg & Etcheverg (2020) who highlighted that the poor in developing countries have limited access to formal financial services. Technology is changing the way business and all other activities are conducted worldwide. Financial institutions are taking advantage of technology and cloud based data to offer services tailor made to the needs of their customers at reduced cost (Arner, Buckley, Zetzsche & Veidt, 2020; Thakor, 2020). Financial technology is expected to promote financial inclusion and benefit disadvantaged groups (Demirguc-Kunt., Klapper, Singer & Ansar 2018; Breza, Kanz & Klapper, 2020). These financially excluded and disadvantaged are mainly those residing in rural and remote areas whose financial needs are now being met by savings groups.

Savings groups represent an effective model used to provide financial services to the unbanked poor rural populations. They provide access to informal credit, savings, building financial knowledge and capability for low income women and men. Savings groups can be referred to as Village Savings and Loan Associations (VSLAs), Rotating Saving and Credit Associations (ROSCAS) or Self Help Groups (Arnold, 2020). Village Savings and Loan Associations (VSLAs) can also be referred to as Saving for Change (SfC) groups, Saving and Internal Lending Communities (SILCs) or informal savings mechanisms. (SEEP, Network, 2016). Savings groups are made up of 15 to 30 self-selected community members who come together to save the funds into a common pool (Allen and Panetta,2010). Savings groups members save funds and loan them to members at an interest. Savings groups often have social funds to cater for members' emergencies. The groups are governed through group constitutions adopted after the first meeting and training (Mersland, D'Espallier, Gonzales. & Nakato, 2019).

The adoption of financial technologies by financial institutions has affected borrowing (Bartlett, Morse, Stanton and Wallace, 2019; Fuster, Plosser, Schnabl & Vickery, 2019), saving (Blumenstock, Callen & Ghani, 2018), risk sharing (Jack & Suri, 2014; Riley, 2018), and resistance to shocks (Bharadwaj, Jack & Suri, 2019). These studies have focused on formal financial institutions. Arnold (2020) highlighted that Savings groups provide a pathway though which digital financial inclusion tools may be introduced more widely. According to Arnold (2020), digitizing savings groups can be done through using mobile technology to provide support, access to formal accounts, or information to members. Literature is lacking on the impact of technology adoption on savings groups. As a result, the study sought to assess the impact of technology adoption on savings groups. The study explored available technologies that can be adopted by savings groups, benefits and challenges of technology adoption by savings groups.

2. Review of Literature

This section discusses theoretical and empirical literature on adoption of financial technology by savings groups

2.1 Diffusion of Innovation (DOI)

The diffusion of innovation theory was put forward by Rogers (1995) in a bid to explain acceptance or adoption in a given period of time. According to the theory, if an innovation is not adopted then it means failure of diffusion –adoption. The diffusion innovation is regarded as the basis for adoption as it infiltrates amongst populations. The diffusion of innovation is affected by five components which are how an individual decide to adopt or reject an innovation, the innovation, communication channel, the social system and time. The four components of innovation, communication channel, social system and time are also affected by compatibility, complexity, triability and observability (Rogers, 1995).

Compatibility looks at whether or not the innovation is better or similar to current ones. Complexity means how difficult it is to understand the innovation. Triability refers to how one can access the innovation. Observability refers to the availability and visibility of the innovation. The communication channel represents the means through which the concerned individuals get informed about the innovation. The social system is made of individuals seeking to solve problems to attain a common goal. As for time, adoption is considered to follow stages that include understanding, persuasion, decision, implementation and confirmation in a defined time period (Rogers, 1995).

With reference to the diffusion of innovation theory, savings groups adoption of financial technologies is affected by communication channel, social system and time are also influenced by compatibility, complexity, triability and observability. The diffusion of innovation theory is supported by Juma, Suhonen, Mramba, Tedre, & Kapinga (2023) opine that familiarity, ease of use and nature of the savings group were identified as important reasons for the smartphone use in financial management.

2.2 Technology Acceptance Model (TAM)

Davis (1986) came up with the first form of the TAM. The basic TAM model explains that acceptance of an innovation is based on Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Perceived usefulness implies that an innovation is adopted if the user considers it useful whilst perceived ease of use implies that an innovation is adopted if it can be used effortlessly.
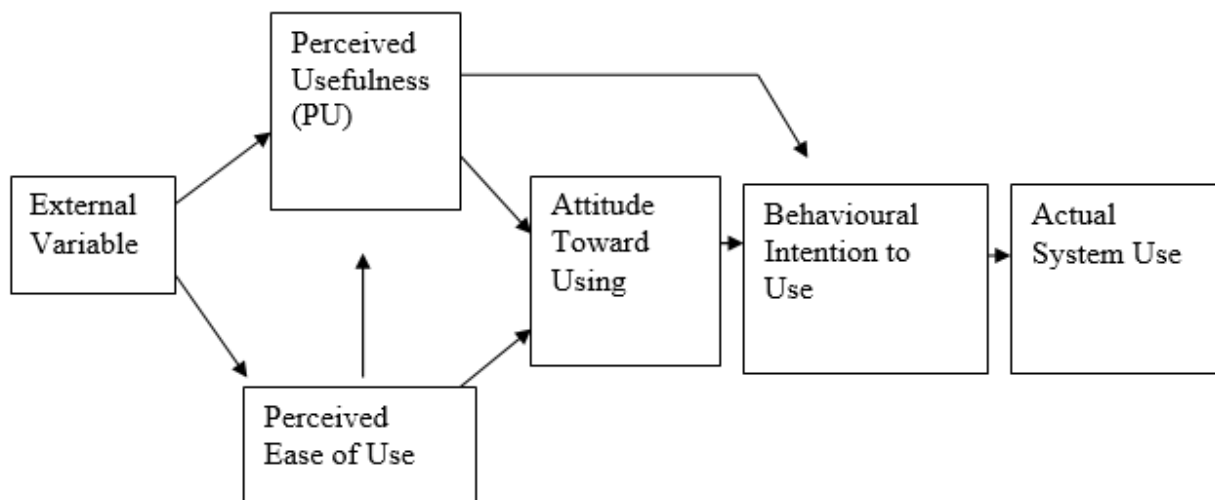

Figure 1: Technology Acceptance Model

Source: Davis (1986)

The TAM theory implies that the adoption of financial technology by savings groups is based on members' perceptions on usefulness and ease of use of the technology.

2.3 Technology Readiness (TR)

Technology readiness refers to an individual's propensity to accept and make use of new technologies in the accomplishment of goals at work or in homes (Parasuraman, 2000) Parasuraman & Colbeen (2001) also developed the Technology Readiness Index (TRI). The TRI model measures the degree to which an individual is prepared to accept and make use new technologies, and has four sub-dimensions which are optimism, innovativeness, discomfort and insecurity (Nugroho & Fajar, 2017; Nugroho, Susilo, Fajar, & Rahmawati, 2018). An individual's optimism and innovativeness encourage technology

adoption, whilst high levels of discomfort and insecurity discourage adoption (Aboelmaged, 2014; Awa et al., 2017). Parasuraman & Colbeen (2001) used the TR model to identify 5 distinct groups of technology adopters which are explorers, pioneers, skeptics, paranoids and laggards.

The technology readiness implies that the adoption of technology by savings groups depends upon members' propensity to accept and use technologies. Technology adoption differs among savings groups members in the form of explorers, pioneers, skeptics and laggards.

2.4 Motivational Model (MM)

The motivational model explains that use of new technology is affected by both intrinsic and extrinsic factors. Intrinsic motivation is the perception of users wanting to use the technology without any reinforcement other than performing the activity. Extrinsic motivation involves the perception that users would want to use the new technology if it is perceived that it is instrumental in achieving desired outcome or results in improved performance. Davis, Bagozzi & Warshaw (1992) proposed that perceived usefulness is an extrinsic motivation and perceived enjoyment as an intrinsic motivation. Thus, savings groups members require intrinsic and extrinsic motivation to adopt financial technologies.

2.5 Financial Technology

Financial technologies have transformed the provision of services in the financial sector. Zeidy (2021) defines financial technology (Fintech) as new technology aimed at improving and automating the provision and use of financial services. Husin, Haron & Aziz (2020) indicated that financial technology is a combination of innovative business models with technologically driven solutions that enable the provision of seamless financial services. Financial technologies include card payments (Dolfen, Einav, Klenow, Klopack, Levin, Levin & Best, 2023), mobile money (Suri & Jack, 2016; Yermack, 2018), online lending (Buchak, Matvos, Piskorski & Seru, 2018; Hertzberg, Liberman & Paravisini, 2018), and smartphone financial applications (Carlin, Olafsson & Pagel, 2019). These technologically driven financial solutions have the potential to change the entire value chains positively affecting bank customers, channels and traditional financial service providers (Alt, Beck and Smits, 2018). Financial institutions are taking advantage of technology and cloud based data to offer products that meet the needs of customers and reduces cost (Arner, Buckley, Zetzsche & Veidt, 2020; Thakor, 2020). Fuster, Plosser, Schnabl & Vickery (2019) and Tang (2019) highlighted that Fintech often serves as a complement to, rather than a substitute for, traditional banking services It is expected that Fintech would promote financial inclusion and benefit disadvantaged groups Demirguc-Kunt, Klapper, Singer & Ansar 2018; Breza, Kanz & Klapper, 2020).This is in agreement with Hau et al. (2018), Jagtiani & Lemieux (2018), Sumit et al. (2019), and Frost, Gambacorta, Huang, Shin & Zbinden (2019) who opined that Fintech and big tech lenders serve borrowers who are traditionally under-served by banks. This implies that financial technology adoption by savings groups can result in formal linkages between these groups and formal financial institutions.

2.6 Financial technology and savings groups

Savings groups may easily embrace technology by using smartphone financial applications, which according to Carlin, Olafsson & Pagel (2019) are a form of financial technology. The use of mobile applications is supported by Wambua & Wamuyu (2020) who opine that savings groups are in need of mobile based applications they can check their current savings, request for loans, as well as follow the progress of their savings group members. The scholars. developed the ChamaApp for use by informal savings groups. The use of mobile phone applications by savings groups is a simpler way of digitizing these groups. Use of these applications results in automation of transactions and record keeping (Arnold, 200; SEEP Network, 2020). Thus, savings groups can use applications such as DreamSave (Arnold, 2020) to automate their systems.

Savings groups can make use of mobile money services in transacting. Burt (2014) noted that the use of cash by savings groups exposes them to the risk of theft hence the need to make use mobile money services. Aron (2018) defines mobile money as an innovation that allows financial transactions to be done using a mobile phone. This is consistent with Kim, Shin & Lee (2021) who opine that mobile money refers to the system whereby financial transactions are executed, transaction histories are viewed and payments are done using a mobile phone. Mobile banking is the most contemporary Fintech method for transacting can be done through applications involving the client, web based and short messaging service (Kim, Shin & Lee, 2021).

Savings groups can also adopt financial technologies that facilitate peer to peer lending. Peer to peer (P2P) lending platforms allow savers to lend money to borrowers through online platforms (Hidayat, Alam & Helmi, 2020). Oba, Magama, Moorosi, Mosehlane, Mutandagayi & Pillay (2022) suggested the creation of a peer to peer lending platform for burial societies in South Africa. Thus, savings groups can also make use of peer to peer lending which improves access to credit for members. The P2P Fintech model allows individuals and businesses to borrow and lend. Instead of conducting transactions through money transfers, P2P lending is done through matching lenders and borrowers and charging user fees (Dang & Vu, 2020). Savings groups act as intermediaries between borrowers and savers through combining borrowing and saving commitment technology (Cassidy & Fofchomps, 2020). Village savings and loan associations allow peer to peer saving and lending (Econ (2012) cited in Cassidy & Fofchomps, 2020). Considering that savings groups members save and lend amongst themselves, they can modify their activities. This can be done through riding in technologies that allow peer to peer lending online.

According to Arnold (2020), the use of technology by savings groups leads to savings on time. These savings result from the use of automated systems which reduce time taken to calculate members' subscriptions, fines and loan repayments. The researcher highlighted that the use of DreamSave application reduced time spent on financial calculation from 2.5/3 hours to 30/60 minutes. Wambua & Wamuyu (2020) also indicated that the use of mobile applications such as ChamaApp by savings groups ensures that members get information about their savings timely. It also facilitates timely pr submissions of loan requests, subscriptions as well as reminders on when loans are due for payment. This is consistent with the SEEP Network (2020)

which revealed that digitizing recordkeeping and automating savings groups eliminated time wasted in making calculations. This implies that meeting times are also reduced, giving members the chance to attend to other commitments. The author further reported that the use of technology has potential in eliminating paper based records. This implies that savings groups will have automated system of keeping their records, which ensures that the records can be accessed in real time. SEEP Network (2016) as well as Wambua & Wamuyu (2020) opined that the improvement in accuracy builds the confidence of members. The adoption of self-help artificial intelligence support technologies by savings groups may assist them to resolve issues without central support. (SEEP Network, 2020).

Sahay, von Allmen, Lahreche, Khera, Ogawa, Bazarbash & Beaton (2020) posits that Fintech is a pathway for financial inclusion. The adoption of Fintech solutions inclusive of mobile money, mobile point of sale devices and crowdfunding have enabled households and firms to make payments, access credit and manage their cash through collateral-less low cost and efficient avenues. The outbreak of COVID 19 crisis forced financial institutions and clients to make use of Fintech products which resulted in improvement in financial inclusion (Sahay et al. 2020). This implies that the adoption of Fintech by savings groups may lead to more people joining existing savings groups or the formation of new ones, thereby financially including the poor.

Sahay, von Allmen, Lahreche, Khera, Ogawa, Bazarbash & Beaton (2020) also opine that Fintech helps in reducing the gender gap in financial inclusion for countries in Africa, the Middle East and Central Asia. Rather than decreasing the gender gap, Fintech increases the gap in Asia Pacific, Latin America and the Caribbean. The existence of a Fintech gender gap was also noted by Chen, Kumara & Sivakumar (2021) in their study. The scholars indicated that in Asia-Pacific, Latin America and the Caribbean, digital financial inclusion gender gaps are actually higher than the traditional financial inclusion gender gaps, demonstrating that the more Fintech is used the greater the gender divide. The authors noted that women adopt Fintech solutions that complement familiar ones and worried about the security of financial tech products. This is consistent with Cheah, George, & Xie (2021) who revealed that women are more willing to use traditional payments like cash and are reluctant to adopt digital models like mobile money. Sahay et al. (2020) also argued that Fintech does not address financial inclusion barriers such as cultural or social norms, financial and digital literacy and access to resources which mainly affect women. The majority of savings groups members worldwide, that is 80% are women (Rickard & Johnsson, 2018). of which they are the ones less willing to adopt Fintech products. Therefore, in as much as savings groups promote financial inclusion, they may fail in their purpose due to reluctance by members to adopt Fintech.

On the other hand, Ahmed (2016), Bankole & Cloete (2021), Hinson (2011), Mlitwa & Tshetsha (2012) from their studies in Ghana, Sudan, South Africa and Nigeria revealed that the majority of people in rural areas are illiterate and they do not understand mobile banking. This implies that they may not be able to use technology because of illiteracy. However, Wambuya & Wamuyu (2020) opines that the use of mobile applications helps improve the financial knowledge of savings groups members. Chkwumah (2017), Mlitwa & Tshetsha (2012), Van Deventer, de Klerk & Bevan-Dye (2017) report that perceived security risk and lack of trust has negative effects on the utilization of mobile banking by individuals. Parobit & Arora (2021) argued that transmission of information over a long distances poses security threat. The researchers further opined that poor computational power for mobile devices does not support the encryption of data. Juma, Suhonen, Mramba, Tedre, & Kapinga (2023) also concluded that untrustworthy communications, high charges and mobile fraud are challenges experienced savings groups in using mobile smart phone technologies. This implies that adoption of technology by the savings groups may be hindered by illiteracy, lack of trust and security risk.

Baptista & Oliveira (2015) argued that cultural factors are a challenge to mobile banking adoption. These cultural factors are linked to unwillingness to accept change, perceived power imbalances between users and financial institutions. Van der Wansem (2013) highlight that some men prohibit their wives from owning mobile phones. This therefore presents a challenge to savings groups since most of the members are women. If these women are not permitted to own phones by their husbands, then technology adoption becomes a challenge

3. Materials and Methods

The study is based on literature. As a result, conclusions are made based on the literature reviewed.

4. Conclusions

Savings groups are very important in ensuring that the poor and those who are in the bottom of the pyramid access finance. The savings groups should have efficient operations. Savings groups can make use of mobile smart phone applications, mobile money services , peer to peer lending online platforms, automated ledgers and self-help artificial intelligence applications. Technology is perceived as being an effective tool to improve the operations of the savings groups. Various studies opine that it is very important for the savings groups to adopt technology because technology improves efficiency in the calculations of fines, loan repayments and subscriptions. Technology improves the storage of group information and the way the meetings are handled. However, some scholars for example Bankole & Cloete (2021), Hinson (2011) and Baptista & Oliveira (2015) report that savings groups face various challenges in technology adoption such as lack of trust, illiteracy, religious, cultural and security issues. In order for the savings groups to adopt technology, there is need for the savings groups to be assisted to overcome challenges in adoption so that they can efficiently utilize technology.

5. Recommendations

Based on the conclusions from the study, the study recommends the following

- Savings groups should be taught on technology. There is need for savings groups to be taught on the use of technology. This will help in reducing fear and improving confidence and trust in technology leading to improvement in the use of technology.

- Non-Governmental Organizations and other development partners should help in ensuring that savings groups acquire technology equipment. Savings groups should obtain subsidies for technology. This will ensure that they automate their operations and ensure efficiency of their operations.

- Savings groups' members should be encouraged to set up a fund in their regular contribution for technology acquisition. This can be done by setting a certain percentage of contributions as funds for acquiring technology. This will help the savings group to have phased approach way of adopting technology.

- Savings groups should ride on their members who have technology gadgets such as smart phones to start utilizing technology such as having some of the meetings on Whatsapp platform. This will enable the members to practice use of technology.

- Government and developmental partners should also ensure that they assist savings groups in acquiring alternative sources of energy such as solar panels to ensure that the technology gadgets of the savings groups are powered. This will ensure that there is no disruptions in conducting groups meetings using technology.

References

Aboelmaged, M.G. (2014). Predicting e-readiness at firm-level: An analysis of technological, organizational and environmental (TOE) effects on e-maintenance readiness in manufacturing firms. *International Journal of Information Management*, *34*(5), pp.639-651.

Allen, H. & Panetta, D. (2010). Savings groups: What are they. *Washington DC: SEEP Network*, *2*.

Arner, D.W., Buckley, R.P., Zetzsche, D.A. and Veidt, R. (2020). Sustainability, FinTech and financial inclusion. *European Business Organization Law Review*, *21*, pp.7-35.

Aron, J., 2018. Mobile money and the economy: A review of the evidence. *The World Bank Research Observer*, *33*(2), pp.135-188.

Awa, H.O., Ojiabo, O.U. & Orokor, L.E. (2017). Integrated technology-organization-environment (TOE) taxonomies for technology adoption. *Journal of Enterprise Information Management*, *30*(6), pp.893-921.

Bankole, O. & Cloete, E. (2011), September. Mobile banking: A comparative study of South Africa and Nigeria. In *IEEE Africon'11* (pp. 1-6). IEEE.

Baptista, G. & Oliveira, T. (2015). Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators. *Computers in Human Behavior*, *50*, pp.418-430.

Bartlett, R., Morse, A., Stanton, R. & Wallace, N. (2019). Consumer-lending discrimination in the FinTech era (No. w25943). *National Bureau of Economic Research*.

Bharadwaj, P., Jack, W. & Suri, T. (2019). *Fintech and household resilience to shocks: Evidence from digital loans in Kenya* (No. w25604). National Bureau of Economic Research.

Blumenstock, J., Callen, M. & Ghani, T. (2018). Why do defaults affect behavior? Experimental evidence from Afghanistan. *American Economic Review*, *108*(10), pp.2868-2901.

Breza, E., Kanz, M. & Klapper, L.F. (2020). *Learning to navigate a new financial technology: Evidence from payroll accounts* (No. w28249). National Bureau of Economic Research.

Buchak, G., Matvos, G., Piskorski, T. & Seru, A. (2018). Fintech, regulatory arbitrage, and the rise of shadow banks. *Journal of financial economics*, *130*(3), pp.453-483.

Carlin, B.I., Olafsson, A. & Pagel, M. (2019), January. FinTech and consumer financial well-being in the information age. In *AFFECT Conference. University of Miami. https://www. fdi c. gov/bank/analytical/fintech/papers/carlin-paper. pdf*.

Cheah, W.C., George, A. and Xie, T. (2021). Gender divides in the ASEAN payment eco-system. *Available at SSRN 3893670*.

Chen, Y., Kumara, E.K. & Sivakumar, V. (2021). Investigation of finance industry on risk awareness model and digital economic growth. *Annals of Operations Research*, pp.1-22.

Chukwumah, S. & Islam, N. (2017). Adoption of mobile banking service in rural Nigeria. *Unpublsihed Master of Science in Finance Thesis: National Open University of Nigeria*.

Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace 1. *Journal of applied social psychology*, *22*(14), pp.1111-1132.

Demirguc-Kunt, A., Klapper, L., Singer, D. & Ansar, S. (2018). *The Global Findex Database 2017: Measuring financial inclusion and the fintech revolution*. World Bank Publications.

Dolfen, P., Einav, L., Klenow, P.J., Klopack, B., Levin, J.D., Levin, L. & Best, W. (2023). Assessing the gains from e-commerce. *American Economic Journal: Macroeconomics*, *15*(1), pp.342-370.

Frost, J., Gambacorta, L., Huang, Y., Shin, H.S. & Zbinden, P. (2019). BigTech and the changing structure of financial intermediation. *Economic Policy*, *34*(100), pp.761-799.

Fuster, A., Plosser, M., Schnabl, P. & Vickery, J. (2019). The role of technology in mortgage lending. *The Review of Financial Studies*, *32*(5), pp.1854-1899.

Hertzberg, A., Liberman, A. & Paravisini, D. (2018). Screening on loan terms: evidence from maturity choice in consumer credit. *The Review of Financial Studies*, *31*(9), pp.3532-3567.

Hidayat, A.S., Alam, F.S. & Helmi, M.I. (2020). Consumer protection on peer to peer lending financial technology in Indonesia.

Hinson, R.E. (2011). Banking the poor: The role of mobiles. *Journal of Financial Services Marketing*, *15*, pp.320-333.

Husin, M.M., Haron, R. & Aziz, S. (2020). Adoption of financial technology in islamic crowd-funding: predicting small and medium-sized enterprises' intention to use the investment account platform. In *Impact of financial technology (FinTech) on Islamic finance and financial stability* (pp. 12-35). IGI Global.

Jack, W. & Suri, T. (2014). Risk sharing and transactions costs: Evidence from Kenya's mobile money revolution. *American Economic Review*, *104*(1), pp.183-223.

Jagtiani, J. & Lemieux, C. (2018). Do fintech lenders penetrate areas that are underserved by traditional banks? *Journal of Economics and Business*, *100*, pp.43-54.

Jarden, F. & Rahamatali, A. (2018). State of practice: Savings groups and the role of government in sub-Saharan Africa.

Juma, M.H., Suhonen, J., Mramba, N.R., Tedre, M. & Kapinga, A.F. (2023). Smartphone Use in Financial Management among Women's Informal Saving Groups in Dodoma, Tanzania. *The African Journal of Information Systems*, *15*(2), p.2.

Kim, G., Shin, B, & Lee, H. G. (2021). Understanding dynamics between initial trust and usage intentions of of mobile banking. *Journal of Contemporary Issues in Business and Government*, 27(1), P-ISSN: 2204-1990; E-ISSN: 1323-6903 https://cibg.org.au/ 2229

Makina, D. (2019). The potential of FinTech in enabling financial inclusion. In *Extending financial inclusion in Africa* (pp. 299-318). Academic Press.

Mersland, R., D'Espallier, B., Gonzales, R. & Nakato, L. (2019). What are Savings Groups. *A description of savings groups based on information in the SAVIX database. Hørsholm, Denmark: FAHU Foundation*.

Mlitwa, N.B.W. & Tshetsha, N. (2012). Adoption of cell-phone banking among low-income communities in rural areas of South Africa.

Nugroho, M. A., Susilo, A. Z., Fajar, M. A., & Rahmawati, D. (2017). Exploratory Study of SMEs Technology Adoption Readiness Factors. Procedia Computer Science, 124, pp.329-336.

Nugroho, M.A. & Fajar, M.A. (2017). Effects of technology readiness towards acceptance of mandatory web-based attendance system. *Procedia Computer Science*, *124*, pp.319-328.

Parasuraman, A. (2000). Technology Readiness sIndex (TRI) a multiple-item scale to measure readiness to embrace new technologies. Journal of service research, 2(4), pp.307-20.

Rogers, E.M. (1995). Diffusion of Innovations: modifications of a model for telecommunications. *Die diffusion von innovationen in der telekommunikation*, pp.25-38.

Sahay, M.R., von Allmen, M.U.E., Lahreche, M.A., Khera, P., Ogawa, M.S., Bazarbash, M. & Beaton, M.K. (2020). *The promise of fintech: Financial inclusion in the post COVID-19 era*. International Monetary Fund.

Schaub, E., Arnold, J. & Gammage, S. (2020). Pathways to Income Generation: Evidence from a Global Investment in Gender Equality and Women's Empowerment. Available at https://www.icrw.org/wp-content/uploads/2020/06/PthwysIncome_v5-digital.pdf

Suri, T. & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. *Science*, *354*(6317), pp.1288-1292.

Tang, H. (2019). Peer to peer lenders versus banks: Substitutes or Complements? The Review of Financial Studies, 32(5), pp. 1900-1938. https://doi.org/10.1016/j.jfi.2019.100833

Tchouassi, G. (2012). Can mobile phones really work to extend banking services to the unbanked? Empirical lessons from selected Sub-Saharan Africa countries. *International Journal of Developing Societies*, *1*(2), pp.70-81.

Thakor, A.V. (2020). Fintech and banking: What do we know? *Journal of Financial Intermediation*, *41*, p.100833.

The SEEP Network, https://seepnetwork. org/files/galleries/SEEP_Savings-Groups-and-the-Role-of-Government-in-SSA_v2. pdf (Accessed 2 May 2022).

Van der Wansem, S. (2013). *Financial inclusion: Banking on mobile phones* (Doctoral dissertation, Master's dissertation]. Wageningen University, The Netherlands. http://edepot. wur. nl/317936).

Van Deventer, M., De Klerk, N. & Bevan-Dye, A. (2017). Influence of perceived integrity and perceived sstem quality on Generation Y students perceived trust in mobile banking in South Africa.

Wambua, A. & Wamuyu, P.K. (2020), May. Role of mobile applications in mitigating challenges faced by informal saving groups. In *2020 IST-Africa Conference (IST-Africa)* (pp. 1-11). IEEE.

Luo, X., Zhang, H. Li, J & Shim J. P. (2010). Examining multi-dimensional trust and multi-faceted risk in initial acceptance of emerging technologies: An empirical study of mobile banking services, *Decis. Support Syst.*, 49(2), pp. 222–234, doi: https://doi.org/10.1016/j.dss.2010.02.008.

Yermack, D. (2018). *FinTech in sub-saharan Africa: What has worked well, and what hasn't* (No. w25007). National Bureau of Economic Research.

Zeidy, I. A. (2022). The role of financial technology (FinTech) in changing financial industry and increasing efficiency in the economy. *COMESA Monetary Institute. Available at https://www. comesa. int/wp-content/uploads/2022/05/The-Role-of-Financial-Technology. pdf*.