

Internet Banking Adoption in Kenya: The Case of Nairobi County

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Abstract

The adoption of Internet banking as a platform for carrying out banking services has continued to rise globally. This can be attributed to a number of factors such as perceived usefulness, perceived ease of use, self-efficacy, relative advantage, compatibility, and result demonstrability. This paper is based on findings of an MBA study that was conducted in Nairobi County, Kenya between 2010 and 2011. The purpose of the study was to establish the factors that influence adoption of internet banking among the individuals who have accounts with commercial banks in Nairobi County, Kenya. This research used two commonly applied and empirically supported models of information technology adoption to achieve this objective. In this study, technology acceptance model (TAM) is extended by two external variables, namely risk and self-efficacy. The second model used is a reduced version of perceived characteristics of innovation (PCI) model, without the image and voluntariness constructs. A survey was carried out on 300 individuals in Nairobi, Kenya. The results show that internet banking use in Kenya is very low. Only 24.82% of the respondents use Internet banking services. This is despite the high rate of internet access recorded. The internet banking use is popular to both the male and the younger generations. Internet banking is still at its nascent stages as demonstrated by the length of usage response. The results also reveal that perceived usefulness, perceived ease of use, self-efficacy, relative advantage, compatibility, and result demonstrability have a significant association with intention to use internet banking, while risk, visibility and trialability are not significant. Both the modified TAM and PCI models used in the study have a similar explanatory power of slightly over 20% of the variance in intention. In the TAM model, perceived usefulness and self-efficacy are significant variables, while compatibility is the only variable significant for the PCI model. Further, results indicate that users' perceptions of various aspects of internet banking are more positive than non-users' perceptions, except for risk. Although risk is found to be insignificant in this study, considering results of prior studies, further studies are required to examine its influence on intention. The study recommends that, banks should consider launching campaigns to demonstrate the usefulness and benefits of internet banking as a promotional and marketing measure. Additionally, banks must make a continuous effort to understand consumers' requirements and design a delivery of their products and services in such a way that it is consistent with customers' requirements, beliefs and the way customers are accustomed to work. Banks websites should facilitate customers with a 'one stop comprehensive financial' service. As well as arranging for a hands-on training for prospective users to enhance their self-efficacy.

Introduction

Internet banking refers to the use of the internet as a delivery channel for banking services, which includes all traditional services such as balance enquiry, printing statement, fund transfer to other accounts, bills payment and new banking services such as electronic bill presentment and payment (Frust, Lang, & Nolle, 2000) without visiting a bank (Mukherjee & Nath, 2003). According to channel (Chau & Lai, 2003), the rapid growth and popularity of the internet has created great opportunities as well as threats to companies in various business sectors, to endorse and deliver their products and services using internet as a distribution channel.

Beside opportunities of this channel, banks and financial institutions across the world face new challenges to the ways they operate, deliver services and compete with each other in the financial sector. Driven by these challenges, banks and financial institutions have implemented services delivery using internet banking (Chan & Lu, 2004). The objectives of launching internet banking include cost reduction, performance improvement, wider coverage, revenue growth, and customer convenience (Bradley & Stewart, 2002; Chau & Lai, 2003). From the customer's perspective, internet banking facilitates a convenient and effective approach to manage personal finances, as it is accessible 24 hours a day and 365 days in a year without visiting the bank and from any locations (Rotchanakitumunai & Speece, 2003).

Although there is a significant growth of internet users in Kenya, the number of financial transactions carried out over the internet remains very low. This trend however is the same globally and it has been observed that potential users either do not adopt internet banking or do not use it continually after adoption. Mearian (2001) indicated that huge number of customers in USA is accessing most of the banks' websites but only a minority of customers has made online financial transactions. Gartner expressed that out of 61% online users, only 20% of consumers carries out online banking in the USA (Brown, 2001).

Several studies have reported not only low adoption rate but also disparity in adoption rates among European countries. ACNielsen (2002b) found that use of internet banking is increasing in Asian countries but it is still lower than the estimations. Due to these slow adoption rates, the transformation of banking services from the traditionally known physical branches commonly referred to 'bricks and mortar' to the modern way through information and communication technology systems better known as 'clicks and mortar' is yet to be realized to the extent it was predicted (Bradley & Stewart, 2002). Customers in some countries have ranked internet banking as less important than other channels such as ATM or telephone banking (Aladwani, 2001; Rotchanakitumunai & Speece, 2003; Suganthi & Balachandran, 2001).

An understanding of the extent of the customers' adoption or utilization of internet banking services has become critical. Courtier and Gilpatric (1999) recommended that banks and financial companies must survey customers' requirements on a regular basis in order to understand factors that can affect their adoption or usage of internet banking. Since the onset of internet banking in Kenya in early 2000, the number of online customers is still very low. However, there has been a notable increase as banks continue to intensify marketing and the infrastructures continues to mature. Privacy and security are perceived to be the most important issues that inhibit customers from using internet banking in Kenya (Gikandi & Bloor, 2010).

Methodology

This paper is a part of a final report on a survey that aimed at establishing the factors that influence adoption of internet banking among the individuals who have accounts with commercial banks in Nairobi County, Kenya. Limited studies have been carried out on the adoption and usage of internet banking services in Kenya and, therefore, both the adoption and usage trend remains unclear. This therefore is an exploratory study that attempts to provide a better understanding of the current trend of internet banking adoption and usage in Kenya. According to Hussey and Hussey (1997), an exploratory study is appropriate when the problem is difficult to demarcate, and when only a limited or no knowledge on the subject area is available as well as when no clear apprehension about what model should be used for gaining a better understanding of dimensions of the problem.

This study targeted Kenyan households with a view to include all segments of the population who currently use or intend to use internet banking in near future and non-users.

Subjects to be surveyed were determined by natural sampling method (Babbie, 1990; Hussey & Hussey, 1997) as the researcher had little influence on the composition of the sample. Data collection was done from households in the Nairobi region so that the researcher could deliver questionnaires directly to respondents. While selecting survey area(s) emphasis was given to internet access, education levels and household income since these factors have been found to produce a gap between online and offline population (Courtier & Gilpatrick, 1999; Hall et al., 1999). A sample size of 300 subjects was selected for this study. Newton and Rudestam (1999) suggested a 4 to 1 ratio of responses to items. Every effort was made to reduce the magnitude of measurement error by focusing mainly on the questionnaire design and evaluation process as recommended by Esposito (2002). Eight internet banking users and eight non-users were selected to validate the survey instrument through pre-testing. Respondents were then interviewed to identify issues relating to questionnaire. The data obtained from the study was coded and entered into the computer and subsequently subjected to statistical analysis using the Statistical Package for Social Sciences (SPSS) version 16. Multi-linear regression analysis was used to test models' prediction capabilities. All hypotheses were tested at 0.05 level of significance.

Results and Discussion

Demographic information of the people who participated in the study

This section describes the demographic characteristics of the people who took part in the study. These characteristics are presented in Table 1 below.

Table 1 Summary of demographic profile

Variables		All respondents		Internet Banking User		Non- Internet banking – user	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Response Type	User	137	24.82	34	100	103	100
	Non-user	103	75.18				
Gender	Male	89	64.96	23	67.65	66	64.08
	Female	48	35.04	11	32.35	37	35.92
Age	15-24years	53	38.69	11	33.35	42	40.78
	25-39years	59	43.07	14	41.18	45	43.69
	40-54years	23	16.79	7	20.59	16	15.53
	55-69years	2	1.46	2	5.88	0	0
	Over 69	0	0	0	0	0	0
Computer use	Never	0	0	0	0	0	0
	< 1 year	6	4.38	2	5.88	4	3.88
	1 – 2 years	11	8.03	7	20.59	4	3.88
	3 – 5 years	21	15.33	17	50	4	3.88
	6 –10 years	52	39.96	8	23.53	44	42.72
	> 10 years	37	27.01	0	0	37	35.92
Internet use	Never	0	0	0	0	0	0
	< 1 year	6	4.38	2	5.88	4	3.88
	1 – 2 years	11	8.03	7	20.59	4	3.88
	3 – 5 years	21	15.33	17	50	4	3.88
	6 –10 years	52	37.96	8	23.53	44	42.72
	> 10 years	37	27.01	0	0	37	35.92
Internet Banking use	Non -user	103	75.18	0	0	103	100
	< 6 Months	2	1.46	2	5.88	0	0
	6-11 month	7	5.11	7	20.59	0	0
	1 -2 years	17	12.41	17	50	0	0
	3 – 5 years	8	5.84	8	23.53	0	0
	>5year	0	0	0	0	0	0

A predominance of males among internet banking users was evident from the data; males were 67.65% and females were 33.35%. Internet banking users are relatively younger than the overall sample, with 33.35 % aged between 15 and 24 years and 41.48% aged between 25 and 39 years. Half of the internet banking users has used these services for between 1 to 2 years, 26.47% have used internet banking for less than 1 year and about 23.35% have used internet banking services for between 3 and 5 years. None has used it longer than 5 years.

Table 1 Intention to use Internet Banking services in Future

	All Participants (N=137)	Users (N=34)	Non-users (N=103)
Mean	5.25	6.43	2.65
Median	6	7	1

Intention to use internet banking in future was measured with a 7-point Likert scale and shown in table 2 above. The data show that existing users intended to use services in future (mean was 6.43 on a 7 point scale), while non-users were unlikely to adopt or use internet banking (mean was 2.65 out of 7 in table 2). However, the overall scale mean was 5.25 out of 7, suggesting a high intention in adoption or using services in future. Further, about 45.99% of the respondents strongly agreed that they would use internet banking in future, of which 97.06% were users and 2.94% non-users. 18.45% of non-users strongly disagreed that they would use this channel in future, compared to less than 1% of users. This means that existing users are likely to continue using banking services over the internet, while non-users are unlikely to adopt internet banking. Actual use of internet banking was measured with a 7-point Likert scale to record agreement with overall frequency of use 30 days earlier, and an absolute estimate of use in the same period and shown in table 3.

Table 3 Frequency and actual usage of internet banking in the last 30 days

Frequency of use	Up to 10 times	11-20 times	21-30 times	31 – 40 times	Over 40 times	Total
Frequently 1	0	0	0	0	0	0
2						
3	3	0	0	0	0	3
4						
5	1	0	0	0	0	1
6						
Not at All 7	4	1	0	0	0	5
	3	3	0	0	0	6
	5	2	0	0	0	7
	6	6	0	0	0	12
Total	22	12	0	0	0	34
Male	14	9	0	0	0	23
Female	8	3	0	0	0	11

The data shows that about 70.59% of respondents used internet banking services up to 10 times 30 days earlier. About 29.41% indicated to have used internet banking from 11 to 20 times in that period, 0% between 21 and 30 times, and 0% used internet banking over 30 times in 30 days. Nearly 63.64% of males and 36.36% of females were using internet banking services 10 times a month. The data in tables 4.5 and 4.6 indicate that both male and female users had slightly different internet and internet banking experience.

Table 4 Internet banking experience

	Internet Banking experience					
	<6months	6 – 12 months	1 -2 years	3-5 years	Over 5 years	Total
Male	0	3	13	7	0	23
Female	2	4	4	1	0	11

Table 5 Internet use experience

	Internet use experience					
	<1 year	1 – 2 years	3 -5 years	6- 10 years	Over 10 years	Total
Male	0	0	4	8	11	23
Female	0	1	4	5	1	11

Correlation matrices

In order to investigate possible association between variables, Pearson coefficient of correlation was calculated for all variables and shown in table 6. A one-tailed test was performed on the data since there was some basis (previous studies) to predict the direction of the relationship existing between each pair of variables (except demographic variables). The data in table 6 shows that most of the users' perceptions were significantly correlated. All the correlations were in the expected directions and provide support for the set of hypotheses constructed for the study.

The coefficient of determination (R^2) was calculated to detect and analyze multicollinear effects. None of the calculated coefficient of determination values was above 0.80 suggesting that there was no multicollinearity problem within the research variables (Thong, 1999). Significant values are shown in bold.

The relationship between *perceived usefulness* and other variables was found significant except for *visibility* and *gender*. *Visibility* was found not correlated with other variables, indicating either Internet banking had limited visibility in public media and due to this respondents were not aware of usefulness of Internet banking or respondent viewed that *visibility* would not change their perceptions of benefits of Internet banking. Similarly, *gender* did not correlate with most of the variables, meaning males and females perceived characteristics of Internet banking in a similar way.

Table 6 Pearson correlation coefficients

	PU	EQU	SE	RSK	RA	COM	DEM	VIS	TRI	BI	USE1	USE2	GEN	AGE	COMP	INTER	IB
PU																	
EQU	0.788																
SE	0.646	0.657															
RSK	-0.242	-0.272	-0.222														
RA	0.840	0.722	0.657	-0.272													
COM	0.843	0.751	0.682	-0.205	0.892												
DEM	0.466	0.522	0.446	-0.076	0.427	0.420											
VIS	-0.004	-0.028	0.057	-0.030	0.005	0.026	0.059										
TRI	0.370	0.348	0.453	-0.203	0.373	0.340	0.266	0.304									
BI	0.441	0.373	0.406	-0.139	0.451	0.485	0.218	0.001	0.143								
USE1	0.478	0.452	0.393	-0.176	0.437	0.489	0.311	0.018	0.170	0.795							
USE2	0.312	0.288	0.239	-0.132	0.296	0.347	0.242	-0.037	0.043	0.511	0.709						
GEN	-0.044	-0.060	-0.071	-0.008	-0.027	-0.040	-0.037	-0.071	-0.206	0.014	0.020	0.053					
AGE	-0.314	-0.220	-0.278	0.125	-0.271	-0.284	-0.161	0.005	-0.215	-0.540	-0.423	-0.228	0.256				
COMP	0.234	0.221	0.245	-0.080	0.221	0.268	0.130	-0.040	0.078	0.437	0.316	0.191	-0.018	-0.314			
INTER	0.188	0.175	0.234	-0.099	0.210	0.274	0.180	0.014	0.060	0.387	0.320	0.206	0.044	-0.246	0.734		
IB	0.452	0.415	0.391	-0.175	0.410	0.463	0.274	0.024	0.157	0.797	0.904	0.581	0.010	-0.408	0.394	0.396	

Figures in **Bold** are where correlation was significant.

PU: Usefulness, EOU: Ease of use, SE: Self efficacy, RSK: Risk, RA: Relative advantage, COM: Compatibility, Dem: Result Demonstrability, VIS: Visibility, TRI: Trialability, BI: Intention, Comp: Computer use, Inter: Internet use, GEN: Gender, USE1: Usage_1, USE2: Usage 2, IB: Internet banking use.

On the other hand, *age* was correlated with most of the variables but in opposite direction, meaning younger people found Internet banking more useful than the older people. *Risk* was found not correlated with most of the research variables suggesting that *risk* had minimum influence on Internet banking in Kenya, which was not perceived from the literature review. The correlation of *Internet use* ($r = .396, p < .01$) with *Internet banking use* was found significant, meaning that the use of *Internet banking* would increase if the use of the Internet increases.

Hypotheses testing

In order to test the hypotheses a series of simple linear regression analyses was conducted to calculate direct and indirect path coefficients. Hypotheses are considered supported when path coefficients are significant at the 0.05 level.

Table 7 Regression analysis

Hypotheses	Dependent Variable	Independent variable	Coefficient	t-value	p-value
H1a	Intention	Perceived ease of use	0.373	5.005	0.000
H1b	Perceived usefulness	Perceived ease of use	0.788	15.910	0.000
H2	Intention	Perceived usefulness	0.441	6.124	0.000
H3a	Intention	Perceived self-efficacy	0.406	5.530	0.000
H3b	Perceived ease of use	Perceived self-efficacy	0.657	10.850	0.000
H3c	Perceived usefulness	Perceived self-efficacy	0.356	3.919	0.000
H3d	Perceived risk	Perceived self-efficacy	-0.222	-2.828	0.005
H4	Intention	Perceived risk	-0.139	-1.753	0.082
H5a	Use_1	Intention	0.795	16.324	0.000
H5b	Use_2	Intention	0.511	7.393	0.000
H6	Intention	Relative advantage	0.451	6.285	0.000
H7	Intention	Compatibility	0.485	6.905	0.000
H8	Intention	Trainability	0.143	1.803	0.073
H9	Intention	Visibility	0.001	0.012	0.991
H10	Intention	Result demonstrability	0.218	2.785	0.006

The *perceived usefulness*, *perceived ease of use*, *perceived self-efficacy*, *perceived compatibility*, *perceived relative advantage* and *perceived results demonstrability* have a positive influence on Internet banking adoption.

Conclusions

From the study, it can be concluded that internet banking adoption and use in Kenya is very low despite the high levels of internet access. Moreover, the results show that the younger population are adopting and using internet banking more than the older generation. In addition, the younger generation has a higher exposure to internet use. From the study, it is also evident that *perceived usefulness*, *perceived ease of use*, *perceived self-efficacy*, *perceived compatibility*, *perceived relative advantage* and *perceived results demonstrability* are the key factors that influence internet banking adoption and continued usage in Kenya. The results also show that non-users' perceptions of internet banking were lower than users in all aspects except perception of *risk*. The study therefore recommends that similar investigations be carried out in other different cities in Kenya and perhaps using different types of users, such as corporate customers. A comparative study could also be carried out between individual customers and corporate customers in terms of determinants influencing their adoption or usage behavior. Additionally, future studies should also factor in other demographic characteristics like education levels and income levels of both user and non users.

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