FACTORS INFLUENCING THE ADOPTION OF MOBILE BANKING TECHNOLOGY
BY BANKCUSTOMERS IN MACHAKOS TOWN

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ABSTRACT
This study sought to identify and investigate the factors which influence customer’s decision to use mobile banking in Kenya with a particular interest in Machakos town. A descriptive research design was employed. The study targeted a population of 116,800 bank customers from three commercial banks purposively selected for this study, from which a convenient sample of 399 customers were selected. The formula by Israel (1992) which was used to calculate the sample. To collect data, the researcher used a closed ended structured questionnaire that were personally administered to the respondents. Data was analysed using descriptive and inferential statistics. This analysis focused on establishing the influence of bank factors, individual customer characteristics, and availability of infrastructure, on adoption of mobile banking technology. An
analysis on the association between the bank factors, individual customer characteristics and availability of infrastructure (independent) and Mobile banking adoption (dependent) established that there is a strong positive correlation between bank factors, individual customer characteristics and availability of infrastructure (independent) variables and adoption of M-banking (dependent) with individual customer characteristics having a closer association compared to the others. The factor with the least association was the availability of infrastructure. The positive correlation implies that there is a significant association between the independent variables and adoption of M-banking implying an increase in any of the independent variables will cause a positive increase in adoption of M-banking and vice versa.

Keywords: Mobile banking, Adoption, M-banking technology

1. INTRODUCTION

The invention of the mobile phone marked the beginning of a revolution in the ways in which people communicate and transact. It has redefined communication and has reshaped the way services are provided. The mobile phone has brought many changes, affecting the lives of people and the way businesses are run. Today office workers do not need to be physically present in the office to carry out their duties. This is because they can do the work at any point via mobile phone. Mobile banking is a system that allows customers of a financial institution to conduct a number of financial transactions through a mobile device, tablet or Personal Digital Assistant. With mobile banking, customers are able to have anywhere and anytime access to banking services including loans. Mobile banking is not a new phenomena in the world, banks and other financial institutions have introduced mobile banking as part of their products to their customers. To most of the customers it is still an innovation that has not been adopted especially in developing and underdeveloped countries of the world.

In Kenya banks have launched mobile banking in their product offerings for example, Coop cash of cooperative bank, Mobi bank of Kenya commercial bank, Hello money of Barclays bank, Eazzy 24/7 of Equity bank, SIM-ple banking of National bank, M-shwari of Commercial bank of Africa, Patacash of Kenya post office Savings Bank and the latest financial innovation by
Equity bank Equitel where Equity bank has come up with its own sim card such that its customers do not need to rely on the sim cards from the mobile phone companies. Barclays bank has recently brought into the market “One Africa” this allows customers in Africa to access their accounts through their mobile phone.

Mobile banking is important because customers are able to transact their business any where anytime, it is time independent, convenient and prompt to the customer. On the hand, it enables banks to expand their market penetration, it creates an opportunity for the evolution of banking services to reach more through mobile banking. A good example is where commercial bank of Africa has partnered with Safaricom through their product M-shwari where the M-shwari customers do not have bank accounts but they can save with M-shwari, borrow loans as low as sh 50 and repay at 2 and 4 percent interest. The customers must be registered with M-pesa. Daily Nation Wednesday March 11, 2015 Safaricom chief executive Bob Collymore said “Mobile technology has greatly transformed our lifestyles. It is increasingly making it more convenient for customers to pay utility bills, withdraw or deposit money in their bank accounts as well as borrow by the click of a button” It is evident that mobile banking is beneficial to the customers. Despite this, the rate of mobile banking adoption is still very low, evidenced by the long queues being witnessed in the banking halls. The study provides more information on M-banking in Kenya and also the possible barriers.

2. REVIEW OF LITERATURE

2.1 Bank factors and adoption of mobile banking technology

Tiwari, Buse and Herstatt (2006) studied mobile banking as business strategy. Impact of mobile technologies on customer behavior and its implications for banks. The study sought to examine the opportunities for banks to generate revenues by offering value-added, innovative mobile financial services while retaining and extending their base to technology- savvy customers.

Mari (2003) conducted a study on adoption of mobile banking in Finland. The results from the study indicated that certain attributes of M-banking innovation drive it usage. The attributes include; relative advantage, compatibility and communication. The investigation of complexity and risk of using M-banking yielded no support as being barriers to adoption. The findings also
revealed that, technology perceptions and certain demographical variables of the customers have a significant impact on adoption. Kigen (2010) studied the impact of mobile banking on transaction costs of micro finance 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. Al-jabri (2012) studied mobile banking adoption by looking at the application of diffusion of innovation theory. His findings suggest that banks in Saudi Arabia, should offer mobile banking services that are compatible with various current user requirements, past experiences, lifestyle and beliefs in order to fulfil customer expectations. With better mobile banking support and provision of variety of services, the more useful customers perceive mobile banking to be and to increase their level of adoption. Hence, bank’s attention should focus on understanding customer behaviour and designing reliable mobile banking system that will meet their needs and provide useful and quality services. In addition banks should focus on communicating information that emphasises the relative advantage and usefulness of mobile banking compared to other banking channels like physical presence to the bank or using ATM machines. Banks must seek to reduce risk perceived by their customers by offering specific guarantees protecting them and taking their complaints seriously and urgently.

2.2 Individual bank customer characteristics and adoption of mobile banking technology

Yao (2013) in a study of user adoption factors of mobile banking services based on trust and distrust perspective argues that the quality of information that customers have will affect will affect adoption, he says currently there exist information asymmetry between the user and the bank where the bank is in information superior position which is well aware of the operation mechanism and product advantages of the mobile banking. On the contrary, the user is the inferior party. Porteous (2007) in his study found that, most unbanked people were unbanked because of “economic reasons”, which relate in part to their work status and in part to their perception that formal employment was a prerequisite for opening a bank account. He also found that young people tend not to have bank accounts and see less need for them and that m-banking users in general have a higher income, are more likely to live in urban areas, are in formal employment and slightly older than banked people with mobile phones. Porteous argues that, the early adopter profile appear to correlate more with the desired functionality than with factors
which imply risk tolerance such as age. Additionally, a high proportion of the banked population either do not understand M-banking or have never heard about it. Despite these high levels of ignorance about M-banking, banked people still have a strong disapproving attitude.

In a different study “An investigation on mobile banking adoption and usage. A case of banks in Mauritius”. The aim of the study was to gauge awareness level and to identify those factors that inhibit or motivate M-banking usage. It was found that awareness of local m-banking services is quite high and usage level is reasonable. Convenience, time and effort savings, privacy, ubiquitous access to banking services, compatibility with lifestyle and banking needs were identified as the main factors motivating m-banking adoption. Perceived security risk and reliability were the main obstacles while m-banking is not associated with gender and salary.

Another study in Sudan by Karma (2014) revealed that customer’s intention to use m-banking in Sudan is influenced strongly by perceived trust, perceived ease of use and perceived risk. Perceived usefulness was found to have no influence on the intention to use m-banking services among bank customers of Sudanese banks.

2.3 Availability of infrastructure and adoption of mobile banking

Aker and Mbiti (2010) conducted a study to examine the evolution of mobile phone coverage and adoption in sub-saharan Africa over the past decade. The study found out 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. By the year 2009, mobile phone was owned by even the poor, the elderly and rural populations, in part facilitated by the introduction of low-priced handsets and lower denomination mobile top-up cards. The study revealed that, on average, M-pesa users are wealthier, better educated, urban populations and are “already banked”. The findings also showed that most of the M-pesa transfers are occurring within urban areas.

In Kenya a study by Kasyoki (2012) on factors affecting adoption of phone banking by customer’s of commercial banks in Kenya found out that the most of the respondents were in one form of relationship and were in some useful form of employment. It also found that the respondents used mobile banking because they found it cheap, safe and reliable to a greater extent, further the respondent’s colleagues, friends and family influenced the respondents to
adopt and use mobile banking while the influence of the media on the adoption of mobile banking is not clear. The study also found out that mobile banking has a range of services, is convenient in doing bank transactions and access to the bank service, saves time and has good connection speed. It also found out the advantages for using mobile banking provides easy access to bank account information, mobile banking is secure than traditional banking, it is easy to learn to use, it is safe and the mobile banking system is user friendly. On the challenges of mobile banking, the respondents indicated that they cannot transact when the mobile phone network is down, sometimes the transactions are not online, some services are not available on mobile banking platform and phone software cannot access some utilities of mobile banking. On perceived risks the respondents indicated that they might not use mobile banking because their banks do not accept liability in case of loss, the technology of mobile banking is not easy to understand and information concerning my cell phone banking transactions can be tampered with by others.

Mannanand Kazi (2013), in their study on factors affecting adoption of mobile banking in Pakistan they investigated the determinants likely to influence the adoption of mobile banking with a special focus on underbanked/unbanked low-income population of Pakistan. The study concluded that consumer’s intention to adopt mobile banking was significantly influenced by social influence, perceived risk, perceived usefulness, and perceived ease of use. The most significant being social influence.

3. RESEARCHQUESTIONS

Based on the above literature, this paper answers the following questions

i) What is the effect of bank factors on adoption of M-banking technology among customers in Machakos town?

ii) Does individual bank customer characteristics have any impact on adoption of M-banking by bank customers in Machakos Town?

iii) To what extent does availability of infrastructure influence adoption of mobile banking technology among customers in Machakos town

4. METHODOLOGY

Descriptive statistics were used to summarize the data. Inferential statistics, Pearson correlation, which ranges from negative one to positive one inclusive (-1 ≤ r ≤ +1) was used to
test the association between the dependent and independent variables. Multiple regression was applied to determine the prediction factor of dependent variable caused by independent variables. Similar model was used by (Ingari&Achieng 2015)

4.1 Model specification

\[ Y = A + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 \]

Where:
\( \beta_1, \beta_2, \text{ and } \beta_3 \) s the regression coefficient of the independent variables
\( Y = \) Dependent variable (adoption of mobile banking among customers in Machakos Town.)
\( A = \) Constant
\( X_1 = \) Bank factors
\( X_2 = \) Bank customer characteristics
\( X_3 = \) Availability of infrastructure

To test for the strength of the model and the factors influencing the adoption of mobile banking among bank customers, the researcher conducted an Analysis of Variance (ANOVA). On extracting the ANOVA statistics, the researcher looked at the significance value. The study was tested at 95% confidence level and 5% significant level.

4.2 THE DATA

The researcher used questionnaires to collect primary data from the respondents. The questionnaires were self-administered to the identified bank customers.

5. FINDINGS

5.1 Correlation analysis

To establish the relationship between the independent (bank factors, Bank customer characteristics and availability of infrastructure) and adoption of M-banking, the researcher used Pearsons’ product moment correlation as shown in Table 5.1
Table 5.1: Correlation matrix

<table>
<thead>
<tr>
<th></th>
<th>Bank factors</th>
<th>Individual customer characteristics</th>
<th>Availability of infrastructure</th>
<th>Adoption of M-banking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank factors</td>
<td>1</td>
<td>.721**</td>
<td>.63**</td>
<td>.781**</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td>33</td>
</tr>
<tr>
<td>Individual customer characteristics</td>
<td>.721**</td>
<td>1</td>
<td>0.00**</td>
<td>.802**</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td>33</td>
</tr>
<tr>
<td>Availability of infrastructure</td>
<td>.63**</td>
<td>.000**</td>
<td>1</td>
<td>.761**</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 5.1 revealed that there is a strong positive correlation between all the independent variables (bank factors, individual customer characteristics and availability of infrastructure) and adoption of M-banking, with individual customer characteristics leading with $r = 0.802$ followed by bank factors with $r = 0.781$. The least correlation was between availability of infrastructure ($r = 0.761$). The positive correlation implies that there is a significant association between the independent variables and adoption of M-banking implying an increase in any of the independent variables will cause a positive increase in adoption of M-banking and vice versa. It was observed that the individual customer characteristics were closely associated with adoption of M-banking compare to bank factors and availability of infrastructure.

5.2 Multiple regression analysis

The researcher further sought to establish the contribution of each of the independent variables; (bank factors, Bank customer characteristics and availability of infrastructure) to the adoption of mobile banking.
5.3 Model summary

Table 5.2: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted</th>
<th>R Std.</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.736</td>
<td>.542</td>
<td>.742</td>
<td>.221</td>
<td></td>
</tr>
</tbody>
</table>

In the model summary from table 5.2 shows the Adjusted R squares was 0.742. This implies that the independent variables bank factors, availability of infrastructure and individual customer characteristics explained the variations on adoption of mobile banking by 74.2%. Thus, the three independent variables significantly explained 74.2% of variance in the customer’s intention to adopt mobile banking.

5.4 The Analysis of Variance (ANOVA)

To determine whether the overall regression model was a good fit for the collected data, an ANOVA was done. The ANOVA analysis is intended to investigate whether the variation in the independent variables explain the observed variance in the adoption of M-banking. The ANOVA results indicate that the independent variables significantly explain the variance in growth of the adoption of mobile banking. The output in this case is presented in the table 5.3.
The results show that the regression model has a less than 0.001 likelihood of giving a wrong prediction. Hence the regression model has a confidence level of 95%.

5.5 The regression model

The regression model was used to establish the relationship between the independent variables and the dependent variables.

Table 5.4: Coefficients of the regression model

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.554</td>
<td>.204</td>
<td>17.124</td>
<td>.000</td>
</tr>
<tr>
<td>Bank factors (X₁)</td>
<td>0.552</td>
<td>.0501</td>
<td>0.356</td>
<td>1.221</td>
</tr>
<tr>
<td>Customer characteristics (X₂)</td>
<td>0.221</td>
<td>.116</td>
<td>.552</td>
<td>1.332</td>
</tr>
<tr>
<td>Infrastructure (X₃)</td>
<td>0.682</td>
<td>.111</td>
<td>.642</td>
<td>2.212</td>
</tr>
</tbody>
</table>

It can be noted that the independent variables were all significant at 5% significant level.

The model was obtained as;

\[ Y = 0.554 + 0.552X₁ + 0.221X₂ + 0.682X₃ \]
According to the regression equation established taking all other factors constant that is bank factors, individual customer characteristics and availability of infrastructure constant at zero, the adoption of mobile banking will be 0.554.

6. CONCLUSIONS FROM THE STUDY
The researcher wanted to know whether there was a relationship between adoption of mobile banking and bank factors. The study found out that there was a strong positive relationship between bank factors and M-banking adoption and therefore banks should sensitise their customers on the advantages of mobile banking. The banks also should invest more on marketing because mobile banking is new and needs more promotion in order to create more awareness. On the other hand the study also found out that there was also a strong positive relationship between individual characteristics and adoption of M-banking, the conclusion is that banks should understand their customers and come up with strategies that are aimed at improving the attitude of bank customers towards mobile banking.

The third objective of the study was availability of infrastructure, the study found out that there a strong positive relationship between availability of infrastructure on adoption of mobile banking it is therefore concluded that availability of mobile phones, complexity of mobile phone, cost of mobile phone, usability of the device and network problems have an impact on adoption of mobile banking.

REFERENCES


