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Determinants of Adoption and Usage of Banking Innovations by Consumers for Competitive Advantage: A Case of Banks in Nakuru County

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Abstract: ***This study purposed to examine the determinants of adoption and usage of banking innovations by consumers for competitive advantage. Its objective was to establish the extent to which ease of use of bank innovations influence adoption and usage of banking innovations by consumers. Descriptive research design was used for the study. 25 banks were selected, with a sample size of 325 each having 13 bank clients being interviewed. Questionnaires were used to collect data. Analysis of data was done using Statistical Package for Social Sciences (SPSS). Descriptive statistics used percentages, frequencies while correlation analysis tested the relationship between independent and dependent variables. The study found out that there is a relationship between ease of use and adoption and usage of innovations by banks r= .646, p= .000< α (0.05). Thus conclusions were made that ease of use of technology highly determines the adoption and usage of banking innovation. The study thus recommended that a market research should be undertaken before rolling up of any new banking technology to educate and prepare bank users on what awaits them.***

Keywords: Technology, Ease of Use, Innovation**.**

1. Introduction

Rapid changes in the financial services environment, increased competition by new players from non-banking sector, product innovations, globalization and technological advancement, have led to a market situation where battle of customers is intense. In order to rise to the challenges, service providers are more interested in enhancing their understanding of consumer behavior patterns.

In recent years, developments in information technology and the subsequent evolution of banking innovations have fundamentally changed the ways in which banks implement their business and how consumers conduct their everyday banking activities. Northern European countries are among the most advanced ones in the adoption and use of different mobile and technological appliances and these countries have extended the implementation of technological advancement in banking services [1]. In Finland, payments and account management products over mobile phones as SMS (Short Message Service) service have been available over one decade, exactly since 1992,Television-based banking since 1998 and banking via mobile Internet since 1999[2]. Finnish customers conduct their routine banking mainly via Internet, over 70 % of the customers visit a branch office less than twice a year. The number of branches in Finland has been shrinking in rhythm with increased Internet banking usage [3]. At the moment Internet is also the leading electronic banking channel elsewhere, where the electronic delivery channels have been introduced, although telephone banking seemed to have toehold on the British financial services market [4].

Currently, South Africa's four main domestic banks, First National Bank (FNB), Standard Bank, Nedbank and Absa are offering Internet banking services. These banks are investing billions of rands on Internet banking to encourage customers to adapt to this innovation. Absa predicts an Internet population of 3.2 million by the end of 2002, and plans to recruit 10 000 users to the service a month. The bank has offered free Internet Service Provider service in order to encourage the use of the Internet and Internet banking. The offer includes five email addresses and 10MB of free web space. Absa hopes the publicity surrounding the service will generate enough interest in Internet banking to double their customer base. Absa currently has 153,000 customers who make use of online banking services, a 33% market share, second only to Standard Bank's 35%. Ned bank has approximately 70,000 online users [5]. Apart from the domestic banks, there is a new type of bank emerging in South Africa and worldwide called the virtual bank. The major difference between the virtual bank and other banks is the fact that a virtual bank does not have a physical presence, or a brick-and-mortar building. Nevertheless, this bank performs most of the services provided by the brick-and-motor banks with regard to Internet banking.

Back home in Kenya, the remarkable gains made towards mobile phone access have seen a steady progress in the scope of innovations emanating from exploitation of these fairly new technologies. What has characterized the Kenyan mobile landscape is a rapid uptake of various key among them the mobile based products. Mobile banking is one innovation which has progressively rendered itself in pervasive ways cutting across numerous sectors of economy and industry. An appropriate banking environment is considered a key pillar as well as an enabler of economic growth [6]. With the continuously emerging wave of information driven economy, the banking industry in Kenya has inevitably found itself unable to resist technological indulgence. The need for convenient ways of accessing financial resources beyond the conventional norms has seen

the recurrent expansion and modernization of banking patterns. And given the huge demand for finance oriented services, institutions beside the historical banks have joined the fray in an attempt to grab a piece of the perceived cake of opportunity within the banking industry. According to Financial Sector Deepening Kenya (FSD Kenya), the most recent data available indicates that only 19% of adult Kenyans have access to a formal, regulated financial institution while over a third have no access to even the most rudimentary form of informal financial service. This leaves a percentage of more than 80% outside the bracket of the reach of mainstream banking.

Banking sector in Kenya has been substantially influenced by advancement in technology more so; internet. As more and more financial institutions launch their Internet banking innovations, examinations of factors critical to customer adoption decisions become increasingly important. The study intends to examine the adoption and usage of different banking innovations due to rapid changes in the financial services environment; increased competition by new players from non-banking sector, product innovations, globalization and technological advancement, have led to a market situation where the battle for customers is intense, particularly in Nakuru County which is witnessing a rapid increase of new banks. In order to rise to the challenges service providers are more interested in enhancing their understanding of consumer behaviour patterns.

1.2 Statement of the Problem

All the adoption models are developed for studying technology adoption in developed countries; however, technology adoption in developed countries might be different from those of developing countries as the challenges are different in various contexts. In most developing countries e-commerce adoption has been inhibited by the quality, availability and cost of accessing infrastructure. Therefore, there is a demand for an adoption model for developing countries and particularly need for understanding of factors that influence adoption and usage of banking innovations. Most research has taken place on banking innovations mainly internet banking and mobile banking and their adoption, with focus on the ease of use as the prime determinant of user satisfaction and adoption. As the field expands over the years, it is not correct to say that ease of use can be the only determinant of an individual's adoption behaviour. Internet related banking innovations have gained special attention in the past few years especially with technological advancement in Kenya. The key reasons are cost and time savings from branch visit and great desire to reach the consumers by the banks. This study focused on determinants of adoption and usage of banking innovations by consumers for competitive advantage In Nakuru County.

1.3 Objective of the Study

To establish the extent to which ease of use of bank innovations influence usage of banking innovations by consumers for competitive advantage.

1.4 Research Question

How does ease of use of innovation influence usage of banking innovations by consumers for competitive advantage?

1.5 Scope of the Study

The study focused on bank customers selected randomly from 25 banks in Nakuru County. The county has witnessed tremendous growth over the years as a result of having a transit town, a tourist destination and has favorable climatic conditions.

2. Theoretical Framework

2.1 Diffusion of Innovations

The DOI postulates that the innovation decision process is characterized by five stages: knowledge, persuasion, decision, implementation and confirmation. In the knowledge stage the individual or household is exposed to the innovation‘s existence and gains understanding of how it functions. However even after knowing about an innovation, individuals may need to be persuaded to use it because they do not regard it as relevant to their situation. The outcome of the persuasion stage is either adoption or rejection of the innovation. The implementation stage is when an individual puts an innovation into use and the final stage is confirmation during which the individual seeks reinforcement for the decision made. [7] Identifies five attributes upon which an innovation is judged. These are relative advantage, compatibility, complexity, triability and observability. Relative advantage refers to the degree to which an innovation is perceived as better than the practice it replaces. Relative advantage is often expressed in terms of economic, social or other benefits. Compatibility refers to the degree to which an innovation is perceived by potential adopters to be consistent with their existing values and practices. Compatibility with what is already in place makes the new practice seem less uncertain, more familiar and easier to adopt. Complexity refers to the degree to which an innovation is considered as a difficulty to understand and use. If potential adopters perceive an innovation as complex, its adoption rate is low. Triability refers to the extent to an innovation may be subjected to limited experimentation. Finally, observability refers to the degree to which the results of an innovation are visible to others. This theory posits that innovation spread gradually over time and among people resulting in various adopter categories. The result is an adoption process that forms a normal S-shaped curve when plotted over time [7]. Roger attributes this distribution of adoption to the role of information, which reduces uncertainty in the diffusion process.

Based on this arguments Rogers has classified adopters into five categories: innovators, early adopters, early majority, late majority and laggards. Innovators are described as individuals who are venturesome, eager to try new ideas and take risk. Early adopters are described as the local opinion leaders in the system that function as the role models and are quick to see the value of innovations. Early majority is form

the largest category. These people only make a decision when they are convince of the benefits. Late majority are cautious and skeptical persons who do not adopt until the late majority has done so. They are usually the relative poor and are averse to risk. The last group of adopters is the laggards. They are suspicious of innovations and change agents. They are usually poor and seldom take risks.

Conceptualizing the DOI into technology adoption by bank clients, then it is important to consider the five stages as advanced by Rogers, bank clients need to have the needed knowledge on the innovation to use. This is followed up by persuasion, while persuading the clients; the advantages of certain technology have to be shown in line with the perceived benefits to the customers. A decision on whether the customers will adopt the given technology further is important which is followed by implementation and lastly confirmation. The categories by Rogers are further applicable when looking at competitive advantage in adoption and use of banking innovations. In every innovation, there are individuals who are innovators, they come up with an idea and have a blue print on how the technology in question should be used. Early adopters are those who adopt the technology first, in this case those working in the banking sector would want to adopt a given technology so that they are aware of how the technology works while trying to convince other users. The other subsequent categories; early majority, late majority and laggards come help make useful deductions on how technology is used.

2.2 Technology Acceptance Model

Technology acceptance model tries to explain how users come to accept and use technology. This theory puts emphasis on usefulness and ease of technology as determinants of acceptance and finally adoption. Usefulness of a technology is the degree to which a person believes using a particular system would enhance their job performance while ease of use is the degree to which a person believes that using a particular system will not require any effort [8]. Competitive advantage determines how bank customers will embrace use of technology. This however has to be in line with how easy the technology will be and its perceived usefulness. If bank clients regard use of modern technology to help in reduction of bureaucracy as presented by traditional banking then it's perceived usefulness helps to enable adoption. The relevancy of this theory will enable adoption of technology and dissemination of important knowledge on lessons learnt.

3. Literature Review

[9] Identifies ease of use as one of the three important characteristics from a customer's perspective for adoption of innovative service. [10] Indicate in their studies in USA and UK respectively that ease of use as one of the factors for customer acceptance of electronic banking. [11] Suggested that it is crucial for the Internet to be easy to use to increase its adoption rate. [12] Identified the understanding of consumers as an important element for the diffusion of innovation technology. For successful implementation of Internet and mobile banking, banks must ensure that the services are simple, easy and of sufficiently high quality to ensure customer satisfaction in order to maintain online customers.

The newly emerged mobile banking innovations represent an innovation where both intangible service and an innovative medium of service delivery employing high technology are present. Thus, concepts of innovation and diffusion of innovation are even more intricate as technology and service aspects have an effect on the characteristics of mobile banking innovations [13]. Traditionally research relating to the customer adoption of innovation has tended to concentrate on socio-demographic and psychographic attributes of potential adopters. Even though these kind of personal characteristics of a consumer have found to be predictors of adoption [14], an increasing body of research has demonstrated that it is the perceived attributes of innovation itself rather than the personal characteristics that are the stronger predictors of the adoption decision [15]. In the search to understand consumers' adoption of innovation, and where research has focused on the consumer perspective, Rogers' diffusion model, which originally dates back to 1962, has often been employed [4]. [12] Have applied Rogers' model to Internet banking. The current study seeks to identify factors that determine the adoption and usage of banking innovations in a local situation due to advancement in technology and expansion of banking industry in Nakuru, Kenya. [16] Are of the view that most research has taken place on banking innovations and their adoption, which focuses on the ease of use as the prime determinant of user satisfaction and adoption.

Due to the increasing penetration of mobile phones even in poor communities, mobile-phone-enabled banking (m-banking) innovations are being increasingly targeted at the "unbanked" to bring formal financial innovations to the poor. Kenya having 38% of her population as unbanked mobile banking will be useful in bridging this gap. Out of this people 54% have access to mobile phones either through family and friends or their own phones. With Kenyans accessing mobile phone services e.g. M-Pesa, Zap, banks will broaden delivery of financial services thus increase rural coverage and penetration "National survey on access to financial services in Kenya by Central Bank of Kenya. The survey further noted that the way forward will be to appreciate that payment systems will remain dynamic resulting to new opportunities, market requirements and technological development. Research in understanding actual usage and adoption by this target population, though, is sparse. There appear to be a number of issues which prevent low-income, low-literate populations from meaningfully adopting and using existing m-banking services and most of them focus on the ability of the user to understand and operate them with ease.

According to Rogers [7] the perceived innovation characteristics are supposed to provide the framework on how potential adopters perceive an innovation. Research that has investigated the product characteristics of innovation has generally endorsed evaluating the innovation along the product characteristics that involve five constructs; relative

advantage, compatibility, complexity, trialability and observability [17]. Particularly in banking innovations the perceived risk associated with the financial product itself as well as with electronic delivery channel is higher than in basic consumer goods, and hence increasing the importance of this attribute of innovation [18]. Ensuring security and confidentiality are the fundamental prerequisites before any banking activity involving sensitive information can take place [18].

4. Methodology

Descriptive research design was used for the study. The design was appropriate as it involved collection of information from a cross section of respondents selected from banks operating in Nakuru County which was the study area. The target population included 25 selected banks. A sample size of 325 banks was used, with each bank having 13 bank clients that were interviewed. Systematic random sampling technique. Closed ended questionnaires were used as data collection tools. Analysis was done using descriptive and inferential statistics with the aid of SPSS (Statistical Package for Social Scientists).

5. Findings and Conclusion

5.1 Back Ground Information

The response rate for the study was 75% with more male than female respondents; additionally most of the respondents were young between the ages of 25-30 years with a Bachelor degree as the highest level of qualification. On banking experience many most of the respondents had banked between 6-10 years.

5.2 Ease of Use of Bank Innovations

The study sought to establish the extent to which ease of use of bank innovations influence adoption and usage of banking innovations by consumers. Statements were given on a five point likert scale with a maximum of 5 to mean "strongly agree" and a minimum of 1 implying "strongly disagree". The results are presented in Table 4.5.

Table 1: Descriptive Statistics for Ease of Use

	N	*Min*	*Max*	*Mean*	*Std. Dev*
Internet and Mobile banking are easy to use for the customers	244	1	5	3.10	1.455
Ease of use among consumers has increased diffusion of technology among consumers	244	1	5	2.57	1.155
Ease use of internet has increased adoption rate among consumers	244	1	5	2.44	1.539
Ease of use of M-Pesa, Zap has increased increase rural coverage and penetration.	244	1	5	3.47	1.355
M-banking services are easy to use and operate among rural consumers	244	1	5	2.71	1.494
Valid N (listwise)	244				

Upon ranking the means, the study established that with a mean of (3.47) ease of mobile money transfer which is inform of Mpesa and Zap had increased rural coverage and penetration. This is true as mobile money transfer has revolutionised use of technology in the banking industry increasing the rural coverage and penetration. With a mean of (3.10) the study established that internet and mobile banking are easy to use for their customer with a standard deviation on 1.455 implying the deviation were over 1 point away from the mean. Other means ranked to a smaller extent; M-banking services are easy to use and operate among rural consumers (2.71) implying that much as there is need for technology, rural bank customers might not have mastered its use as expected thus reduces on its adoption. Individuals will adopt technology if it is easy to use, just as postulated by Davis in his technology adoptions model. Ease of use among consumers has increased diffusion of technology among consumers (2.57) this implies that customers share the positive attributes of technology and influence its use to other customers. This can however happen if the technology in question is easy to use, this attribute rated to a moderate to small extent. Ease use of internet has increased adoption rate among consumers (2.44) this mean is on a small extent implying either customers have not adopted baking innovations as a result of ease of use of internet or internet use and banking innovations are not used in a coherent manner.

Comparing the different presented standard deviations, ease of use of Mpesa and Zap were close to their means thus not widely dispersed and further indicating the individual responses on average were a little over one point away drawing conclusions that ease of use is a very important element while considering adopting and using banking innovations by customers. The standard deviation of this attribute is further widely dispersed implying differences in in responses among the respondents ranging from strongly agreeing to strongly disagreeing thus responses that are not unanimous.

There was need to determine the relationship between ease of use of banking innovation and its influence on adoption and usage of banking innovations. A correlation analysis was undertaken to this effect as depicted in Table 4.6

Table 2: Correlation between Ease of use and Adoption and usage of Banks Innovation

		Adoption and Usage of Banks Innovations	Ease of use.
Adoption and Usage of Banks innovation	Pearson Correlation	1	.646**
	Sig. (2-tailed)		.000
	N	244	244
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 2 shows there is a positive strong correlation between ease of use and adoption and usage of innovations by banks. This is depicted by r= .646, the relationship is further significant at p= .000< α (0.05). The findings imply that an increase in technology being easy to use definitely leads to an increase in its adoption and usage.

6. Summary and Conclusion

Ease of use of bank innovation is an attribute desired by most bank users. Use of mobile banking and other money transfer services pointed to technology being appreciated both in rural and urban areas (Mean 3.47) as this kind of technology is easy to use (Mean 3.10). A relationship existed between ease of use and adoption and usage of innovations by banks r= .646, p= .000< α (0.05). Increase in ease of use in banking technology and innovations leads to an increase in adoption thus offers a competitive advantage to banks.

It was concluded that Ease of use of technology highly determines the adoption and usage of banking innovation. Most of the Technologies that have been adopted by customers widely can be attributed to their ease of use. It is thus concluded that ease of use increases a banks competitive advantage thus increased usage of banking innovation.

7. Recommendation

A market research should be undertaken before rolling up of any new banking technology, this will serve to educate and prepare bank users on what awaits them. Banks should also educate consumers on the features, use and benefits of any innovation that they roll out into the market for the consumption by their clients. This would lead to better understanding of the innovations by the clients and hence better choices made regarding adoption and usage of the innovations. As a result the overall usage of the innovations would go up translating into higher revenue by the banks

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