MICRO CONTEXTUAL CHARACTERISTICS AND IMPLEMENTATION OF ONLINE BANKING SYSTEM IN FAMILY BANK LIMITED

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ABSTRACT

According to Gikonyo (2012), the banking sectors in Kenya have embraced the implementation of online banking system ignoring the micro contextual characteristic of the system. Waweru (2015) further opined that most academicians and scholars have highly researched on factors affecting customer adoption of the internet banking in Kenya at the expense of the micro contextual challenges commercial banks go through in the implementation of online banking systems in Kenya. Studies have shown that there was an intellectual gab by both the banking sector and researchers to address micro contextual challenges due to the implementation of online banking system. The proposed study, therefore, sought to investigate how the micro contextual characteristics and the implementation of online banking system affected Family Bank Limited. The study adopted case study research design and the study target was a population of about 420 Family Bank Limited staff. Since the population of interest was known and the sampling frame was generated, then a systematic sampling technique was used. The study used frequency, mean, standard deviation and variance in descriptive statistical analysis. The study also adopted a linear regression analysis regarding inferential statistical. This was done with the help of SPSS version 22.0. The research established that technology adaptation had a positive contribution on the implementation of online banking system in Family bank limited. This study reveals that the bank has taken necessary measures to protect it from fraudsters and hackers. This study recommends that studies should be done to provide solutions as to how banks top management reservations about the implementation of online banking strategy could fully be improved. The study also recommends that future scholars should undertake more studies to improve the body of knowledge on determinants of online privacy concern and its influence on privacy protection behaviors among customers.

Key Words: *micro contextual characteristics, implementation, online banking system, Family Bank Limited*

INTRODUCTION

The rapid growth of the Internet has dramatically changed delivery channels in the banking industry and many banks have established a presence on the Internet (Ajzen, 2010). Internet banking was first introduced by Security First Network Bank in the United States in 1995 (Angst & Agarwal, 2012). One year later, it was introduced in Estonia (Basu & Muylle, 2014) and South Africa (Beldad, Jong & Steehouder, 2010), followed by Australia in 1997 (Chao, Kang & Cheon, 2013), Turkey in 1997 (Chen & Dibb, 2010), Singapore in 1997 (Davis, 2014), China in 1997 (Dholakia et al., 2015), England in 1998 (Fishbein, 2015), Hong Kong in 1999 (Gefen et al., 2015), Romania in 1999 (Holbrook, 2015), Thailand in 1999 (Hsu, 2013) and Malaysia in

2000 (Jayawardhena, 2014). The advancement in science and technology has enabled the banking industry to offer their services via the Internet.

There has been a steady increase in internet banking acceptance since the year 2000 (Jin & Lee, 2015). Therefore, an increasing number of banks worldwide are applying for business investments in Internet technology driven by the expectation that the Internet technology would provide better opportunities to establish a distinctive strategic position compared to other traditional forms of banking services (Larose & Rifon, 2014). Internet banking is particularly well-practiced in the developed countries such as Korea, Spain and Austria, where more than 75 percent of all banks offer transactional services via the Internet (Laukkanen, 2013). The development of the Internet as a service and marketing channel has breached the geographical and industrial barriers, creating new products, services and market opportunities (Mohamed & Kathy, 2015).

Nor and Pearson (2015) have also revealed the disparity in adoption of internet banking between developed and developing countries. According to Pavlou (2014) findings, approximately twothirds of the variance (64%) explained for Internet banking (IB) adoption is linked to country level Internet utilization. Canada is one of the world,,s leaders in internet banking with 65% of its population being internet banking users, followed by the Netherlands at 61%while the percentages of internet banking users is 52% in United Kingdom and 45% in the United States(Salam *et al.,* 2015).

In most developed countries that have established their IT infrastructure, their Internet adoption rate is generally above 70% of their population (Seounmi, 2012). In contrast, the majority of developing counties still have an Internet adoption rate below 40% (Taylor & Todd, 2014). Triandis (2014) suggested that even though the technology is available and people are aware of its existence in the developing countries, the internet banking adoption rate is generally low and not available in some countries as the adoption is still at its early stage. For example, although the Internet penetration rate in Indonesia was 12.3%, its adoption rate of internet banking has been estimated to be less than 0.01% (Venkatesh & Davis, 2014).

According to a China Internet Information Network (CNNIC) survey, the total number of Internet users in China has increased to 457.3 million individuals, representing approximately 34.3% of the country's population. However, only 139.5 million of Internet users (30.5%) have utilized internet banking (Wendy, 2015). The Internet banking adoption is linked to a country's Internet utilization rate (Trideau, 2010) and this has promoted the economic growth of the respective countries according to IT usage (Ajzen, 2010). Therefore, examining the internet banking acceptance and the determinants affecting internet banking adoption is an important undertaking.

The most cited factor preventing non internet banking users from opening an internet banking account has been the security problem. This is supported by a survey carried out by China

Financial Certification Authority (2015) where more than 70% participants indicated that they did not believe dealing with money through the Internet is safe. While the CFCA signed a contract with major commercial banks to issue digital certificates to improve the security of internet banking services in 2012, Dholakia *et al.* (2015) reported that non internet banking customers still had many concerns about financial transactions via the Internet.

Internet banking enables customers to browse essential bank products and services seven days a week through their personal computers (Gefen *et al.,* 2015). It allows consumers to perform banking transactions over the Internet anywhere and anytime (Jayawardhena, 2014). According to Nor and Pearson (2015) there are three basic types of internet banking services, the informational, communicative and transactional. The Informational internet banking is a basic type of internet banking that provides comprehensive bank products and services information (Jin & Lee, 2015). It provides background and history of the bank, organizational structure, affiliated entities in the banking group, available corporate, retail and specialized banking facilities (Laukkanen, 2013). Therefore, this type of internet banking does not involve any execution of transactions (Mohamed & Kathy, 2015).

Communicative internet banking is the second type of banking that allows customers to have some interactions with bank system such as to submit their applications and queries for different internet banking services, but it does not allow money transactions between accounts (Salam *et al.,* 2015). Since the web server of communicative internet banking is linked with the internal network of a bank, it is at a higher security risk compared to informational internet banking services (Seounmi, 2012). Thus, adequate controls have to be available to prevent unlawful intrusion to the internal network of a bank (Taylor & Todd, 2014). Virus detection is also an important issue for the communicative internet banking services (Venkatesh & Davis, 2014).
Transactional internet banking is the third type of internet banking that allows the customers to transfer funds, make payments, and update personal information (Triandis, 2014). The server and the internal network of the bank's outsourcers pose the highest security risk and deserve the strongest controls (Angst & Agarwal, 2012). Security and safety, confidentiality and privacy issues of the customers‟ accounts are critical. The accuracy and integrity of transaction records need to be ensured at all time (Gefen *et al.,* 2015; Beldad, Jong & Steehouder, 2010).

According to Dholakia *et al.* (2015) the evolution of internet banking can be divided into four stages: introduction stage, set up stage, development stage and maturity stage. During the introduction stage, each individual bank starts to set up its own web site, introduces the concepts of internet banking and puts a few traditional services online. The aim is to provide bank customers with information such as account inquiries and account transfers. In the set up stage, banks begin to put more of their traditional services online. The main goals of this stage are to offer customers‟ online payment services, extended service hours, greater efficiency, and lower costs. The development stage of internet banking is to transform all traditional services of the bank onto its web site. Lastly, the maturity stage provides sophisticated business intelligence

products such as aggregation of accounts. In this last stage, banks are able to provide their customers with financial information from all different accounts (Jayawardhena, 2014). However, majority of Kenyan banks are in the second stage with a few developed banks advancing into the third stage.

At Family Bank limited, internet banking was developed to help bank deliver services and products better, faster, and cheaper. Family Bank internet banking platform is a new and dynamic online platform that provides secure, real-time and fully transactional financial management solutions all from the convenience of the customer's personal computer. The platform provides the freedom to customers in accessing their accounts and transact at any time, Family Bank Internet banking platform features includes viewing account information such as account balances, account details, transaction history, deposits and loans among others. There are also online payments to Imperial bank accounts, setting standing order instructions, provide facility details such as interest rates, interest accrued, interest earned, principal outstanding and amount payable at maturity (Family Bank Limited, 2016).

STATEMENT OF THE PROBLEM

The advancement in science and technology has not only affected the scientific sectors but also the business sector. The banking sector has quickly embraced these new technologies by in cooperating the online banking system to the manual banking system. Even though the new technologies have been appreciated by individuals as being efficient and efficient, they have their unique challenges. In this regard, almost all banks in Kenya have adopted the online banking systems as a strategy to cut cost, offer convenience customer service delivery and expand market territory as well as segment. However, according to Gikonyo (2012), the banking sectors in Kenya have embraced the implementation of online banking system ignoring the micro contextual characteristic of the system. Waweru (2015) further opined that most academicians and scholars have highly researched on factors affecting customer adoption of the internet banking in Kenya at the expense of the micro contextual challenges commercial banks go through in the implementation of online banking systems in Kenya. Studies have shown that there was an intellectual gab by both the banking sector and researchers to address micro contextual challenges due to the implementation of online banking system. The proposed study, therefore, sought to investigate how the micro contextual characteristics and the implementation of online banking system affected Family Bank Limited.

GENERAL OBJECTIVE

The study investigated the micro contextual characteristics and the implementation of online banking system in Family Bank Limited.

SPECIFIC OBJECTIVES

1. To establish the level of the bank's technology adaptation on the implementation of online banking system in Family Bank Limited.
2. To examine the bank's management support system on the implementation of online banking system in Family Bank Limited.
3. To document the bank's IT system capacity on the implementation of online banking system in Family Bank Limited.
4. To determine the bank's customer attitude on the implementation of online banking system in Family Bank Limited.

THEORETICAL LITERATURE REVIEW

Three-Step Model of Change

The implementation of online banking system is anchored on change since it seeks to reorganize how the banks deliver its services to customers through online platform. This implies that, banks transaction processes, business model, together with how banks‟ staff and customers carry out business activities have to change. Therefore, the relevance of the three-step model of change is justified in this study. The three-step model of change is composed of three phases, that is, the unfreezing phase, the freezing phase and the moving phase. The unfreezing phase involves breaking up the shell of complacency and self-righteousness as it is necessary to bring an emotional strip. Thus, the unfreezing phase cannot be considered as an end, but as a means of preparation for the change itself. Secondly, the moving phase is referred to as the notion of change realization, the establishment of new strategies and structure. The final phase in the change process is called the refreezing phase which entails institutionalizing the changes made. According to Lewin (1997), the employees should demonstrate commitment to the new structures or process in order to maintain the state of the moving equilibrium. To ensure that moving the equilibrium does not go wrong requires employees to demonstrate commitment to the new structures or processes.

The ADKAR model was first published by Prosci in 1998 after a research with more than 300 companies undergoing major change projects. In 2006, Prosci published the first complete text on the ADKAR model (Jeff, 2006). ADKAR is a goal-oriented change management model that allows change management teams to focus their activities on specific business results. The model was initially used as a tool for determining if change management activities like communications and training were having the desired results during organizational change. The change management is based on Prosci PCT Model (Project Change Triangle) – which emphasizes the application of the tools, processes, techniques and principles for managing the "people" side of the project or initiative to achieve the desired outcome (Jeff, 2006). While the Project Management corner is focused on the tasks related to designing and developing a solution, the

Change Management corner focuses on how to encourage employees to embrace and adopt the solutions developed.

Kotter (1995) developed a Model on Change Process having factors that he categorized into two groups, those that could lead to successful changes and those leading to failure. He devised an 8 step method where the first four steps focus on defreezing the organization, the next three steps make the change happen, and the last step re-freezes the organization with a new culture. When organizations need to make big changes significantly and effectively, then the 8 steps should be followed in order. Form a powerful guiding coalition: Change efforts often start with just one or two people, and should grow continually to include more and more people who believe the changes are necessary. Therefore, the main objective in this phase was gathering a large number of individuals who believed in the change process.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is adapted from the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1975). The TAM states that the users‟ adoption of a new information system is determined by their intention to use the system, which in turn is determined by their beliefs about the system. The TAM further suggests that two beliefs; perceived usefulness and perceived ease of use are instrumental in explaining the variance in users‟ intentions. However, Davis (1989) suggested that future technological acceptance research must address how other variables affect usefulness, ease of use and users acceptance. Therefore, perceived ease of use and perceived usefulness may not fully explain behavioral intentions towards the use of online banking, necessitating a search for additional factors that can better predict the acceptance of online banking. This study employed the TAM theory by investigating how customers' perceived convenience affected the adoption of online banking. Perceived convenience consists of perceived ease of use and perceived usefulness. However, this theory was not sufficient hence the need to adopt other theories which included other factors.

Innovation Diffusion Theory (IDT)

Another theory relating to this study is the Innovation Diffusion Theory. According to Rogers (2003) there are five perceived characteristics of innovation that can be used to form a favorable or unfavorable attitude toward an innovation, namely: relative advantage, compatibility, complexity, trial ability, and observability. Relative advantage refers to the degree to which an innovation is perceived as being better than the idea it supersedes, therefore, it is said to be a significant factor influencing positive or negative attitude towards an innovation. In this regard, it was investigated on whether it affected implementation of online banking in Family Bank Limited.

The Revised Unified Theory of Acceptance and Use of Technology (UTAUT)

The original UTAUT model aims at explaining the user intentions to use technology and subsequent usage behavior. The theory holds that four key constructs performance expectancy (perceived usefulness), effort expectancy (perceived ease of use), social influence, and facilitating conditions are direct determinants of usage intention and behavior (Venkatesh *et al*., 2003). Gender, age, experience, and voluntariness of use are said to mediate the impact of the four key constructs on usage intention and behavior. The theory was developed through a review and consolidation of the constructs of eight models that earlier researchers had employed to explain technology usage behavior (theory of reasoned action, technology acceptance model, motivational model, theory of planned behavior, a combined theory of planned behavior/technology acceptance model, model of PC utilization, innovation diffusion theory, and social cognitive theory). Recently, there exists a revised UTAUT model suitable for investigating online banking (Min *et al.,* 2008). This revised UTAUT model incorporates variables such as trust and privacy, convenience and cost, user satisfaction and culture, in addition to the standard UTAUT factors. This study adopted perceived trust and privacy, convenience and cost, user satisfaction and culture factors from this model to investigate whether they affected the implementation of online banking in Family Bank Limited.

EMPIRICAL LITERATURE REVIEW

Bank's Technology Adaptation and the Implementation of Online Banking

Aladwani (2014) did a study on "online banking: a field study of drivers, development challenges and expectations in Nigeria". The study established that some financial institutions today still employ simple security mechanisms that consist of a username and password combination for login and money transfers. These are easily breached by the increasingly sophisticated methods fraudsters use and have resulted in users having their account details compromised. The study concluded that banks simple employment of software with username and password affected the implementation of online banking since many banks are not well equipped to run online banking systems. The study suggested further research to determine what technologies could be used to overcome fraudsters‟ sophisticated software.

Akoh (2016) undertook a study on "E-business in developing world Africa and Ethiopia (Ethiopia in the knowledge age)".The study found out that many financial institutions still lag behind in moving or planning to move away from simple passwords or single factor authentication and towards more advanced security solutions, such as Two Factor Authentication (2FA) with One-Time Passwords (OTP). The study found that OTP systems provide a mechanism for logging onto a network or service by using a unique password that cannot be reused for each transaction. This increases protection for online bank account management, corporate network access and other systems containing sensitive data. The study concluded that

failure of banks to use One-Time Passwords affected the implementation of online banking since systems without it were prone to hacking and attack. The study did not offer solution as to how banks may be compelled to adopt One-Time Passwords in their online banking systems.

Gefen, Karahanna and Straub (2015) undertook a study on "Trust and TAM in online shopping" in India. The study established that technology employed by many banks still could not overcome common techniques deployed by fraudsters today to obtain login credentials for users' online banking accounts which included phishing, pharming, key logging, man-in-the-middle and man-in-the-browser attacks. The study pointed out that due to perceived online risks as a result of unsophisticated systems used by banks, implementing online banking was still a challenge. The study suggested that more studies needed to be done to help banks come up with more sophisticated online banking systems that are free from cybercrime attack.

Wafula (2014) carried out a study on, "Understanding Information Technology Usage in Kenya". The finding was that online banking was becoming increasingly popular as it brings convenience, simplicity and speed to consumers. However, the study also found out that the perceived inferior online banking software systems Kenyan banks employed still could not match the mutating nature of cybercrime and change of technology used by fraudsters. The study concluded that regardless of the method employed, fraud is a global phenomenon that is constantly evolving in order to exploit security gaps. It also possesses a migratory nature, targeting countries which have less sophisticated security infrastructure. To prevent and deter fraud, the study suggested that banks must be ahead of the curve through regular upgrading of its infrastructure. The study however did not indicate how upgrading of banks infrastructure must be carried out considering that installation of new infrastructure is cost intensive and constantly requires software experts to undertake.

Wendy, Chung-Leung and Cheris (2015) carried out a study on „Customer adoption of banking channels in Hong Kong". The study found that few banks had embraced electronic running and assessment and most still engaged in paper work. The study also found that implementation of change to new trend such as cloud computing was still not successful as a result of some banks reserved perception about technology. The study suggested that further research be undertaken to convince banks to embrace and adopt technology in banking.

Waweru (2015) carried out a study on "Changes in the Banking Sector in Kenya". The study found that some banks in Kenya were still hesitant to fully adopt online banking due to the perceived costs, expertise and organizational restructuring required to implementing such systems. The study concluded that Kenya banks perception about the role of online banking affected the level of adoption and implementation of online systems. The study also suggested that further research be undertaken to improve Kenya banks confidence in technology in online banking.

Mohamed and Kathy (2015) did a study on "Drivers for Transactional B2C M-Commerce Adoption in Kenya". The study found that there are a number of constraints - related to social and infrastructure issues - that must be taken into account when evaluating the development of online banking in Kenya. The study concluded that while many Kenyan banks may be technologically capable of offering online banking services, the telecommunications infrastructure remains deficient. Further, the study found out that internet penetration in the region is still relatively low, which may not encourage the investment required to develop online banking. The study concluded that further research was necessary as the findings were based on a relatively small sample that may have influenced the nature of results that were obtained.

Bank's Management Support System and the Implementation of Online Banking

Angbazo (2013) undertook a study on "Commercial Banks, Net Interest Margins, Default Risk, Interest Rate Risk and Off-Balance Sheet Banking". The finding of the study was that poor commitment by banks top management affected implementation of online banking. The study concluded that to obtain a full relationship via the Internet, banks top management must define a progressive multi-channel strategy and support the highest level of risk management. The study did not provide solutions as to how banks top management reservations about the implementation of online banking could fully be improved.

Seounmi (2012) carried a research that sought to investigate the, determinants of online privacy concern and its influence on privacy protection behaviors among young adolescents. The findings of the study were that indeed the top management commitment, qualification of ICT personnel, the operational risks and ICT Policy that support e-banking implementation affected the implementation of e-banking at the bank. The researcher concluded that the management of the bank needs to ensure that commitments by the top decision making management staff in both word and conduct, and have the right personnel to work in the IT /project departments, ensure proper operational procedures are followed and participate in ICT policy making in the country for the financial industry. The study recommended that future scholars undertake more studies to improve the body of knowledge determinants of online privacy concern and its influence on privacy protection behaviors among young adolescents.

Gikandi and Bloor (2010) carried out a study on, "Adoption and effectiveness of electronic banking in Kenya". The study results was that banks top management level of commitment and decisions affected the implementation of online banking system quality, linkage to MPESA, service availability, information quality, ease of use, user satisfaction, convenience, charges, individual impact and organizational goodwill. The study suggested that banks top management ought to be sensitized of their importance and role in the implementation of online banking.

In another study, Chau, Patrick, Lai and Vincent (2013) researched on "An empirical investigation of the determinants of user acceptance of internet banking in Kenya". The study

conclusions were: with banks top management support, online banking has room for growth in the future into the unbanked populace, online banking can be used as a propellant in the uptake of banking products and there are a number of factors that are either impeding or propelling the roll out of online banking. The study recommended further studies on: The solutions to improve management support of online banking; a comparison of online banking among African countries to see emerging trends; and finding ways to make online banking embraced by the unbaked as an affordable way of banking.

Robinson (2013) study focused on "Internet banking - still not a perfect marriage in Kenya". The study established that adoption of ICT had a major impact on service delivery and institutional performance of banks. The study also however found that some banks top management still did not want to adopt and implement online banking for fear of costs related, customer service disruption and structure reorganization. Further research is necessary as the findings were based on a relatively small sample that may have influenced the nature of results that were obtained. There was no need to expand on the sample size and carry out similar research in other banks.

Bank's IT System Capacity and the Implementation of Online Banking System

Gikonyo (2012) carried out a research on "Factors influencing the adoption of Internet Banking in Kenya". The result was that implementing security measures for online banking is a task that was easier said than done for banks technology experts. The study found that securing an online banking channel had many aspects to it and each needs to be addressed individually. The study concluded that a key challenge faced by banks Information Technology (IT) officers when upgrading security infrastructure is identifying which technologies to adopt and which parts of infrastructure to change or upgrade. The study recommended further studies to improve the adoption and the implementation security infrastructure of online banking system in Kenyan banks.

Beldad, de Jong and Steehouder (2010) did a study on "How shall I trust the faceless and the intangible?" The study ascertained that apart from having to provide a robust and secure channel for online banking, banks IT departments still face the challenge on how to decide on a solution that not only suits banks needs but also balances security, cost and convenience for their customers. The study was based on small sample and there is need to expand on the sample size and carry out similar research in other banks.

Mohamed and Kathy (2015) did a study on "Drivers for Transactional B2C M-Commerce Adoption in Kenya". The study revealed that all banks studied were found to involve in training of their work force so as to better the skills to cope with changing working trends and gain more competitiveness online banking. However, the study indicated that almost all banks still had training gaps to fully equip their IT departments so as to be in tandem with online banking challenges. The study recommended that further research was required to suggest how banks can

fully train and develop their IT departments in order to handle the online banking implementation challenges

Araujo and Araujo (2015) carried out a research work on "Developing trust in internet commerce in Toronto". The study found that the challenge in the implementation of online banking were revealed by majority of respondents views that there were losses due to fraudulent access of customers' accounts due to hacking. In order to protect customers' accounts, the study recommended that there was need to employ disciplined, qualified and well remunerated ICT in the bank and at the level of mobile provider. The study also established that in past there were incidences of bank officials especially ICT experts colluding with fraudsters to fleece customers' accounts. The study however did not provide proper measures that banks need to put in place to employ disciplined ICT officers in the bank.

Kamanda (2014) had undertaken a study on "Factors Influencing the Regional Growth Strategy at KCB". The study revealed that ICT sector in Kenya regulatory and policies framework challenges that affected online banking and reduced the level of confidence among banking institutions in the new technology. The study however did not recommend how banks' ICT units in collaboration with the ICT stakeholders in Kenya should put in place the necessary technological advancements in order to enhance its adoption among the customers at the bottom of the pyramid.

Muguni (2012) did a study on „The Role of Executive Development in Corporate Strategy Implementation, A Comparative Study of KCB and National Bank of Kenya". The study found that due to some banks ICT units' incompetence and incapacities, some banks in Kenya online banking system had been infiltrated by fraudsters thus affecting the implementation of internet banking. The study directed future scholars to focus on banks ICT competence and capacities development to improve implementation of internet banking.

Bank's Customer Attitude and the Implementation of Online Banking System

Aladwani (2014) did a study on online banking: a field study of drivers, development challenges and expectations in Nigeria. The study found out that customers preferred online banking due to its perceived service availability, information quality, ease of use, user satisfaction, convenience and lesser charges. In addition, the study further found out that customers feared doing their transactions online due to increasing cases of internet fraud; therefore, affecting the implementation of online banking. However, the study did not provide solutions as to what online banking policies need to be implemented in the bid to protect customers' accounts.

Wafula (2014) carried out a study on "Understanding Information Technology Usage in Kenya". The finding was that customers take into consideration the perceived risk of online banking in making adoption decision. The critical factors customers consider in determining the perceived usefulness of online banking are: perceived safety of accounts, perceived safety of transaction

process, perceived password, username retrieval by third parties and perceived vulnerability to system hack by fraudsters. The study concluded that the said factors made customers to sabotage the online banking and still engage in traditional banking. The study recommended more studies to improve online banking usefulness to customers.

Waweru (2015) carried out a study on "Changes in the Banking Sector in Kenya". The study found that the reason why many customers had negative perception in the uptake of online banking was that some banking online platforms or websites faced problems of low network coverage in some segments of the market. The study did not offer solution on the initiatives to be taken to widen network coverage in Kenya and implementation of internet banking.

Chau, Patrick, Lai and Vincent (2013) did a research on "An empirical investigation of the determinants of user acceptance of internet banking in Kenya". The study revealed that there are still numerous scams or hacking problems on the internet that affected customers' acceptance of the online banking. The study found that customers fear could be data leakage during internet banking. The study concluded that a common and widely recognized obstacle to internet banking was lack of security and privacy over the internet which affected its implementation. The study suggested further research, brainstorming and consultations among stakeholders to improve customer online security.

Robinson (2013) study focused on "Internet banking - still not a perfect marriage in Kenya". The study established that many people view internet banking as risky undertakings. Therefore, in the context of this study, individuals who regard internet banking as low risk would have a tendency to accept and use the platform. Citizens perceived less risk when they report the task, but when it comes to internet banking payment, the level of perceived risk could be higher resulting to less intention of using the system in the future. The study concluded that users may hesitate to use internet banking if they do not feel enough security about the bank services. This affected implementation of online banking according to the study. The study recommended further research to deduce customers‟ online fear and how such risks could be addressed.

Gikonyo (2012) carried out a research on "Factors influencing the adoption of Internet Banking in Kenya". The result was that many customers use online technology only for non-transactional activities, such as viewing account statements and balances, while bank managers want customers to use different aspects of online banking. The study established that the level of internet banking perceived riskiness could possibly fall between these two transactions. The study was based on small sample and there is need to expand on the sample size and carry out similar research in other banks to improve the body of knowledge.

RESEARCH METHODOLOGY

Research Design

According to Bromley (1990) a case study is a systematic inquiry into an event or a set of related events with an aim to describe and explain the phenomenon of interest. The importance of a case study is emphasized by Peil (2003) who both acknowledge that it is a powerful form of qualitative analysis which involves a careful and complete observation of a social unit irrespective of the unit under study. In research design, a meticulous and systematic data collection needs to be properly defined if any meaningful results are to be obtained (Yin, 2003). It is also important to note that, case studies place more emphasis on a full contextual analysis of fewer events and their inter relations as suggested by Cooper and Schindler (2006). In this research, therefore, Family Bank Limited will be used.

Target Population

Cooper and Schindler (2003) define target population as a group of people, animals, events, or objects viable for an investigation in a study. The study target was a population of about 420 Family Bank Limited staff.

Sample and Sampling Techniques

A sample is a subset of a population that is studied through research where the findings are then generalized into the entire population. On the other hand, a sampling technique is the process in which a sample size is selected from a population (Cooper & Schindler, 2003). Therefore, this study used purposive sampling technique to select senior management from key divisions including some middle level managers who are directly involved in online banking implementation in the bank. The sample comprised of branch managers, the business club managers, the Diaspora banking managers, ICT managers, the marketing managers, the finance managers, and the managing director. Since the population of interest was known and the sampling frame was generated, then a systematic sampling technique was used. Systematic probability sampling procedure is ideal in instances where the sampling size is known and the population of interest is also known. The total population of staff in Family Bank Limited Nairobi County is 420. A descriptive research design was adopted. The following formula of determining the sample size was adopted (Kothari's, 2004),

$$s = \frac{\frac{Z^2 * p(1-p)}{e^2}}{1 + \frac{Z^2 * p(1-p)}{e^2 N}}$$

Where: Z is is the Z-score value of 1.96 for a confidence level of 95%; P is is the assumed 50% normal response distribution. This is used because it is assumed that the population is skewed; e is the margin of error of 5%; s is the sample size.

$$s = \frac{\frac{1.96^2 * 0.5(1-0.5)}{0.05^2}}{1 + \frac{1.96^2 * 0.5(1-0.5)}{0.05^2 * 420}} = 201$$

The sample size was 201 respondents. The respondents were randomly selected from a population of 420 employees.

Data Collection Instruments

For the purpose of this study, primary and secondary data was used. The primary data was collected using the questionnaire method while the secondary data was gathered from documents of Family Bank Limited and other published reports. The primary data was obtained from the sample sizes mentioned in this research. According to Peil (2003), primary data is considered to be more reliable and up to date than the secondary data.

Data Collection Procedure

First, approval of the research project proposal was sought from Kenyatta University supervisor. Thereafter, research permit was applied for and obtained from the National Council of Science and Technology. A copy of research permit was issued to the District Education Officer. The researcher administered the questionnaire personally to the respondents. The participants were given enough time to read through the questionnaire and understand every detail. Participants were allowed to fill the questionnaire without duress. The questionnaires were then be collected later on the specific agreed dates with the participants. The participants were not required to provide their names, contacts or personal information in the questionnaire to seal their identity. Each question on the questionnaire was developed with a specific research question in mind. The kinds of questions used in the questionnaire were structured and closed ended questions. The responses required respondents to rate from very poor, poor, fair, good and very good. These questions were easy to complete and the respondents did not ignore them.

Data Analysis and Presentation

The study used frequency, mean, standard deviation and variance in descriptive statistical analysis. The study also adopted a linear regression analysis regarding inferential statistical. This was done with the help of SPSS version 22.0. According to Triola (2006), regression analysis is done to ascertain the relationship between the independent and the depended variables. Also, it is

easy to justify if indeed the regression model presents a good fit for the data. The collected data was entered into SPSS and the responses were coded in the bid to calculate the measures of central tendency and correlations. The research adopted the 95% confidence level in testing the validity of the hypotheses. The questionnaires were measured using a Likert scale of one to five; with one being strongly agree and five being strongly disagree. The data generated was presented in form of pie charts, graphs, frequency tables and diagrams. Regression analysis was also utilized as part of the inferential statistics in the research. The SPSS was used to come up with regression results where the ANOVA and coefficients table were utilized. Four linear regression models were developed and applied to show the relationship between variables. In this regard, the linear regression model that was adopted in the research was as follows,

$$Y = \beta_0 + \beta_1 x + \alpha$$

Where: y is the dependent variable implementation of online banking system in Family Bank Limited; β_0 is the regression constant coefficient; β_1 represents the slopes of the regression equation; x represents the individual independent variables (Technology adaptation, management support system, IT capacity system and customers attitude) in the research; and α is an error term.

It is worth noting that α is normally distributed about a mean of zero. However, for purposes of computation, the value is assumed to be zero.

RESEARCH RESULTS

The research sought to investigate the micro-contextual characteristics and implementation of online banking system in Family Bank Limited's branches within Nairobi City County. The study sought to establish the effect of technology adaptation, management support system, IT system capacity, and the bank's customer attitude on implementation of online banking as a business strategy.

While investigating the effect of technology on implementation of online banking system, the research found that employees in all the branches of the bank had access to the internet. Similarly, the research found that the online banking system had a user friendly interface. The bank had gone a step ahead and taken requisite measures to hedge its activities from attacks by hackers and fraudsters. The research found a linear positive relationship between the level of technology adaptation and its impact on online banking.

Micro-contextual factors; staff motivation, cost effectiveness, guidance on enrolment for new customers and relevance of information provided online were accessed for their success in implementation of online banking. The research found that 88.5% of the respondents were in support of the statement that staff motivation and development had a positive impact on implementation of online banking. Similarly, 94.9% of the respondents agreed that the online

banking system was cost effective. The relationship between the banks management support system and implementation of online banking revealed a positive linear relationship between the two variables. The linear equation generated from the findings is $y = 1.019 + 0.528x$. This implies that one unit change in the management support system results in an increase in the implementation of online banking by 0.528 units.

The findings on the IT system capacity show that the IT department is well staffed; 84.7% of the respondents agreed to this. The execution of online transactions by the use of ICT was generally good for majority of the respondents. Similarly, 74.7% of the respondents agreed that the IT personnel were competent enough to carry out the activities bestowed upon their department. The level of integrity among the IT staff was rated higher by majority of the respondents. Therefore, the research found out that there is a positive linear relationship of the influence of IT system capacity on the implementation of online banking that was modelled by $y = 0.55 + 0.72x$.

The research also analysed the relationship between the bank's customer attitude and implementation of online banking. The study found that majority of the bank's customers found the online banking platform to be secure. Over 90% of the respondent's indicated that the portal was easy to use for by the customers. All the respondents indicated that the information that was available on the online banking platform was useful and that it saves on costs when compared to the conventional banking services.

REGRESSION ANALYSIS

According to Triola (2006), a process that is used to determine the effect of varying a particular variable on the other variables in a model is referred to as regression analysis. Therefore, in this study, some assumptions were made and represented in hypotheses form in the bid to determine the effect of the four individual independent variables to the dependent variable in the research. The validity of the four hypotheses were determined through carrying out a regression analysis. The hypotheses tested were as follows:

H_1: The adaptation of technology in the Family Banks Limited has a positive influence on the implementation of online banking.
H_2: The Family Bank Limited management support system has a positive influence on the implementation of online banking.
H_3: The Family Bank Limited IT capacity has a positive influence on the implementation of online banking.
H_4: The Family Bank Limited customer attitude has a positive influence on the implementation of online banking.

Bank's Technology Adaptation

The result from Table 1 shows that there is a statistical significant effect of bank's technology adaptation on the implementation of online banking. This is depicted from the p-value of 0.000 in the significance column which is less than 0.05 level of significant. Also, it shows that the model is a good fit for the data. Therefore, we conclude that the Family Bank's Limited technology adaptation has a positive influence on the implementation of online banking.

Table 1: ANOVA for Bank's Technology Adaptation

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	39.865	1	39.865	208.717	.000[b]
	Residual	37.303	195	0.191		
	Total	77.168	196			

a. Dependent Variable: Implementation of online banking
b. Predictors: (Constant), Bank's technology adaptation

The slope between the dependent and independent variable in this case is 0.668. This shows that there is a positive relationship between the variables. An increase in the bank's technology adaptation causes a subsequent significant increase in the implementation of online banking in Family Bank Limited. In this regard, the linear regression model is $y = 0.9 + 0.67x$. The results were summarized in Table 2 below.

Table 2: Coefficients[a] for Bank's Technology Adaptation

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	0.896	0.076		11.72	0.000
Bank's technology adaptation	0.668	0.046	0.719	14.44	0.000

a. Dependent Variable: Implementation of online banking

Bank's Management Support System

The bank's management support represents the second research question in this study. The research was interested with the influence of the bank's management support system to the implementation of online banking. The research found out that there is a statistically significant effect of the independent variable to the dependent variable. This is because the value 0.000 from the sig column is less than 0.05 level of significant. Moreover, the value also implies than the regression model is a good fit from the data set between the two variables. The results were summarized in Table 3 below.

Table 3: ANOVA for Bank's Management Support System

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	41.017	1	41.017	69.052	.000[b]
	Residual	115.744	195	0.594		
	Total	156.761	196			

a. Dependent Variable: Implementation of online banking
b. Predictors: (Constant), Bank's management support system

The regression model in this case is linear due to presence of one explanatory and one response variable. Therefore, the coefficients of the linear regression are 1.019 and 0.528, where the latter represents the slope of the linear line. The regression equation is $y = 1.02 + 0.53x$. The results of the regression model are summarized in Table 4 below.

Table 4: Coefficients[a] for Bank's Management Support System

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	1.019	0.142		7.181	0.000
Bank's management support system	0.528	0.063	0.512	8.313	0.000

a. Dependent Variable: Implementation of online banking

It should be noted that the bank's management support system is significant to the model mentioned above. The slope 0.528 of the line of best fit is positive meaning that as the management increases their support systems it causes a significant increase in the implementation of online banking. Therefore, the adoption of the online banking platform depends on the support systems from the management within Family Bank Limited.

Bank's IT System Capacity

The IT capacity is very important in the adaptation of the online banking by Family Bank Limited. The research found out that the sig. column in the ANOVA output (see table 5) shows that the regression model has a p-value of 0.000 which is less than 0.05 significance level. Thus, it was concluded that the linear model developed fits pretty well to the data points.

Table 5: ANOVA for Bank's IT Capacity

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	65.779	1	65.779	134.793	.000[b]
	Residual	95.145	195	0.488		
	Total	160.924	196			

a. Dependent Variable: Implementation of online banking
b. Predictors: (Constant), Bank's IT system capacity

Therefore, the coefficients of the linear regression are 0.547 and 0.716 representing the y-intercept and slope respectively (Table 6). The regression equation is $y = 0.55 + 0.72x$.

Table 6: Coefficients[a] for Bank's IT Capacity

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	0.547	0.112		4.903	0.000
Bank's IT system capacity	0.716	0.062	0.639	11.611	0.000

a. Dependent Variable: Implementation of online banking

Bank's Customer Attitude

From the literature review, the customer's attitude is fundamental in the implementation of online banking. The satisfaction, cost effectiveness, security of the online platform and the relevance of the online platform is vital in determining the attitude of the customers. In this research, the customer's attitude was the fourth hypothesis. The model is a good fit for the data and also the bank's customer attitude has a statistically significant effect on implementation of online banking. This is due to the p-value of 0.000 which is less than 0.05 level of significant. Table 7 represents the summary of the findings regarding the bank's customer's attitude.

Table 7: ANOVA for Bank's Customer Attitude

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	60.387	1	60.387	180.80	.000[b]
	Residual	65.044	195	0.334		
	Total	125.431	196			

a. Dependent Variable: Implementation of online banking
b. Predictors: (Constant), Bank's customer attitude

Since the model is a good fit for the data, it is vital to determine the equation of the regression model. The coefficients table below (Table 8) shows that the slope of the line is 0.579 units while the constant term in the model is 0.607 units.

Table 8: Coefficients[a] for Bank's Customer Attitude

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.607	0.101		6.012	.000
	Bank's customer attitude	0.579	0.043	0.694	13.455	.000

a. Dependent Variable: Implementation of online banking

The positive nature of the slope implies that an increase in the customers' attitude causes an increase in the implementation of online banking in Family Bank Limited. In this regard, the regression model is given by y = 0.607 + 0.579x.

CONCLUSIONS

The research established that technology adaptation had a positive contribution on the implementation of online banking system in Family bank limited. This study reveals that the bank has taken necessary measures to protect it from fraudsters and hackers. The move was as recommended by Gefen, Karahanna & Straub (2015) to prevent key logging, phishing, pharming and other browser related attacks. The study also found that the bank uses modern technology in its operations; in this case it has adopted online banking as recommended in a study by Wafula (2014). The study also found that technology adaptation was cost effective as opposed to the findings of Waweru (2015). Furthermore, the use of online banking was reported by all the respondents. This implies that technology has a wider penetration in the banking sector as opposed to the findings of Mohamed and Kathy (2015).

The study found that the management was supportive to the employees through staff motivation and development programs. The management also supported the organization in cost cutting initiatives and also guided the customers on how to enrol for online banking by providing relevant information to the users of the online platform. These findings conform to Seounmi (2012) findings that management must understand their supportive role for effective management in an organization. The findings further agree with those of Gikandi and Bloor (2010) that the managers ought to know the importance of their support role in the whole organization.

The findings on the IT system's capacity reveal that the IT department is competent enough to balance between the need for bank security, cost reduction and customer convenience. These are elements that Beldad, De Jong and Steehouder (2010) suggested that they must be balanced by any bank. The findings further complement the suggestions made by Mohamed and Kathy (2015) that the employees should be well trained to carry out their functions. Araujo and Araujo (2015) recommended a well remunerated disciplined staff to prevent collusion with fraudsters. The findings point to the fact that the IT department employees possess a high level of integrity.
The findings on customer attitude indicate that Family Bank Limited has provided a convenient, cost effective, easy to use platform that is always available 24/7 to its customers. Aladwani (2014) noted that customers prefer online banking because it is always available, easy to use, convenient and cost effective. Furthermore, Chau *et al*., (2013) established that customers fear using online banking because of information security reasons. Family Bank limited has bridged this gap by ensuring that customer information is secure.

RECOMMENDATIONS

This study recommends that studies should be done to provide solutions as to how banks top management reservations about the implementation of online banking strategy could fully be improved. The study also recommends that future scholars should undertake more studies to improve the body of knowledge on determinants of online privacy concern and its influence on privacy protection behaviors among customers. Additionally studies should be done to provide solutions to improve management support of online banking; a comparison of online banking among African countries to see emerging trends; and finding ways to make online banking embraced by the unbaked as an affordable way of banking. Lastly the study recommends that there is need to improve the adoption and the implementation security infrastructure of online banking system in Kenyan banks.

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