Evaluation of Factors affecting Adoption of Mobile banking Technology in micro-Finance institutions in Kenya

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Abstract

Financial institutions have been in the process of significant transformation; the force behind the transformation of these institutions is innovation in information technology. ICT has been used not only to improve customer service delivery and perform day to day transactions but also to empower their employees. The aim of this study was to evaluate the factors affecting adoption of m-banking technology in Letshego Kenya Limited. The objective of this study was to examine the relationships between constructs: performance expectancy, education levels, age and gender. This study examined the existing empirical studies on mobile banking adoption in general and LKL and its adoption in particular. M-banking adoption was analyzed using UTAUT and DIT framework as the guiding model. This is due to the fact that this framework not only covers the technological aspects but also the social aspects of analyzing the adoption of m-banking. Hence, these models provided a complete analysis of the possible aspects to be considered for m-baking adoption. The study adopted a descriptive survey design. The population comprised of Letshego Kenya Limited active borrowers in Nairobi County. A stratified sample of 326 respondents was obtained. Data was collected through a structured questionnaire to meet the objectives of the study. Statistical Package for Social Sciences (SPPS) and regression were used for analysis. Results from the study indicated that performance expectancy strongly influenced adoption of mobile banking technology by MFI customers in Kenya. The study recommends to the management of Letshego Kenya Limited and other financial institutions to formulate strategies to improve efficiency of mobile banking as it will enhance the organizational performance and increase sales. These strategies should focus more on is performance expectancy as it was found to have the greatest influence on adoption of mobile banking.

Keywords*: Mobile banking, Diffusion of Innovations Theory, Education Levels, Age, Gender, Performance Expectancy*

Introduction

Over the past few years, advancement in information technology has changed the way organizations operate and conduct their business (Al-Jabri, 2012). Technology is now being used by businesses today to enhance growth and competitiveness (Anyasi et al., 2009). Firms are developing new and innovative products to be able to maintain existing customers and to attract new markets. One such innovation is the introduction of m-banking technology in the banking sector. M-banking has changed the way banks perform their operations, this has led to the introduction of new products and services that are aimed at lowering transaction costs and reaching a larger number of customers (Ayo et al., 2010). M-banking provides the potential of increasing efficiency of payments system and expanding access to formal financial services by those who presently lack it. Microfinance institutions (MFIs) have existed in many forms for decades, but have only recently garnered global attention as a commercially viable activity that can offer real opportunities for micro-entrepreneurs and the unbanked people. According to Gomez et al. (2008), MFIs have expanded throughout the developing and developed world and now serve over 10 million households worldwide. Despite the relative poverty of their clients, MFIs have been able to extend credit to poor households, while still maintaining financial sustainability. Much of this success has been attributed to MFIs innovative use of peer group lending; the practice of allocating loans to individuals with little or no collateral but with social capital in the form of peers who are also co-applicants and who in many cases are jointly liable (Gomez et al., 2008).

Fin access's (2009) survey states that MFIs, even though still a small actor in the Kenyan financial sector, have doubled their outreach from 1.7% in 2006 to 3.4% in 2009. The gross loan portfolio has also continued to grow from 1.1 million USD in 2009 to 18.5 USD in 2012. In developing countries, the growth of microfinance institutions (MFIs) which specifically target low income individuals are viewed as potentially useful for promotion of financial inclusion. Currently MFI'S banks are facing highly competitive environments that have forced them to seek strategies financial institutions to achieve competitive advantage. One of such strategies is mobile banking. Mobile banking refers to provision of banking and financial services with the

help of mobile telecommunication devices (Stephan, 2007). The scope of offered services may include facilities to conduct bank transactions, to administer accounts and to access customized information. Significant reasons that compel financial firms to provide mobile banking services are; increasing efficiency of payments system and expanding access to formal financial services by those who presently lack it. At the same time, making banking more convenient and cheaper to those who already have bank accounts (Porteous, 2006).

Studies done on the rate of adoption in Mobile Financial Services (MFS) in various parts of the world have shown that there are various bottlenecks. The study found out that prospective clients around the world during the initial phase of adoption seem slow in embracing mobile banking (Kleijnen et al., 2004). Others found that for example potential barriers to adoption of mobile banking relate to people's perceptions of its usefulness (value), its credibility, its ease of use and efficiency, and cost associated with baking transactions (Lai et al., 2005). Mobile banking (m-banking) is an innovative method for accessing banking services via a channel whereby the customer interacts with a bank via a mobile device (Barnes, 2003). The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customized information from the bank. M-banking provides anywhere and anytime banking services, with m-banking; customers and decision-makers can access multiple banks, accounts, and financial services (Venkatesh, 2000). Tiwari et al. (2006) defines mobile banking as any transaction, involving the transfer of ownership or rights to use goods and services, which is initiated and/or completed by using mobile access to computer- mediated networks with the help of an electronic device.

Worldwide, there is an increase of mobile banking services for example across Europe, the current adoption of mobile banking services at 38%, with on average modest growth year on year (KPMG, 2015). More specifically its adoption in the UK however, exactly matches the average at 38%. The UK can be seen as something of a bellwether for both the rest of Europe, and also parallels other developed economies such as the US and Australia, although there are also both qualitative and quantitative differences in adoption patterns. In India banks such as State Bank of India (SBI) provides bank accounts, deposit, withdrawal and remittance services, micro-insurance, and micro-finance facilities to its customers through mobile banking. In the year 2009 Pakistan launched mobile banking solution, in coordination with Taameer Bank, under the label

Easy Paisa. In Iran, Guatemala and Mexico consumers can access mobile banking services with local mobile networks, whereas in Saudi Arabia banks like Riyadh, Rajhi, Alahali, SAMBA, and SABB have made substantial investments in mobile banking capabilities and smaller banks are not far behind. In developed countries and developing countries fraud and systemic failures are some of the hindrance to adoption of m-banking and this can severely impair user confidence and cripple widespread acceptance of m-banking services. Customer apprehension of risk and security are genuine concern as transmission Passover multiple network system owned by various service providers. Hence, mechanism to mitigate risk is vital for customer confidence. In addition; penetration of mobile phones is increasing in developing and poorer nations, where a large percentage of the global population resides. Financial institutions, which have had difficulty providing profitable services through traditional channels to poor clients, see opportunity in mobile banking as a form of branchless banking (Ivatury et al., 2008), which lowers the costs of serving low-income customers for the banks.

In Kenya for instance companies like Vodafone have launched mobile money transfer known as M-Pesa and M-Kesho in Equity Bank. Mkesho uses Safaricom services to facilitate customers to transfer money to and from their Equity bank account via the mobile phones and also enjoy other benefits which come with the bank accounts (KPMG, 2015). In Rwanda, MTN was authorized to provide mobile money services in February 2010, likewise in Uganda, Airtel and MTN started their mobile money programs in 2009.The mobile banking penetration rates in Africa vary a lot, from under 10% in Ethiopia to nearly 100% in Gabon, where the most responding countries are Ghana (39.3%), Mozambique (49.7%), Nigeria (26.9%), South Africa (30.1%) and Zambia (22.1%).The average growth for mobile banking in whole continent is of about (33%) , (KPMG, 2015).

Kenya has one of the most dynamic financial sectors in Africa with over 62 microfinance institutions, over 40 banks, over 1500 SACCOs, insurance companies, and the Nairobi stock exchange, which is one of the largest in Africa and which is ranked fourth in terms of trading volume (Nzioka, 2010). Over the years, technology in business has been changing rapidly as the global environment becomes highly competitive and innovative. The use of mobile banking technology then has become very vital to all organizations that intend to remain competitive in

the market. In Kenya banks and MFI institutions are increasingly investing in mobile banking so as to increase the turnaround time and reduce the cost of operations.

Although several MFI's in Kenya have implemented m-banking technology, there is little research that focuses on the factors affecting adoption of this technology by MFI's customers. Furthermore, numerous scholars in the developed countries found that m-banking adoption still remain at infancy stage (Cheah, Teo, et al., 2011). Letshego Kenya Limited is a regionally managed, for-profit organization that provides quality financial services to micro-entrepreneurs in Eastern, West, Central and South African countries of Kenya, Uganda, Rwanda, Tanzania, Botswana, Ghana, Nigeria and Mozambique (Letshego, 2016). It's a commercial credit only microfinance institution in Kenya and was established to provide access to financial services to small and micro-entrepreneurs in Kenya. The institution was founded in September 2000 as payroll lender in Kenya. Over the years, the Kenya operation has experienced significant growth in terms of its customer numbers, portfolio and branch network. LKL was founded on and continues to strive towards the principle of finding the most effective way to implement microfinance in the African context. As a result, LKL has developed innovative and high quality operational methodologies that actively respond to the financial needs and cultural context of its client base (Letshego, 2010). Its Mission is "to transform the livelihoods of its clients who are in viable economic activities while creating a rewarding and stimulating working environment for its employees". Their vision is "to be a market leader and a partner of choice in the provision of Innovative, Profitable and Customer Focused Financial Services to small and micro entrepreneurs in Eastern Africa". Their core values are: integrity, collaboration, excellence and creativity and innovation. Letshego Kenya Limited for example, offers mobile banking services that allow their customers to take full advantage of the latest technology whereby they can; pay loan installments, check loan eligibility, accessing quick loan facilities (mkopo chap chap|) and processing and offering credit facilities to clients.

Kenya's mobile banking arena is fast developing and shaping the landscape of cashless transactions exponentially. Although, large investments have been made in developing of mobile banking systems, reports on its utilization show that potential users are not adopting the electronic service at the expected rate (Luarn et al., 2005). According to Garnter (2007), report,

the penetration rate of mobile banking is only 1% to 5% of the target population. Meanwhile, (Kleinen et al., 2007) further indicates that the usage of m-banking has yet to meet competitive expectations. A number of empirical studies exist in the literature; Mari (2003) conducted a study on adoption of m-banking in Finland. The findings were that, technology perceptions and certain demographical variables of the customers have a significant impact on adoption. Similarly, Lin (2011) found that factors affecting its adoption were; perceived relative advantage, ease of use and compatibility. Further to that Porteous (2007) found that, most unbanked people were unbanked primarily for "economic reasons", which relate in part to their work status and in part to their perception that formal employment was a prerequisite for opening an account. Locally, various studies have been conducted on mobile banking; Wambari (2009) studied mobile banking in developing countries using a case of Kenya. The study revealed that the adoption and use of mobile phones is a product of a social process, embedded in social practices such as SMEs practices which leads to some economic benefits. Moreover, Kigen (2010) studied the impact of mobile banking on transaction costs of microfinance institutions where he found out that by then, mobile banking had reduced transaction costs considerably though they were not directly felt by the banks because of the then small mobile banking customer base. In addition, Mbiti et al. (2010) examined the evolution of mobile phone coverage and adoption in sub-Saharan Africa over the past decade. The findings revealed that, the first people to adopt the mobile phones were primarily male, educated, young, wealthy and urban populations. This was due to the relatively high costs of handsets and services. These studies show varying results and a gap of knowledge in intention to use mobile banking. Hence, none of these studies have critically assessed the factors affecting the adoption of m-baking by MFI customers in Kenya. This study therefore sought to fill in the knowledge gap in the local context. The objective of the study was to determine how performance expectancy affects adoption of mobile banking technology MFI customers in Kenya. The findings from this study will benefit the micro finance sector in Kenya by providing useful information that will be required by the donors, financial agents, Communications Authority of Kenya (CA), Central Bank of Kenya (CBK), investors and the public to assist in the implementation of m-banking technology. A better understanding of these factors will enable m-banking service providers to develop suitable business models, awareness programs, marketing strategies and pilot projects. This understanding will guide policy makers in crafting suitable policies that will enhance financial access through m-banking

technology. The findings will also inform donors seeking a way to support the development of this field; the study will also identify the knowledge gaps and provide suggestions for further research. This will form a base for scholars who are interested in studying this area in future. Lastly, the findings will benefit customers who have not yet adopted m-banking technology, since the findings will reveal important information and benefits of this technology which will enable customers make informed decisions.

Research Methodology

This study was descriptive in nature. Descriptive studies tries to discover answers to who, what, where and sometimes how questions" (Cooper et al., 2003), It also attempts to capture attitude and patterns of past behavior. According to Orodho (2009) descriptive design allows researchers to gather information, summarize, present and interpret for the purpose of clarification. Therefore, a descriptive design was suitable for this study in describing the relationship between the independent variable and dependent variable. The population of the study comprised of Letshego Kenya Limited customers who are active borrowers within four branches in Nairobi County. According to Letshego, (2016) there are 1,762 active borrowers within Nairobi County. Nairobi County was chosen due to the fact that it hosts the largest number of financial institutions than any other county meaning that customers have a wide variety of choice than elsewhere. Also at Nairobi County, the choice to utilize the services of an institution is far more likely to be as a result of a careful evaluation of the institution as opposed to other places where customers may be appreciative to join and stay in an institution for lack of a better choice rather than as a result of satisfaction with the services offered. This enhanced the representativeness of the sample. Finally, the customers of LKL who hailed from Nairobi County come from a mix of economic activities ranging from small scale to large scale entrepreneurship. The findings of the study were not affected by occupation specific biases. Also a mix of people from a variety of economic activities tend to assist in helping the avoidance of a situation where participants completing surveys end up representing a subsample of the population rather than the entire population that researchers are attempting to study (Marguerite, 2006).

Table 1: Target Population

Branch	No. Of Active Client's
Kawangware	570
Corporate	181
Kasarani	402
Donholm	609
Total	**1,762**

Source (LKL, 2015)

Table 2: Sample of the Study

Research category (Nairobi County)	Population (N)	Sample $n = \frac{N}{1+N(e)^2}$
Research section	1762	326

Source Researcher (2015)

A stratified sample of 326 respondents was selected. Stratified sampling is a probability sampling technique where the researcher divides the entire population into different subgroups or strata, then randomly selects the final subjects proportionally from the different strata (Creswell, 2003). The proportionate stratified random sampling procedure followed by simple random sampling of elements within the respective strata was used to generate data collection units, which in this case were the client's from the four branches. Stratified random sampling was appropriate for the study because of the heterogeneous nature of MFI clients.

Table 3: Sample Strata

Branch	No. Of Active Client's	Sample Size 326
Kawangware	570	106
Corporate	181	33
Kasarani	402	74
Donholm	609	113
Total	**1,762**	**326**

Source LKL (2016)

Primary data was collected from LKL customers who hail from Nairobi County. Structured questionnaires were used for data collection, as they are the most common types of instruments used in survey research (Hair, 2003), also according to Hair et al. (2006), the questionnaire, on its part is effective when considering a large number of respondents and guarantees respondents" anonymity. Additionally, the questionnaires were used because they are considered to be more suitable as respondents can answer at their expediency. So as to make this study convenient, attractive and interesting, the choice of close-ended format was adopted because they are easier to be completed and they do not need any extensive writing. The questionnaire was easy to administer code and analyze. The study variables were measured using a five point Richer Scale (ordinal scale), ranging from Strongly Agree; Agree, Neutral; Disagree; Strongly Disagree, as responses from customers sampled. The data collection instrument was constructed to collect data that measured variables through their attributes.

Data Analysis is the process of systematically applying statistical and/or logical techniques to describe and illustrate, condense and recap, and evaluate data. According to Shamoo et al. (2003) various analytic procedures provide a way of drawing inductive inferences from data and distinguishing the signal (the phenomenon of interest) from the noise (statistical fluctuations) present in the data. An essential component of ensuring data integrity is the accurate and appropriate analysis of research findings. Improper statistical analyses distort scientific findings, mislead casual readers (Shepard, 2002), and may negatively influence the public perception of

research. Integrity issues are just as relevant to analysis of non-statistical data as well. Data will be analysed using computer based statistical package for social sciences (SPPS) and regression analysis. Regression analysis is a statistical process for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables (or 'predictors').

The regression model will assume the following form:

$$Y = \beta o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \alpha$$

Where:

Y is Adoption of mobile banking technology;

β_i ($i = 0 - 6$) is the regression coefficient;

X_1	-	Education levels
X_2	-	Performance Expectancy
X_3	-	Age
X_4	-	Gender
α	-	Unexplained variables not explained by the model

And

($\beta 0$, $\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$) are regression coefficients

Results and Discussions

This chapter presents the analysis and findings of the study as set out in the research methodology. The research data was gathered exclusively through questionnaires as the primary research instrument. The questionnaire was designed in line with the research objectives of the study. To enhance the quality of the obtained data, Likert type questions were used whereby respondents indicated the extent to which the variables were practiced in a five point Likert scale. The data has been presented in form of quantitative, qualitative form followed by discussions of the data results. The chapter concludes with a critical analysis of the findings.

Out of a sample of 326 customers selected for the study, the researcher managed to collect data from 260 respondents representing a response rate of 75.19 Out of the 260 study participants.

Performance Expectancy

According to Venkatesh et al., 2003, customers seek to establish the value that the service will add in his or her life before making the decision to adopt it. The findings in table 2 indicate that the respondents were of the position that mobile banking optimized their financial operations with a weighted mean of 1.45. The findings further showed that the respondents strongly agreed that mobile banking allowed them to make their payments easier as shown by weighted mean of 1.34. Customers are highly interested in the benefits that a service would offer them once it is used. This indicates that an individual who really thinks that using the system can help him or her improve performance in their organizational job would also be more likely to intend to adopt the mobile banking technology.

Table 5: Performance Expectancy

	Mean	Std. Dev
Using M-banking will improve my performance	1.5	0.5685
Use of M-banking would save my time	1.35	0.5689
I would use M-banking any place	1.38	0.5634
I find mobile banking useful	1.33	0.5484
Mobile banking allows me to make my payments quicker	1.34	0.5308
Mobile banking optimizes my financial operations	1.45	0.5289

The researcher conducted a hypothesis test to establish whether performance expectancy affected adoption of mobile banking technology in microfinance institutions in Kenya. The hypothesis tested were:

i. H_{02}: There is no significant relationship between expectancy performance and adoption of mobile banking technology.

According to the findings presented in table 4:0:8 below, the p-value obtained was 0.000 which was less than 0.05 (5% level of significance of the study). Therefore, the null hypothesis was rejected and concluded that performance expectancy affected the adoption of mobile banking technology in microfinance institutions in Kenya. The research findings are consistent with those of Hettinga et al. (2005) who used the UTAUT model to examine nurses behavioral intentions towards the use of Medical Teleconferencing Application, the study revealed that performance expectancy and effort expectation were high predictors of behavioral intention but social influence prediction power was low.

Table 4:0:8 One-Sample Test on performance Expectancy Effects

	t	df	Sig (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Do you use M-Banking?	-32.305	259	0.000	-0.356	-0.38	-0.33

Table 13: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.592[a]	0.350	0.340	0.149

a. Predictors: (Constant), Performance, Gender, Level of education, Respondents' age

Table 14: Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	3.041	4	0.760	34.207	.000[b]
1	Residual	5.646	254	0.022		
	Total	8.687	258			

a. Dependent Variable: Do you use M-Banking?

b. Predictors: (Constant), Performance, Gender, Level of education, Respondents' age

The equation of the fitted model using unstandardized coefficients is

$Y_i = 0.686 - 0.012X_1 - 0.009X_2 - 0.012X_3 + 0.255X_4$

Table 12: Coefficients

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower	Upper
	(Constant)	0.686	0.044		15.434	0.000	0.598	0.774
1	Respondents' age	-0.012	0.011	-0.056	-1.099	0.273	-0.032	0.009
	Level of education	-0.009	0.006	-0.071	-1.392	0.165	-0.021	0.004
	Gender	-0.012	0.021	-0.028	-0.546	0.585	-0.054	0.030
	Performance	0.255	0.022	0.593	11.601	0.000	0.211	0.298

a. Dependent Variable: Do you use M-Banking?

Performance expectancy was highly significant in determining adoption of mobile banking technology in MFIs. This means that an increase of one unit of performance expectancy increases adoption of mobile banking technology by 0.255 units. Age, gender and education level have a negative effect on adoption of mobile banking technology. However the relationship is not significant since their p values are greater than 0.01 therefore violating the rule of significance. The results indicate that one unit increase in either age; gender or education level will reduce the adoption of mobile technology by 0.012, 0.012 and 0.009 respectively.

The research finding is consistent with that of Venkatesh et al. (2010). Performance expectancy (PE) in the UTAUT model was derived from a combination of five similar constructs including perceived usefulness, extrinsic motivation, job-fit, relative advantage and outcome expectations. Performance expectancy is the strongest predictor of intention within each of the individual models reviewed and was found significant at all points for both voluntary and mandatory settings in Venkatesh et al. (2003), model-validation. Morris et al. (2008) investigated the adoption of e-government services using UTAUT, the survey was carried out on 880 students revealed that performance expectancy, and effort expectancy and peer influence determine students' behavioral intention, this is consistent with the research findings.

Conclusions and recommendations

Purpose for conducting applied research is to find solutions to improve practice; according to this purpose, the research adopted UTAUT and DIT model to evaluate the factors affecting adoption of m-banking technology by MFI customers in Kenya and in the variables of performance expectancy, was identified as factors influencing intent and behavior of users of mobile banking services. In general, the outcome of the study suggests that mobile banking has gained much recognition by customers due to performance expectancy. This new mode of banking does not need one to wait or walk long distance so as to access banking services. Despite of the benefits and success of mobile banking, its adoption and diffusion in the emerging markets is mostly dependent on what consumers feel about the benefits, expected outcomes. Once developing countries are able to control and manage the efficiency and consistency of this service, this will result to fast use and penetration of mobile banking. Support and necessary resources for the service to run efficiently and effectively in the home country is very valuable tool to have in order to ensure that the adoption of the services will run smoothly without any setbacks. With the

markets moving with technology and adopting and using all sorts of smart phones and gadgets indicates that education is not a necessary criteria for being able to cope with technological advances. The simplest example or proof of this is that today's youth easily adapt with the ever changing technological advancements day in and day out. With reference to the experience in Kenya it shows that it's a promising and innovative service that aids everyday necessity, and also helps to increase the economic positions of rural areas not only in Africa but wherever there is a need for such a service. Mobile banking is of great importance to many people around the world. This development has managed to bring services to customers at very low cost. This system enables customers to participate actively in mobile banking financial services. The study suggests that further research be conducted on factors affecting adoption of mobile banking in other countries within the East African Community. This study only concentrated on Kenya yet mobile banking has been adopted in all members of the East African Community.

There is need to replicate this study in other micro finance institutions, this will enable comparison of the results. The study did not dig into the details of the cultural and economic impact of the m-banking technology and was biased as it only sampled respondents in Nairobi County and therefore can be grounds for same or related research.

The study further recommends that another study be conducted in Kenya on the relationship between mobile banking and economic growth to establish the contributions of mobile banking on economic growth further, the study recommends that a similar study should be conducted among the mobile service provider companies to find out whether it will yield the same results.

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