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Digital Finance Revolution in E. Africa: Retail Bank's Adaption to a changing Marketplace

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Digital Finance Revolution in E. Africa: Retail Bank's Adaption to a changing Marketplace

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Abstract

The question of how retail banks adapt to a changing market place that is driven by disruptive Fintech firms is increasingly becoming important. This is especially critical in East Africa where banks have traditionally had limited presence. This paper examines the impact of digital technologies such as mobile money and mobile banking on retail banks' channel strategy. We introduce a technology and innovation adaptation model for retail banks; consisting of digital channel adoption, changing consumer preference and how these factors influence banks' adaptation strategies and distribution channels. A SEM analysis based on a survey of over 100 bank managers from mainly cross border retail banks in East Africa was carried out. The study results suggests that digitization and consumer preferences have statistically significant impact on retail banks' adaption strategy. Our findings show that, for retail banks to remain competitive and relevant in the new digital marketplace, they must think beyond traditional distribution strategies such as branch banking and embrace new possibilities provided by digitization like digital banking services. While some banks that offer a mixture of traditional and multi-channel models are attractive to the consumers, others that partner with new players such MNOs to offer digital banking stand at a higher competitive edge. The key implication is that digitization is tied to success of retail banks in the new market place.

Keywords: Retail Banking, Digital Finance, Mobile Banking, Financial Policy, E. Africa

1. Introduction

The financial system in East Africa has for a decades been dominated by traditional banks, despite this market dominance, the banking system in region has been described as shallow and less inclusive. A recent study showed that out of 100 adults, only 15 had accounts in financial systems and there is only 3.1 branches per 100, 000 adults(Beck and cull, 2013). However,

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recent advancement and wide acceptance of mobile communication and internet has ushered in an era of digital finance inclusion and Fintech. These two forces are changing the whole financial access equation in the region by introducing new player's namely Mobile network operators and Fintech firms to the banking industry (Mckinsey 2017). The on-going changes are further exuberated by innovative regulatory changes which allow for experimenting with digital finance technologies as well as changing consumer behavior leading to a fierce competition and battle for consumers between banks and the new players.

But what is Digital finance?, in this article we adopt the definition by CCAP, (2015) which defines it as technologies which enables previously excluded customers to digitally access and use formal financial services provided by financial institutions and agents, through transactional platforms using mobile devices. Similarly, Fintech which is a short term for financial technology generally refers to software and other technologies used to facilitate banking and financial services. Recent studies suggests that the wide acceptance of digital financial innovations such as M-PESA and Fintech services such WorldRemit in East Africa is likely to have a disruptive effect on the regions banking industry. This is especially due to fact that retail banks stand to lose out some financial services such as money transfer, payments, savings and small loans as the new players "cream them off" retail banking value chain (McKinsey, 2016). Currently, retail banks offer branch banking, internet based- mobile banking services through apps and agent banking to their customers, while MNOs and Fintech firms provide similar services through SMS based- Mobile Money services and apps respectively.

Considering the disruptive effect that digitization has on banks, it is expected that many banks will have to reconsider their business strategies and models. This is so because innovation has traditionally pushed incumbent firms to change strategy, while some retail banks may actively adopt innovation, others may not due to inertia. Recent developments in the regions banking industry suggest that some retail banks are changing their strategies. For instance big regional banks such as stanbic bank , commercial bank of Africa and Kenya commercial banks have formed strategic partnerships with the largest MNOs due to wide popularity of the latter's digital finance platforms. How this unlikely marriage between "competitor- turns- partner-turns-competitor" will play out in the future is presently unclear and needs explorations, however what is clear is that small banks which are unable to form partnerships with "almighty" MNOs are likely not to survive in the banking finance market place of they don't innovate (Mckinsey, 2017). More so because, recently, MNOs are leveraging their partnerships with big banks to boldly enter the banking space such as loan services such as MShwari in Kenya provided by KCB bank in partnership with Safaricom, MOKash and MPawa which are provided by big bank-MNO partnerships in Uganda and Tanzania respectively.

Another emerging trend in East Africa which calls for further research on impact of digitization on bank strategy is that many retail banks are trying figure out how to strategically respond to changing market dynamics. For instance some banks such as Stanbic bank, Bank of Africa are altering their distributional networks by closing branches and refocusing their efforts to digital services and branchless banking (BBC. 2017, daily monitor, 2017). Others such as equity bank are experimenting with new business model such as Mobile virtual network operator

(MVNO) Bank, a model that allows them to directly compete with MNOs in provision of financial services and gain competitive hedge in the regions banking industry. Still many majority of the banks in the region are laggards and haven't figured out how to innovate and stay competitive.

While retail banks are contending with MNOs over who controls the banking service market, Fintech firms such as WorldRemit, Remit, and Terrapay have joined the financial innovation frenzy to further undercut banks in some financial service markets such as in the international remittance. This changing market place as described above raises a lot of issues and questions. First, how banks innovation – and its response to innovative ideas change in face of “disruptive innovation/ innovation shock?, Second, what is the future of traditional banking distribution channels in East Africa in new innovative market space, Third, what are the strategic competition dynamics between traditional banks, MNOs and Fintech firms in the mobile banking market space? And lastly, which banking channel models are like to emerge and dominate the industry and why? These questions are extremely important to the players involved and should be answered through a thorough study of strategic competition in the changing marketplace.

In this paper we seek to explore and understand the impact of digital financial innovations on the retail banks strategy. While there some existing literature on impact of internet on banking distribution channel Mol et al., (1999) , we argue that most of these studies where for specific markets such as European and America 's markets and thus their context is different from that of East African Market. Secondly, most of these studies where researched in a period where bank innovation strategy meant that banks adopted innovation as tool to get competitive advantage over other banks, which we define as competition from within. It is therefor not clear if their findings and implications apply to the new digital era which has ashered in non-banking firms in banking industry , an era we have define as competition from out. Our focus in this study is not to compare different market contexts but rather to take stock of trend in East Africa s banking industry and our aim is to uncover how digital innovations are impacting retail banks strategy. A gap which is not filled by literature and as resulted in scanty research on competition strategy and lack of proper understanding of contemporary issues in East Africa's banking industry, a gap which this study attempts to fill.

The remaining structure of the article is as follows. In section 2 we describe the characteristics of East Africa's banking industry in order to elucidate on the rise of digital banking. In section 3, we present the literature review and the theoretical framework with corresponding hypothesis development. Section 4 describes the data and methodology used in the study. In section 5 we present the results and in last section we conclude the paper with implications of the study.

2. Characteristics of East Africa's Banking Industry

The E. Africa's region banking environment shares some characteristics that have defined and shaped how banking is done in the region the past few decades. The industry is as previously mentioned is shallow and the players in the market only offer simple banking services to an exclusive urban market. This shallowness is due to some regional market characteristics which

makes it difficult for the banking industry to grow (Beck & Cull, 2013). To begin with, the size of East African economy although growing at impressive rates is small, which means that players in the banking industry cannot enjoy the benefits which accrue from scale economies. Similarly, the overall per capita income in the region is small, for instance the in the 3 sample countries of our study, Uganda is a paltry 615 US dollars , Tanzania is 879.19 US dollars and Kenya is 1455 dollars, the small per capita income has two main implications, first, it implies that overall the region has limited viable customers. Second, it implies that there is low demand for formal banking products (savings, loans etc.).

This is compounded by widely scattered population across the region which makes it costly to provide banking infrastructure and services, for example according to World Bank, in 2016 , Kenya had only 5.4 branches, Uganda had 2.8 while Tanzania had 2.5 for serving 100,000 adults in the region. It is there no surprise that account ownership in MNO networks has easily overtaken accounts in traditional banks in East Africa, and in some countries like Uganda, accounts in financial institutions are actually in the decline see figure 4 below.

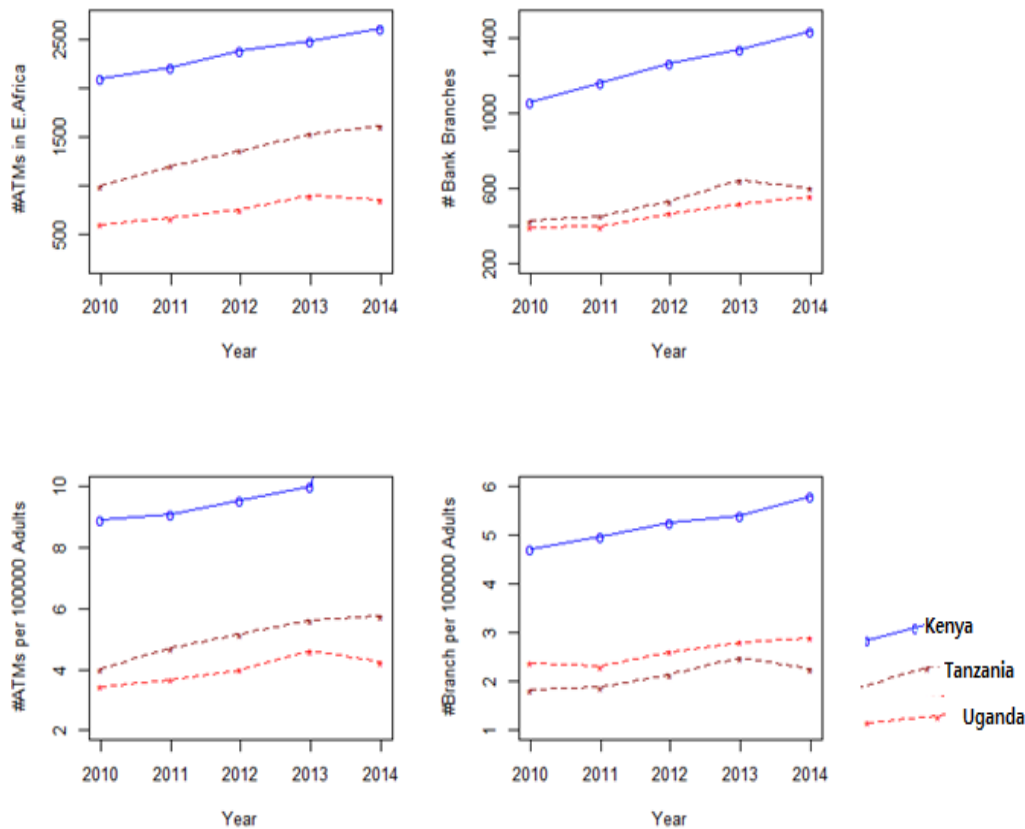


Figure 1. Access to Banking in East Africa

Regarding banking infrastructure, as of 2016, Kenya has only 9.2 ATMs, Tanzania has 5.99 and Uganda 4.3 ATMs serving 100,000 Adults. The absence of banking infrastructure has resulted in the increased usage of mobile and digital platforms for financial transactions in the East African region. Figure 1 above shows that there is a consistent upward growth in Uganda, Kenya and Tanzania from 2009 to 2012 for the available data. Emerging reports indicate that this digital platforms have overtaken traditional banks in their transaction volumes across the region

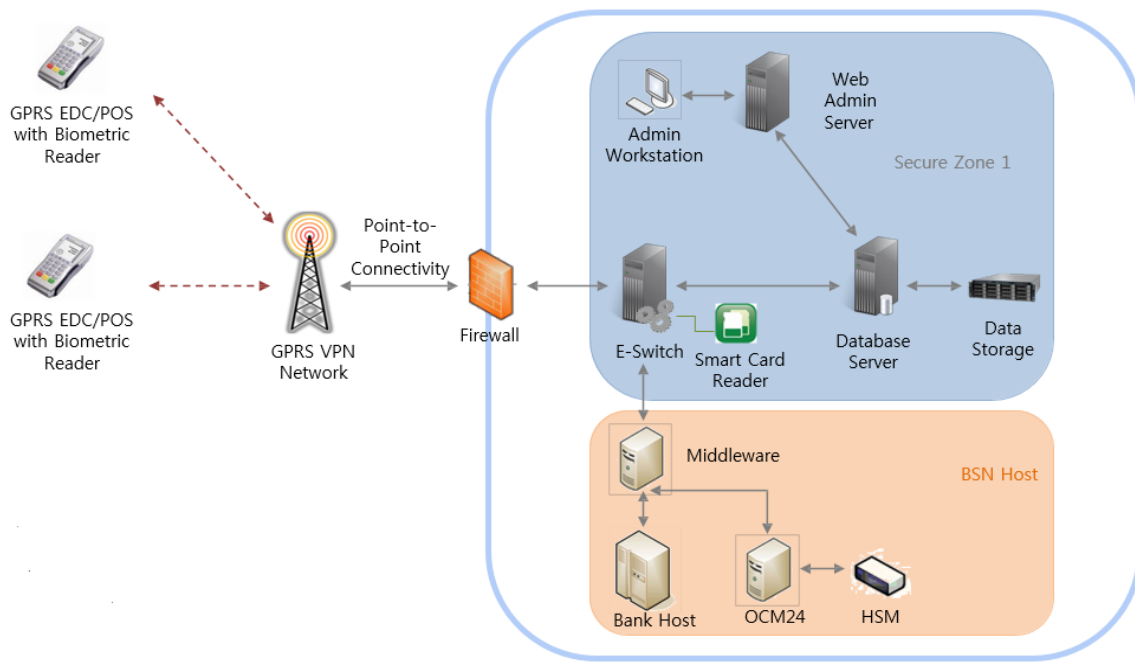


Figure 2. Emerging Branchless Banking Model

Secondly, in East Africa, the biggest percentage of population do their business informally and are outside the formal business channels. This informality means that they lack access to formal records (IDs, land titles, registered companies,) used in main stream banking industry. As a result, there is a small number of customer s who borrow from banks in East Africa, for example, as Kenya which is the highest had about 160 borrowers per 1000 people, Uganda and Tanzania has about 25 borrowers per 1000 and the data shows a downward trend the later countries as shown in Figure 3. This may be an indication that the region is not attractive for formal banking services such as loans and as a result, it is an expensive and risky venture for banks to provide services to larger parts of E. Africa’s population.

The high cost of lending has alienated banks from big part of the market which means that there is gap in the market that could be filled by low cost loan schemes that has been filled by

micro lending through micro finance institutions, and recently MNOs have entered the lending market space by offering small loans services as mentioned in the introduction section above. The success of MNO micro lending schemes such as Mpesa loans² in Kenya, MoKash³ in Uganda and M-Pawa in Tanzania⁴ proves that the market is available, but only for institutions that have successfully designed services that are suitable for market and that products that banks have offered the last two decades could only serve a limited number of users which further limited their potential for growth and competitiveness.

The new market place therefor demands that retail banks drop the legacy thinking and way of doing banking in order for them to remain competitive in the new market place.

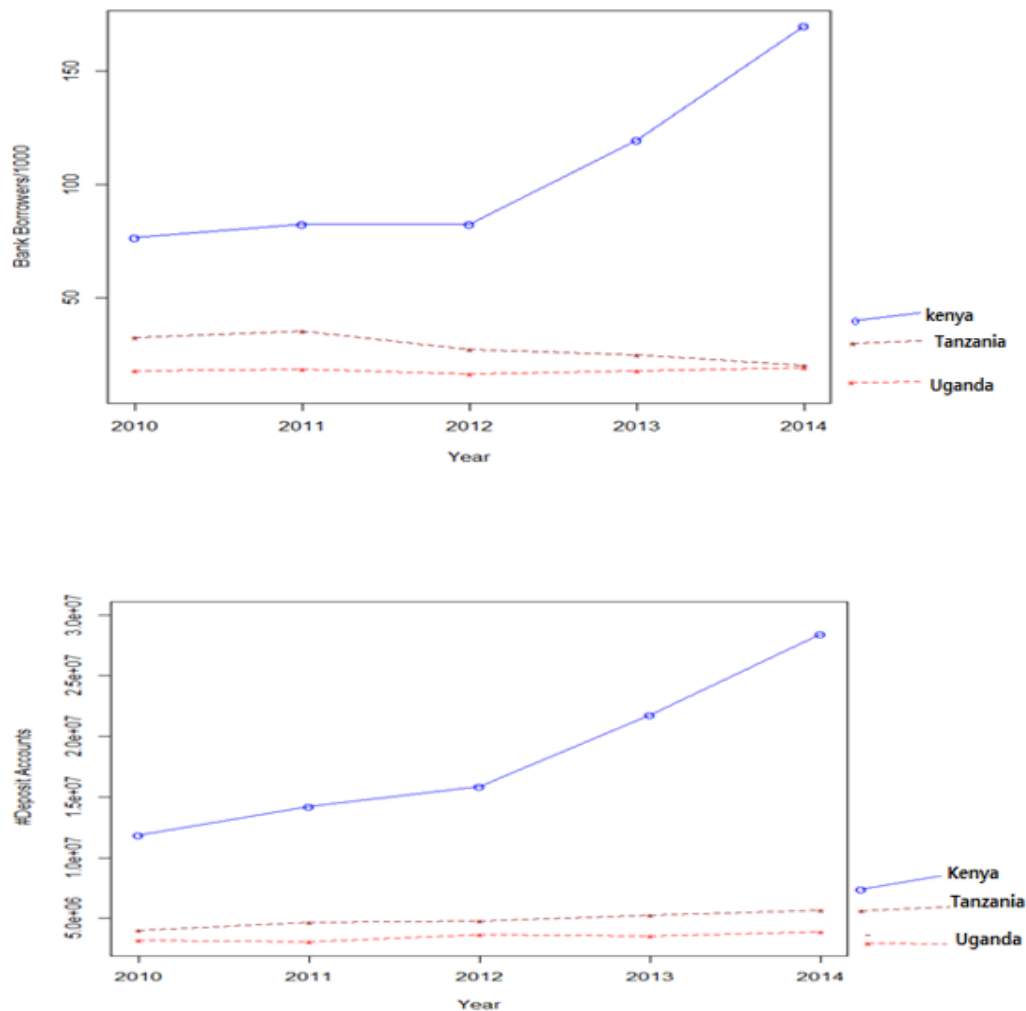


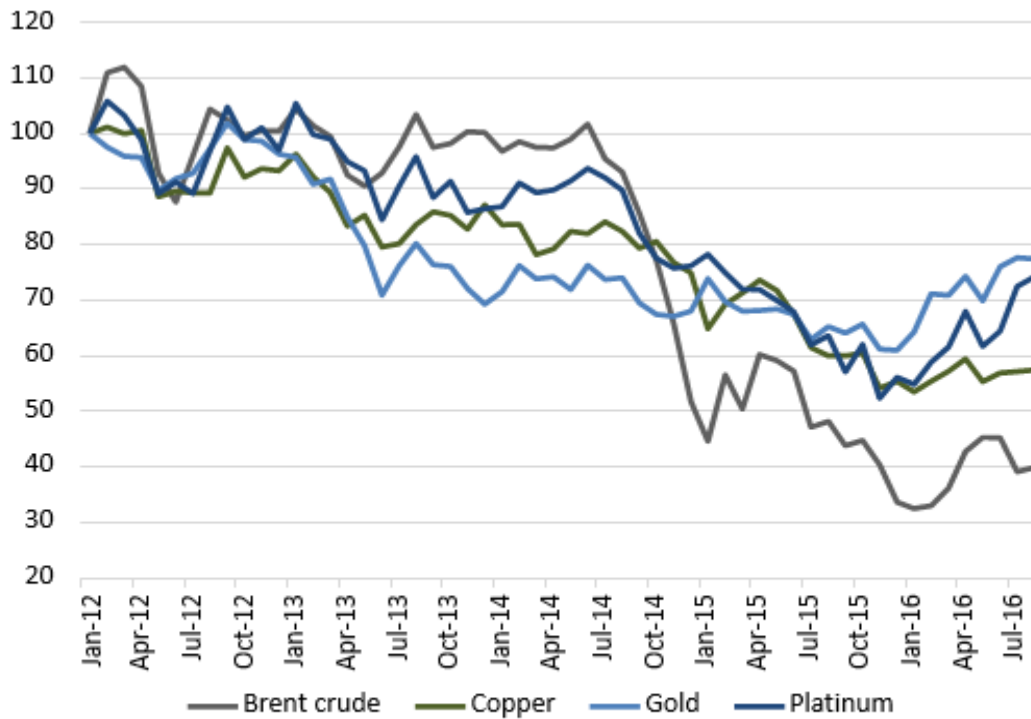
Figure 3. Number of Borrowers/1000 and Number of Deposit Accounts

2 KCB group issued Shs. 8 billion in Mobile loans through Mpesa Platform

3 MTN launched MoKash saving and loan service in Uganda in 2016

4 Vodacom Tanzania launched Mobile saving and lending service in collaboration with Commercial Bank of Africa in 2014

The third point as Stuart , (2017) showed is that the region’s economies are volatile and are susceptible to price changes and large exchange rate movements, which is a result of multiple factors including heavy dependence on commodity exports, political instability, social instability among others which makes banking and investing in the industry complex.



Source: Inet BFA

Note: Based to 100 at the start

Figure 4. Selected Commodity Prices

Finally political instability across the region especially in Kenya and Uganda is an ongoing threat to economic players including the banking industry and its ability to fully deliver services to its customers by limiting investments in the banking sectors.

3. Literature Review

Digital finance in simple terms represents the “electronization”- i.e. turning transactions and financial services electronic or digital (Gomber et al, 2017). This encompasses every form of bank service or product which is delivered by electronic means, examples of digital finance may include but not limited to the following automated teller machines, internet banking, mobile banking, and mobile money.

The latest form of digitizing of finance is Fintech, which is a term derived from combination of terms finance and technology, it can be defined as internet based innovations that relies on advanced communication tools and information processing to facilitate financial transactions. Fintech typically involves innovators in form of start-up s that develop business models which unbundle the traditional banking sector by offering dynamic, secure and better tools for financial service provision (Lee 2015a).

The retail banking industry has traditionally utilized the branch network in the provision of banking services (James, 1995). However recent advances in technology and information processing as already mentioned means that service provision is changing into fully digitization and providing the thrusts that change consumer behavior. The introduction of technology is not new, indeed, at one point, it was believed that the introduction of ATMs would replace branches but time proved those studies wrong as ATMs become complementary rather than substitutes.

Historically technology has been introduced in banking from time to time starting in the introduction of tabulator to automation of bank statements in 1916s during the early mechanization, technology then evolved in the 1960s to early 1980s to introduction of ATMs, automation of branch accounting, Teleprocessing among others, this period marked the beginning of real time bank service provisioning according to Batiz-lazo and wood, (2002).The adoption rates of technology were still low due to still developing communication technology at the time.

The period of 1983 -2015 marked the era wide spread adoption and diffusion of technology in banking sector, (Batiz-Lazo and Wardley, 2007; Batiz-lazo, 2017) it was in this era that witnessed the introduction of e-Finance, E –wallets, digital finance, mobile banking, mobile payments, digital currencies and financial inclusion. The thrusts to the phenomenal growth in diffusion of technology in the banking sector came from lowering of communication technology costs, wide spread use of internet technology, high level of adoptions on mobile communications on the supply side, while on the demand side, the impetus to adopt these services come from convenience, ease of use, reduced costs among others.

The level of use of technology and banking development vary from region to region and country to country, advanced countries tend to have well established banking sectors with well-established technology infrastructure that enables banks to provide multi-channel distribution networks to their customers, developing countries on the other hand with less technology infrastructure, some with wide population dispersion has resulted in concentration of fewer banking services to specific areas usually capital and main cities.

These differences have shaped how technology shapes banking in the respective markets as above, for example according to Beck & Cull, (2015), the wide spread adoption of mobile banking through new players such as MNOs in developing countries of Africa can be attributed to low penetration of banks and bank branches. Conversely, according to Kwon and Lee, mobile banking in Korea, a country with well-established technology infrastructure, efforts by MNOs to enter the banking industry of Korea didn't succeed even if they could control the gateway to wireless communication, because banks were well established and the emergence of smart phone apps meant that they didn't have to rely on MNOs.

The introduction of technology in banking sector in form of mobile banking, Fintech technology and digitization of banking value chain is triggered wide spread interest in both the industry and academia for the past two decades. It appears that the development of technology has grown hand in hand with academic research. In the academia, the interests range from covering the demand side of banking service distribution to supply side distribution of banking services to customers, while a limited number of empirical studies have focused on strategic competition issues in the banking industry that arises from technology innovations.

A number of theories have been used to by different researchers to study and illuminate on the subject, on the demand side, the most widely used theory is technology acceptance model (Venkatesh, Morris, Davis, & Davis, 2003), innovation diffusion theories, (Rogers, 1995) and theories of planned behavior and extended variations to understand why users adopt digitization in banking through mobile banking and other channels in developing countries (Shaikh & Karjalainen, 2014; Ngugi, Pelowski, & Ogembo, 2010; Irura & Munjiru, 2013)

Other studies for example Mbiti and Weil (2011) tried to explore impact of digitization on traditional banking channel, in their ground breaking study of the impact of MPESA in Kenya, they found that increased use of digital tools such as M-Pesa reduced peoples use of informal channels and opened possibilities for these previously unbanked to get "banked", they also found that use of these digital services lowered to cost of banking services. While their study provided important findings, it could not capture strategic responses of traditional banks to the entry of digital platforms in the banking industry.

The supply side studies have been concerned with understanding drivers that influence banks and banking service provider choice of service delivery, there is extensive literature on banking distribution channel. For example, according to James F Devlin (1995) in his study of banking innovation in the UK, he qualitatively captured the developments in banking distribution channels, and suggested that on the supply side, factors such as deregulation, technology and resultant market structure determines the channel which banks will select in the delivery of banking services.

This study although very useful didn't provide empirical basis for the study and its conclusions, moreover, it is not always the case that some factors like regulation deregulation will impact since it can also be argued that regulation or deregulation measures sometimes come after innovations have already effected changes in the market, furthermore, this study does not explain how traditional banks respond to digital innovations. Similarly Neil et al (1999) studied

the distribution channels strategies of Danish retail banking using distributional channel theory, in this study, the authors developed the adaptation process in the distribution channels, they validated by surveying bank employees in Danish banks, despite its introduction of conceptual model for understanding, the study according to the authors fell short of explaining how digitization impacts channel choice and strategy by incumbent players.

There is generally limited papers focusing on strategic competition perspectives of the traditional banking players in face of competition brought about by digitization, in one of the earliest attempts to address this important question, Kwon and Lee (2010) explored to hegemonic struggle between MNOs and retail banks which gave a thorough review how the struggle has evolved qualitatively, and they found that in the end banks prevailed over the digital finance market of Korea because they were well established and the emergency of smart phones and smart phone apps reduced the need for relying on MNOs. This was useful finding, however, it is hard to be generalized to other countries case, moreover, it was at best premature to make the conclusion as Technology has evolved and now MNOs have entered the banking industry including in the Korean market.

Finally most papers are written for the already established markets with solid technology infrastructure, their findings may have limited implications in market contexts where banks have limited footprint and technology infrastructure is limited. This study therefor seeks to address these missing gaps by exploring how incumbent banks and their response to innovative ideas change in face of disruptive innovations Secondly by addressing the strategic competition dynamics between banks and MNOs in the digital finance market space? Lastly which banking model gets hegemony over the market and why? In the next section we discuss theoretical framework of the study and methodology used.

4. Research framework

The proposed research framework inspired by work on banking distribution channel such as (Mols, Nikolaj D. Bukh, & Flohr Nielsen, 1999), is formulated based on thorough review of theories on banking from both a supply side and demand side. On the demand side, the framework is rooted in theories of technology acceptance and consumer behavior (Kolodinsky, Hogarth, & Hilgert, 2004) studies while the demand side is rooted in distributional channel literature (Li, 2002) Figure 11 below.

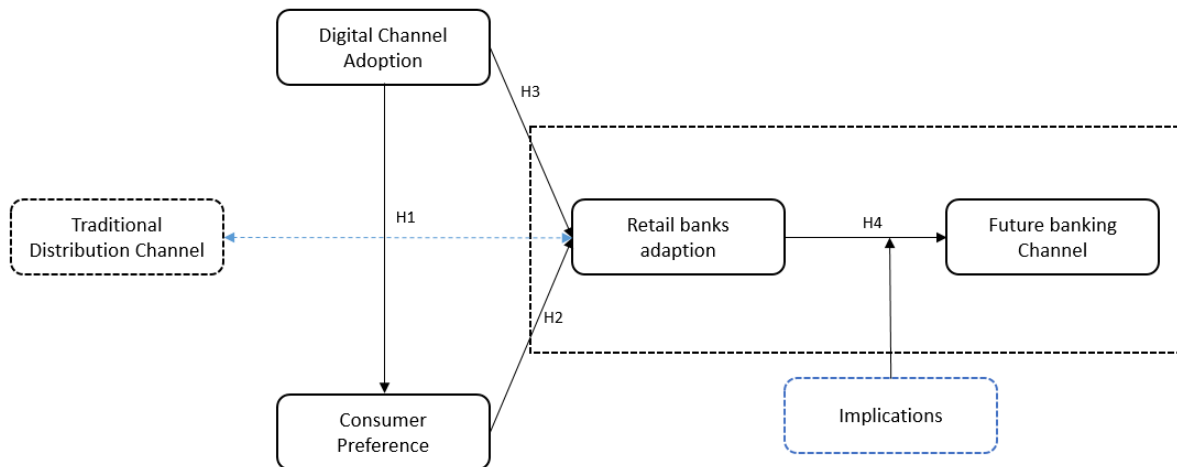


Figure 5. Proposed Technology and Innovation adaption Model for retail banks, adapted From Mols et al, (1999)

4.1. Digital Channel adoption and Retail banks Strategy (H3)

Technology has throughout history played a core role in the functioning of bank and has influenced banking distribution channels. Literature is a washed with a lively debate on whether technology will finally replace the core functioning of banks and in particular the role of branch in baking system. Earlier research for instance predicted that Automated teller machines would replace banks, however other researchers (Consoli, 2008) in a longitudinal study proved that it was possible for dual evolution in banking innovation system where communication technologies while core to banking becomes complementary to existing systems. Other studies (Bulgărea, 2011) have also supported the idea that branches has main means of banking distribution channel are here to stay showing increasing reliance on branches in Europe.

These studies represent a school of thought which argues against another ideas suggested by likes of Bill gates, who suggest that unless banks evolve using technology, they will become extinct like dinosaurs. Other literature for example by Heffernan, (2005) strikes middle ground in this debate by arguing that while technology for example digital finance will not replace banks, the adoption of digital products will change the way intermediary services are delivered.

Regardless of the side of the debate, most of these studies represents a period in which technology adaption in the banking industry was motivated by internal forces and competition within the industry, and didn't anticipate a time when banks could face competition from players who use latest communication tools to take part of banking value chain, which represented a period intensified competition from out. In the competition from within, banks adapted to technology innovations to gain competitive advantages in the industry (Chang, 2003) , as means of cost saving , tools for improving performance , (Xue, Hitt, & Harker, 2007), customer relationship management (Durkin & Howcroft, 2003) among other functions within the industry.

According to kwon, and lee, (2010) this limited perspective of impact of digital technologies such as mobile banking on incumbent banks could be because these technologies were viewed as an additional channel to bank services, besides, the digital technologies were in the nascent stages and thus limited data to for empirical studies. At the time of their study, competition from out was just beginning to emerge as reflected by entry of MNOs in Korea' banking industry which eventually failed.

However as Marinč, (2015) noted, there are on-going fundamental changes in the banking industry due to IT innovations and entry of new players especially Fintech firms and MNOs in the banking industry. This research proposes that the adoption and usage of digital channels to deliver banking services by new players such as MNOs and Fintech firms is the game changes and will influence incumbent banks strategic choices in terms of delivery channels especially in markets where banks have limited presence such as East Africa.

First, digital channels for delivering financial services like mobile banking and mobile money have brought with them their own "branch" network, which is cheaper to deploy compared to establishing actual branch by incumbent banks. As result new entrants have scaled their branch network (Ndungu & Njeru Lecturer, 2014), across East Africa faster than incumbent banks (Mwando, 2013) in banking. The result is that these channels enabled the new players, chiefly MNOs to solve the financial distributional issues that have dodged retail banks for decades as well as allowing proximity to customer (Alexandre & Gates, 2011), the current market situation in East Africa points to the fact that these channels are substituting for retail bank branches as evidenced by some banks closing branches across the region, the key question however is how banks will strategically react to the ongoing transformation. This research therefor propose that retail banks channel strategies will be influenced by digital channel adoption and usage, this is based on the fact as above that the successful adoption of digital channels in E.Africa, their wide reach to customers through mobile will compel banks to rethink their distributional channel strategies. More so because, for retail banks to survive and compete in the new "digital age", they will have to evolve and develop delivery models which are scalable to retain existing customers as well reach out to wider consumer in cost effective way compared to traditional branches, or other channels such as internet banking that are presently used.

4.2. Technology adoption and consumer behavior (H1)

Secondly, digital channels such as mobile money and their corresponding network of "human" ATMs have an influence on changing consumer's behavior in terms of preferred methods for banking. According to Maurer, Nelms, & Rea, (2013), these channels copy the functionality of typical retail bank branch or ATM. This means customers who are "unbanked"- that is consumers who cannot access formal banking, can still access financial services such as transfer, deposits, savings and loans through their mobile phones without ever stepping in a bank. All this is made possible because the new service by MNOs relies on extensive human agents who facilitates the cash-in and cash out- a process that involves digitizing value and loading it into MNO banking system and converting it back to cash (Eijkman, Kendall, & Mas,

2010). Beyond this main functionality digital banking, agents usually act as branch tellers who provide services such as tutoring customers on system usage, registering customers and are usually link between MNOs and customers. To consumers the digital channels offers compatibility, convenience, cost effective, faster, accessible services, all which are in limited supply in the East Africa's traditional branch model. In this research, we propose that digital channel agents is sifting consumer preference away from retail banking to new players based not only on premise above but also on that fact digital channels are closer to consumers and therefore more convenient to use. Hence banks have to rethink their strategies.

4.3. Consumer preference and Retail bank's Distributional Channel strategy (H2)

Research on effect of consumer preference of retail banking distribution channel is well established, for stance Literature on distribution channel theory points out that what customer wants is critical in determining how services will be delivered to them. This could be as result of factors such as willingness to pay, switching costs among others. According to Laukkanen, (2007). There is diversity in banking channel preference, as those who use digital channels such as internet banking have different preference to those who use mobile banking channel. In the case of East African consumers, digital channel such as Mpesa have become the face of their banking and financial services (Stenitzer, 2015). This introduces the aspect of promotion and branding where customers who are consistently exposure may influence preference. Moreover, the wide spread adoption of digital finance channels as reported by (money&survey.,2011;Etim, 2014;Muya, 2016) may be creating a network externality effect (Choi, 1994) , which may influence even those with customers with bank accounts may switch to use digital channels by new players since many other customers are already using it. Others studies for example (Calisir & Gumussoy, (2008); Karjaluoto, Mattila, & Pentto, 2002) point to consumers demographic traits such as education, age and they suggest that this may influence consumer preference of banking distribution channel. Similarly, in case East Africa with world's youngest population and who are known to prefer digital channels may suggest future direction of banking channel strategies. This research proposes therefor that consumer preference has positive influence retail banks distributional channel strategies in the new digital finance environment of East Africa.

4.4. Retail bank's adaptation strategy

Proper understanding of new technologies and threats of new arrival are historically recognized for bringing competitive advantages to firms that adopt them or adapt to them (Porter, 2008). However there is divergence of views on how incumbent firms adapt to new environments and technology stimuli's that may come for new entrant. According to Leonard-Barton, (1988), technology adaption is a process of continuous alignment of cycles of miss-aligned involving the user environment and technology until such as point when technology, the delivery system and performance criteria fits. The current research argues that the process above is more adaptable to cases where firms are adapting to technology innovations and competition

within the industry. For instance when a retail bank introduces internet banking to gain competitive edge over other retail banks in similar industry, this process will be important because internet banking may not be the aligned to user environment. For example in an environment such as Africa where there are more mobile users compared to internet uses, retail banks may correct the misalignment by adding additional mobile banking channel or eliminating internet banking from their delivery channel and they will repeat the cycle until they have perfect product or services fits that market.

However it's not to clear how this process plays out in cases of where a firm's strategic choices are influenced by wide acceptance of new competitors innovation, we suggest in this research similar to (de Lange, Armanios, Delgado-Ceballos, & Sandhu, 2016), that a firms strategic response may involves collaboration with competitors, cannibalization of their existing technologies and delivery systems, mergers among other strategic responses. In the case of retail banks in East Africa digital finance system, one emerging trend is that of big bankers are partnering with big MNOs to tap into new markets as well as retain existing customers. However there is are limitations to this model such as leaving out majority of 'smaller' banks who are not in partnerships with MNOs, and thus these banks will have to explore other strategic choices in their adaption process. Moreover, partnership between MNOs and Banks as an adaptive strategy may not work out given the wide variations their objectives and existing structures (organization and operations), (Gupta, 2016). This means that still, other banks may have to explore other strategies within the digital finance framework. This article therefor proposes that the existing retail banking distributional channel strategy will be aligned to new competitor's digital innovation strategy, this is based on the argument as above that, for retail banks to remain competitive, they will have to forge partnerships with MNOs, or implement similar technologies, and this may entail cannibalization of their existing systems to be able to compete in new market environment.

4.5. Retail bank's adaption to technology innovation, and New/Future delivery channel (H4)

As a result of changing dynamics as described above, and digital finance innovation which as Li, (2002) as showed, will have an impact on type of banking services and delivery models that will be developed in East Africa. First because the adaption process in the new banking environment will lead to new innovations, some might be hybrid versions that take into consideration of retail banks and MNO systems, to deliver a new banking channel provided by joint partnerships between banks and MNOs. Equity bank M-Swahiri is such example, others may develop different system, as already mentioned elsewhere. Bottom line here is that new systems will be developed to align to new market environment. The paper therefor proposes that the bank adaption process which a bank chooses positively influences new banking new innovations which are more aligned to the new market environment, these may mean replacing existing technologies or complementing existing technologies to deliver services to customers

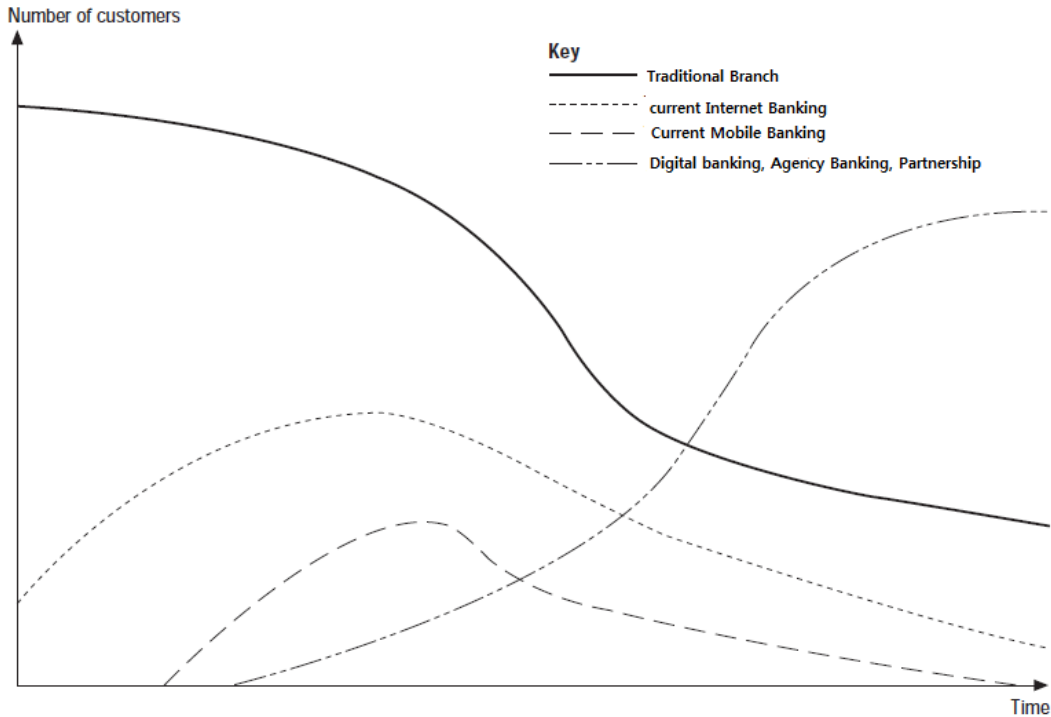


Figure 6. Possible Banking Scenario in E.A Banking, Modified from Mols et al 1999

5. Research Methodology

The study qualitatively explored how banks in East Africa are responding to digitization using a questionnaire, which was sent to mainly senior managers working in cross border financial institutions, some of which control the largest market share of formal banking in the region.

As a starting point, a pilot study involving experts in the field of digital finance, mobile banking as well as senior practitioners in the banking industry was conducted to ascertain the viability of the survey. The experts were composed of researchers with PhDs in relevant fields, PhD and Graduate students at masters level majoring in Business with considerable understanding of business and innovations. The study also involved preliminary pilot with senior practitioners in the banking industry to assess the feasibility of obtaining quality data for empirical analysis. Following which a questionnaire was designed using their feedback, and a thorough study of relevant literature on digital finance.

The study used a questionnaire to obtain relevant data for the key variables covering the study. The main aim of these survey was to explore key themes of digitization in banking industry and how they are impacting retail banks strategy from bank perspective. The survey for this research, was conducted in the months of February and March 2018, respondents from varying backgrounds and working in banking industry in East Africa were invited to participate

in the study. This way of conducting the study enabled a comprehensive coverage from all angles and a wider perspectives (Bradley and Stewart, 2003).

The study questionnaire was sent to the banks through an experienced research firm called insight wells, based in Nairobi. The research firm followed up and made sure that banks assigned respondents to answer the survey. The retail banks such as KCB, equity bank, Standard Chartered, Barclay, Bank of Africa among others which were contacted were mainly because they have strong presence in all the three East African countries under study, but also because cross border banks tend to apply same template when implementing strategies in the region.

Similar to (Gikandi & Bloor, 2010) the goal the questionnaire was capture emerging issues related to digitization of the banking industry, while there study focused on understanding technologies changes as a key factor in banking industry, this study zeroes in channel strategy and competition dynamics in the industry.

Table 10. The Questionnaire items

	Items capturing retail banks Distributional Channel strategy in East Africa	Source
Distribution Channel	The bank attaches decisive importance to expanding digital channels to its customer than branches	Mols et al, (1999)
Bank adaption	The bank attaches decisive importance to offering customer friendly Mobile banking services	Severino, Tonderai, & Life,(2015)
	The bank attaches decisive importance to offering Mobile money service in partnership with MNOs	Mckinsey & Company, (2017)
Distributional Channel	The bank attaches decisive importance to offering customer friendly internet banking services	Li, (2002)

	The bank attaches decisive importance to offering to offering a customer friendly integrated banking services	Laukkanen, (2007)
	Items measuring other Market mix elements	
Customer Preference & Segmentation	The bank attaches decisive importance to serving all customer segments	Gupta, (2013)
	The bank attaches decisive importance to fast service to consumers	
	The bank attaches decisive importance to convenient services to customers Retaining existing customers and reaching wider consumers is important	
Future Banking Channel	The bank attaches decisive importance to offering Mobile money service in partnership with MNOs	Mols et al, (1999)
	The bank attaches decisive importance to offering a customer friendly integrated banking services	
	The bank attaches decisive importance to offering customer friendly internet banking services	

The study findings were further supplemented with case studies given the exploratory nature of the study (Donner, 2008), complimented with secondary data sources in mobile banking surveys, banking industry trend studies. In addition latest reports and articles related to digitization, digital finance, mobile money and mobile banking trends in East Africa were examined.

The multi-dimension method above was a natural choice for the study because digitization of the financial industry is in the early stages and there is not a lot of existing data to support an empirical study,

as experienced by other similar studies (Kwon and Nam 2007), secondly obtaining industrial level data from banks is usually not easy given the bureaucracy and industrial secrets issues (Ochieng and Marcharia, 2014).

5.1. Data collection and Analysis

In the following table, a breakdown of respondent's bank is presented, over 57 % of banks that were sampled are large banks with strong presence in the region. The survey used a 5-level Likert-type scale. Majority of respondents close to 60 percent had a post graduate degree indicating an expert understanding of the industry. Overall a total of 109 responses were out of which we obtained 99 usable sample. For data analysis, we used Structural Equation Modeling (SEM) technique and R-Programming using the Lavaan package (Rosseel, 2012) which as one of most popular tool for SEM analysis in R-Programming

Table 1. Profile of Bank Respondents

SIZE of Bank	Sample	Percentage%
Small Size	7	7.3
Medium Size	34	35.4
Large Size	55	57.3
Position of participant		
CEO	1	1
Head of Department	12	12.1
Branch Manager	15	15.2
Head of ICT	1	1
Other	70	70
Working Experience		
<5	35	35.4
5-10 years	33	33.3
11-15 years	18	18.2
16 and Above	11	11.1
other	2	2
Education		
Bachelor	35	35.4
Masters	43	43.4
PhD	16	16.2
Other	5	5.1

Table 2. Factor Loadings

Factor	Item	B	SE	Z	P-value	Beta
Digital Channel	Digital Banking	1.000	0.000	NA	NA	0.670
	Channel Coverage	1.135	0.183	6.215	0.000	0.749
	All Customer Coverage	0.631	0.137	4.594	0.000	0.502
Customer Preference	Fast service	1.000	0.000	NA	NA	0.879
	Convenient service	0.848	0.128	6.625	0.000	0.762
	Retain Customer	0.566	0.114	4.947	0.000	0.516
Bank Adaption strategy	Expand Digital	1.000	0.000	NA	NA	0.753
	Reduce Branch	0.832	0.168	4.967	0.000	0.541
	Smart App Banking	0.798	0.137	5.804	0.000	0.631
	Offer Mobile Money	0.813	0.286	2.842	0.000	0.515
Future Channel	Agency Banking	1.000	0.000	NA	NA	0.352
	Internet Banking	2.443	1.194	2.046	0.041	0.892
	Multi-Channel	1.633	0.786	2.076	0.038	0.773

The new digital banking environment as articulated in the proposed retail banks adaption framework above suggests that incumbent banks are faced with a new banking era which demands different strategic choices for them to remain competitive and serve the market. Below we discuss results are based on thorough literature review, survey questionnaire data from in East Africa's banking industry , regarding the direction that banks will have to take in terms of delivery channels.

5.2. Measurement Model

We conducted a confirmatory factor analysis (CFA) to check the construct validity using Lavaan package in R. then we carried out a reliability convergent validity and discriminant validity, see tables 13 and 15. Results indicate that most factors loaded above the recommended 0.7, which confirms the reliability of items that are measured in the study. In addition AVE and square roots of AVE obtained indicate that most of the items were greater than the recommended threshold of 0.5 and 0.85 respectively (Fornell & Larcker, 1981). All the other indicators such as the CFI, TLI, RMSEA and P-values of RMSEA (see results table 14), were above the recommended threshold indicating a good model fit.

Table 3. Correlation Table

	Digt.B	Reach	Servll	Fast	Covntt	Rtn.Ex	DgExpn	RdcBrn	OffrMM	OfferIB	OffrInB
Digt.B	0.642										
Reach	0.326	0.655									
Servll	0.180	0.171	0.458								
Fast	0.295	0.370	0.204	0.524							
Covntt	0.275	0.331	0.176	0.343	0.498						
Rtn.Ex	0.186	0.216	0.292	0.232	0.201	0.490					
DgExpn	0.276	0.306	0.169	0.136	0.115	0.078	0.656				
RdcBrn	0.211	0.215	0.136	0.107	0.076	0.063	0.359	0.875			
OffrMM	0.288	0.336	0.149	0.146	0.126	0.111	0.489	0.394	0.925		
OfferIB	0.216	0.251	0.138	0.109	0.094	0.064	0.366	0.294	0.604	0.863	
OffrInB	0.144	0.167	0.092	0.073	0.063	0.042	0.244	0.196	0.402	0.459	0.514

Table 4. Results of Hypotheses tests.

	Model Path	Estimate	Std.Err	z-value	P(> z)	Result
H1	Digital Channel adoption ~ Consumer Preference	0.809	0.130	6.230	0.000	Accept
H2	Consumer Preference ~ Bank Adaption Strategy	5.456	7.685	0.710	0.478	Reject
H3	Digital channel adoption ~ Bank Adaption Strategy	0.160	0.084	1.903	0.057	Accept
H4	Bank Adaption Strategy ~ Future Channel	0.446	0.211	2.111	0.035	Accept

Model Fit (Chi – square) = 0.000
Comparative Fit Index (CFI) = 0.867
Tucker –Lewis Index (TLI) = 0.817
RMSEA = 0.126
P-value RMSEA = 0.000
SRMR = 0.091

Table 5. Descriptive results

Decisive Importance attached	<i>A</i>	<i>Pa</i>	<i>N</i>	<i>Pd</i>	<i>Đ</i>
	(%)	(%)	(%)	(%)	(%)
Expand Digital	24.2	54.5	18.2	1	2
Reduce Branch	14.3	41.8	33.7	7.1	3.1
Offer Mobile Banking	26.3	47.5	24.2	2	0
Mobile Money(with MNO)	20.2	42.4	28.3	6.1	3
Multi-Channel Strategy	22.2	52.5	24.2	1	0

Note: *A*= (Highly agree), *Pa*= (Partially agree), *N* = (Neutral), *Pd*'= (Partially Disagree), *Đ*= (highly Disagree)

The percentages (%) represent descriptive findings of this qualitative study

5.3. Digital Channel adoption and Consumer preference

We found that digital channel adoption has a positive effect on what retail banks perceive as consumer preference that is the ability of banks to provide consumers with fast, convenient and compatible services. This result is not surprising since the ubiquity and availability of digital finance services provided by massive network of agents by MNOs and Fintech firm, as resulted in consumers to continuously rely on these services. This is in line with on-going trends in the region, for example a World Bank report suggests that close to 40 percent of customers leave their accounts dormant in banks as they switch to fast and convenient services provided by new players. The implication of these finding suggest may have to re-consider what it means to do banking in East Africa. To majority of consumers, it may mean that retail banks may have develop and implement compatible and convenient platforms that enable majority of consumers to access banking services. It also may imply that focusing on digital strategy by banks is no-longer an option but a must if these retail banks are to remain competitive and relevant to consumers.

5.4. Retail bank's branch strategy (H3)

The branch strategy as always been the center of retail banks operation in East Africa a just as elsewhere in the world, among its key roles involving being the meeting places between banks and customers, being the face of bank brand and different researches have shown to be preferred channel. However similar to findings Mols et al., (1999) in their study of Danish consumers, this study to found that banking channel has impact on retail banks adaptation strategy. We measured strategy by three strategic items namely strong willingness to expand digital services, reduce branch and willingness to offer compatible mobile banking services. The results suggest that retail banks in East Africa may are cutting back on their existing branch strategy. This is line with emerging trend among retail banks in Uganda and Kenya of closing branches.

We suggest that this new phenomena is due to disruptive effect of digital channels such as mobile money and their extensive reach to customers through their "human ATMs" that copies how retail banks branch works(Eijkman et al., 2010). The extensive reach of new entrants whose services such as money transfer, savings, deposits, and loan resemble those of banks and are delivered to customers at a fraction of cost of bank branch are rendering operating branches especially in sparsely populated cities unprofitable for retail banks hence the scaling back of their branches. One obvious challenge with scaling back of branches is that retail banks may forfeit their already limited presence in the banking market. The natural question that results then is, what can retail banks do to remain competitive through branch strategy, and to answer this puzzle, this research similar to (Leonard-Barton, 1988) suggests that retail banks in East Africa

particular in Uganda may have to alter branch to agency banking similar to Kenya cases (Mwando, 2013) in order to maintain growth and compete in the digital banking era.

5.5. Retail bank adaption vs. Innovation and future banking (H4)

The ubiquity of mobile communication in East Africa heralded the importance of mobile channel to deliver banking services to vast customers.(Etim, 2014) and started the movement of financial inclusion which highlights the potential of mobile in bringing the unbanked in formal banking channels(Munyegera & Matsumoto, 2014), indeed millions of users have become financially included thanks to new channels and new entrants to financial service provisions such as MNOs, who have turned mobile phone banking into their leading cash cow. Similarly, retail banks noted the power of mobile communications as additional channel to their financial delivery models and many banks deployed mobile banking apps in East Africa.

Its however important to note that in terms of functionality and service delivery, there is limited difference between mobile banking by retail banks and mobile money by MNOs although they tend to serve different customer segments, in particular those with smart phones and access to internet in cities and those with feature phones in cities and rural areas respectively. Retail banks across the region saw the mobile banking strategy as means of providing convenient services and some studies such as (Kithaka, 2014) suggest that they have increased banks financial performance.

The finding of this study indicate that incumbent banks adaption strategy which involves expanding digital and offering compatible mobile banking has impact on future banking innovation which involves a mixture of hybrid banking channels such as Agency banking, . This may suggest that retail banks are using a strategy of maintaining their mobile banking systems and adopting new mobile systems. Since these banks have their own mobile banking systems. This study suggests that retail banks may be using it as a core strategy for retaining existing customers while co-opting mobile money services from their new rivals as strategy for new customer acquisitions. This finding may not be surprising since banks starting from Kenya already adopted mobile money services, however, it is important to point out that reliance on it has serious sustainability issues.

First, there will emerge channel conflict (Rosenberg & Stern, 1971) given the fact that both services share similar functionality, second, because of the wide acceptance and usage of digital channel provided by MNOs have network externality effect, may result in incumbent customers switching to MNO channel at expense of mobile banking provided by retail banks, the two issues discussed above may lead to strategy of cannibalization of mobile banking by retail banks.

5.6. Consumer Preference and Retail bank's adaption strategy (H2)

Incumbent retail banks have traditionally deployed internet banking strategy as one of the channels to bring convenience and fast services to their customers at less cost. According to Takeddine & Sun, (2015), there is a wide variation in use of internet banking in different countries. Much as some retail banks in East Africa adopted internet banking, Jagero & Abeka,(2011), suggests that it is used for only corporate users mainly high end consumers and businessmen in East Africa cross country analysis.

This level of specific customer segmentation may be due to lower levels of internet adoption at individual levels across the region, even though the trend is changing of late (Stork, Calandro, & Gillwald, 2013). Despite the growing rate of internet and mobile internet adoption, there is still a long way to go before it reaches critical mass that is needed for banks to scale internet and mobile banking to customers. Meanwhile, mobile money channel which is much simpler and doesn't require internet enjoys wild popularity across East Africa. This research surprisingly found that consumer preference for fast, convenient and compatible services has no effect on bank strategy. This may be motivated by need to maintain relationship with existing customer in cities that rely on existing mobile and internet banking legacy systems, and their brand value. This research suggests that it will be important for retail banks to main a strategy that alters internet banking to mobile banking for two main reasons, one is for future strategy since mobile internet is projected to grow 20 folds in Africa (Smith, 2014), the battle for digital consumers who prefer fast and compatible banking services will shift internet enabled as opposed to mobile money that is disrupting banks now. Second and similarly is because banks may be able to win against MNOs in the fight for customers should mobile internet materialize as developments in countries like South Korea proved (kwon & Lee, 2010).

5.7. Retail bank's multi-channel strategy (H4)

This research also found that retail banks in East Africa find multi-channel strategy as strategy to pursue. In the study we found positive relationship between bank adaption strategy and innovation solutions like multi-channel strategy. This is in line with descriptive findings which suggest that multi-channel as one of the most attractive option as shown by over 70 percent of banks who agreed on this strategy. This is probably due to fact that it encompasses other strategies allowing them to maintain traditional banking services alongside innovating new digital services in line with new digital consumers. More over this result is not surprising because as Gupta, (2013) suggested, different customer segment have different needs which means that retail banks and financial service providers will have to maintain a mixture of strategies to meet these needs. In this study we suggest that the multi-channel strategies will take the form of different variations as discussed above. This means that incumbents will enjoy its benefits as well as limitations such as cannibalization as already discussed above. In addition, as Mols et al., (1999) found out for Danish consumer, this strategy may lead to customer dissatisfaction as different channel have different cost of services to customers.

5.8. Retail bank's-MNO Partnership strategy (H4)

Finally, the study found that there is growing interest in hybrid banking which typically involves provision of banking services by retail banks in partnership with MNOs, as indicated by over 60 percent of banks that responded strongly to pursue such strategy. This service we suggest is particularly of great interest to larger incumbent banks and leading MNOs because both have mutual interest to leverage larger customer base and reach to gain competitive advantage in the market while delivering convenient banking services to customers. This finding similar to findings by (Bilodeau, Hoffman, & Nikkelen, 2011) and projections of Mckinsey& Company, (2017) suggest that the retail banks –MNO partnership strategy will take two forms, the first one is MNO- led partnership where retail banks support MNOs to deliver financial services, and Bank-led partnership where banks ride on MNO infrastructure to roll out banking services similar to mobile money banking to reach wider consumers. However unlike these studies, we zoomed in on strategic behaviors of East Africa banks since strategic behavior varies from market to market, second unlike those reports we analyses the on-going changes based on in-depth survey by expats in banking industry, and also different from them, we suggest that this strategic option is very limited to specific few banks and MNOs. Finally similar Gupta, (2013), we suggest that this strategic option may not be very attractive to many banks since banks tend to have different goals and organization structure from that of MNOs and Fintech firms.

6. Conclusion and Future Research

The study highlights the critical importance of strategy upgrade in the retail banking industry in markets where bank presence is limited such as East Africa. The study also shows that banks in markets where digital innovations have been widely accepted have to innovate and come up with new models of delivering financial services to digitally oriented consumers.

Based on technology adaption theories and distributional channel literature, this study examined the impact of digitization on retail banks strategic behavior. The study findings show that digitization has an impact on retail strategic behavior and choices. Further still, the study found that digital channels have an impact on consumer preferences. From the findings, the study draws theoretical and industry implications. First, on theoretical implications, the study extends literature on technology adaption in banking industry by extending line of inquiry on the market context, moreover, to the best of our knowledge, this is first study to shade light on the impact of digitization on retail banks strategies from perspective of incumbent banks.

On the industry implication, this study offers an empirical snapshot of the impact of disruptive innovation on the banking industry in East Africa market and discuss several strategies that retail banks can implement to overcome the distributional problem in the current retail banks structure. The study further discusses the limitations such as channel conflicts,

cannibalization and co-opetition issues that retail banks face in new era of banking. Future research could focus on understanding on the empirical relationship between digitization of financial industry and emerging issues discussed above.

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