

Perceived Usefulness (PU) and Perceived Ease Of Use (PEOU) as Key Drivers of Mobile Banking Adoption. A Case of Zimbabwe

Linda C. Gumbo*¹, Douglas Halimani¹, Misheck Diza¹

¹Great Zimbabwe University, Department of Banking and Finance

ABSTRACT

The traditional brick and mortar buildings labeled “Banks” are fast becoming a historical notion being replaced by electronic, paperless and virtual money. Globalisation has ushered a new era resulting in availability of mobile phones to the larger populace of the world despite physical location. Mobile networking has created a platform that has seen acquisition of mobile phones which in turn has accorded billions of people Self Service Technologies (SST). These services know no boundaries. This paper seeks to explore two determinant variables of the Technological Acceptance Model (TAM) which have become major variables in the implementation of mobile banking projects. Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) are arguably the cornerstones if mobile banking is to be successfully implemented, and hence adopted, in these financial services sector advancements. This Paper seeks to hypothetically explore the argument that PU and PEOU have the greatest impact on the implementation of mobile banking projects when considered in relation to other factors. The case of the mobile banking situation in Zimbabwe will be explored.

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**Corresponding author:*

lgumbo@gzu.ac.zw
(Linda C. Gumbo)

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INTRODUCTION

Globalisation, which opened doors to new modes of doing businesses such as E-commerce, has opened access to massive Shared Technologies (ST) across the globe (Govender and Sihlali, 2014). These technological innovations have been identified to contribute to the distribution channels of commercial activities, banks not being spared; and these electronic delivery channels are collectively referred to as internet banking in the banking sector. The evolution of banking technology has been driven by changes in distribution channels as evidenced by Automated Teller Machine (ATM), Mobile banking, Tele-banking, PC-banking and most

recently Internet Banking (Chang, 2003 and Gallup Consulting, 2008). This has been wide spread in the whole world and Africa was not spared, particularly in Zimbabwe.

Internet Banking in Zimbabwe figures released by the Reserve Bank of Zimbabwe (RBZ), Governor Gideon Gono in November 2010 showed that cumulative total of mobile and internet transactions amounted to four hundred and fifty seven thousand (457 000) valued at US\$193 million were processed from January to November 2010 (Reserve Bank of Zimbabwe Bulletin, 2010). Of these transactions mobile banking transactions amounted to 99 percent and other payments 1 percent. According to the *Monetary Policy* for January 2012 the Governor further pointed out that mobile banking constitutes 30% of the total retail values. During 2011, internet values increased significantly by 132% to US\$ 532 million from US\$ 230 million in 2010.

Mobile banking was introduced in Zimbabwe in early 2003 at a very small scale. Concomitantly volumes increased from 85 thousand in 2010 to 196 thousand in 2011(GSMA, 2014). These figures proved that mobile banking is taking over the market. Figure 1 below clearly illustrates the fact that mobile banking technology has penetrated the African market extensively. The African continent is one of the world’s poorest regions with most of the population residing in rural areas with very little access to modern conveniences, especially financial services. The main thrust of the implementation of these mobile banking projects has been to reach the so-called ‘unbanked’ population.

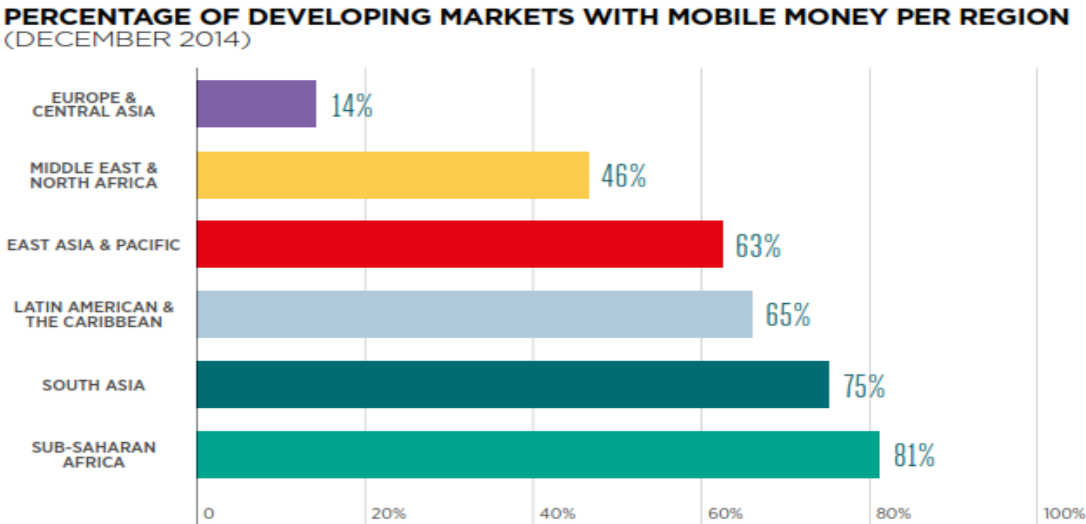


Fig 1: Mobile Banking Markets Worldwide

Source: GSMA Discussion Paper: Smart Phones And Mobile Money

Standard (2004) argue that private banks were the early adopters of mobile banking while the public banks are also beginning to use the same banking facility. Mobile banking in Zimbabwe is concentrated mainly in the commercial banks and a few building societies which specialise on retail banking. According to the Reserve Bank of Zimbabwe (RBZ) Monetary Policy Statement (2015:21), there are 19 operating institutions, comprising 14 Commercial banks, 1 Merchant bank, 3 Building Societies and 1 Savings bank, in Zimbabwe of which almost 50% of them provide mobile banking services. Some commercial banks, notably, First Banking Corporation, Merchant Bank of Central Africa and Commercial Bank of Zimbabwe are currently the leading banks to have introduced mobile banking for a limited range of services such as access to account inquiries; funds transfers and loan applications.

According to Jeong and Yoon (2013) mobile banking is the latest and most advanced service and is the new trend among banking services consumers. The transformation from the traditional banking to mobile banking in Zimbabwe has been tremendous. Chishamba (2010) propounded that, at basic level, mobile banking can be defined as the setting up of a web page by a bank to give information about its products and services. At an advanced level, it involves provision of facilities such as accessing accounts, transferring funds, and buying financial products or services online using a computer, tablet or any mobile phone, thus transactional online banking. Mobile banking helps consumers in conducting fast and convenient financial transaction activities.

According to Yu (2013) despite the numerous perceived benefits for customers, the actual usage of mobile banking has been moving at a fast rate reaching people in remotest areas not anticipated before and thus activities are shifting from formal banking sector to private mobile banking service providers without much to do with the original banking culture.

The traditional branch based retail banking system is still a prime method of conducting banking transactions in Zimbabwe even though due to bank-runs, most banks have been seen closing shop and consumer traffic to the bank is dwindling at a faster rate. Gone are the days when most clients rely on visiting the banking hall to do their transactions in Zimbabwe save for the civil servants, who not by their choice but because of government which is trying to create business for banks are forcing them to receive their salaries from the banks.

According to Chitungo and Munongo (2013) mobile banking was taken over by mobile network providers for the convenience of service provision in Zimbabwe. Unlike anywhere else in Africa where service providers could be any corporate, in Zimbabwe, mobile service providers had access to software that provided mobile banking services since they were owners of mobile service provision companies. The largest mobile banking service provider, Econet Wireless Zimbabwe, enjoyed the technological advancement as it was the trend setter, whereby it enjoyed the lion share of the mobile banking consumers in Zimbabwe. This was soon short-run with introduction of fierce competition from other mobile service providers like Telecel and TelOne.

Chishamba (2010) and Dube et al, (2009) argue that mobile banking in Zimbabwe has been extended to bill payments, buying airtime, retail purchases, money transfers and checking account balances. The use of mobile banking has seen the majority of people in towns as well as in rural areas being active participants in financial activities with networks clamouring to setup receivers and boosters everywhere in rural areas. This has seen the integration of money movements whereby the urban people, where larger percentages of cash have been concentrated shifting also to rural areas which proportionately increased financial inclusivity of people in rural remote areas being able to transact on daily basis in lieu with urban folks (GSMA, 2014).

According to Saltan (2009) mobile banking is likely to be offered to more than 61% of the world population and in Zimbabwe the effects are evident. According to GSMA(2014) report, 2.5 billion people in the developing world have no access to formal financial services. Traditional banking structures face great challenges in trying to reach the ‘unbanked’ population, especially the market in the remote areas of any country. Consequently, these consumers are excluded from the activities of the formal economy. However, this same population does have access to a mobile phone and can therefore gain access to mobile banking technologies. The gist of this paper is to hypothetically argue the major influencing variables of the implementation of mobile banking service projects in Africa and particularly in Zimbabwe.

STATEMENT OF THE PROBLEM

If more than 61% of the world population is going to be using mobile banking then mobile banking projects should be increased (Kim and Kang, 2012). However, what does the implementation of mobile banking projects consider most as effective determining variables? Herein the original model of the Technological Acceptance Model come into play: perceived usefulness and perceived ease of use. These variables are isolated here as the major components of the Self Service Technologies applicable on the mobile phones and its therefore essential to determine the extent of their influence on the implementation of mobile banking projects.

OBJECTIVES

The objectives of this study are:

- To investigate the impact of PU on the implementation of mobile banking projects
- To investigate the impact of PEOU on the implementation of mobile banking projects
- To investigate the impact of other variables (excluding PU and PEOU) outlined in the extended forms of TAM on the implementation of mobile banking projects
- To explore the extent to which PU and PEOU influence mobile banking projects' ability to impact financial inclusion
- To explore the role of mobile banking in being a custodian of paperless money

MAJOR QUESTIONS

- To what extent does PU influence the implementation of mobile banking projects?
- What is the extent of the impact of PEOU on the implementation of mobile banking projects?
- How far do the other factors enshrined in the TAM impact mobile banking projects?
- To what extent are mobile banking projects financially inclusive?
- Is mobile banking taking over the role of traditional banks as a custodian of paperless money?

RELATED LITERATURE

Africa is the largest user of mobile banking technologies in the world. Mobile banking is fast becoming the 'be-all-and-end-all' of banking in this digitally dependent age. Mobile banking technology is opening the doors of the financial services sector to former marginalised groups in the economy, especially the so-called 'unbanked' population that resides mostly in the rural areas of the African continent. However implementation of these mobile banking projects has

to be cognisant of the fact that consumers take a variety of factors into consideration before taking up mobile banking technology.

Mobile Banking

According to Safeena *et al* (2011) mobile banking is a subset of electronic banking but it uses mobile telecommunications networks. The GSMA(2014:10) defines mobile banking as a service "...that relies heavily on a network of transactional points outside bank branches and ATMs that make the service accessible to the unbanked and under banked people....the service must also offer an interface for initiating transactions for agents and/or customers that is available on basic mobile devices...". This paper will therefore exclude those mobile banking services that serve as an alternative channel to access traditional banking services such as Mobile Moola, Textacash and other mobile banking services offered by traditional banks in Zimbabwe. Hence the focus will be on mobile banking as offered by mobile telecommunications providers.

The Technology Acceptance Model (TAM) and Mobile Banking

TAM is the most widely used and widely acknowledged model for technology adoption known to researchers. Safeena et al (2011) attest that it is commonly agreed in academic circles that the model is valid in predicting individuals' acceptance of new technologies. The model has two main components: perceived usefulness (PU) and perceived ease of use (PEOU).

Technology Acceptance Model (TAM) is becoming difficult to ignore as a tool to test the adoption of technology in the extant literature, which has been proposed by Davis (1989). Principally the model has been widely used to test customers' intention to accept or decline the use of any particular technology and in this case mobile banking adoption (Pikkarainen *et al*, 2004). The TAM is an adaptation of the Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980) specifically tailored for modelling user acceptance of new information technology (Davis, 1989). TRA suggested that social behaviour is motivated by an individual's attitude towards carrying out that behaviour.

Perceived Usefulness (PU) and mobile banking

Davis (1989) propounded that decision to use new technology is determined by the extent to which a person believes that it is cost effective in providing goods and services compared to current methods. Perceived usefulness is also defined as the degree to which a person believes

that using a particular technology will enhance his performance or boost his or her job performance (Davis, 1989). Perceived usefulness is also one important variable of Technological Acceptance Model (Araujo and Araujo, 2003; Noteberg et al, 2003). There are two main types of perceived usefulness and these are grouped as intended and unintended rewards (Lee, 2008). Lee (2008) propounded that the intended rewards are the immediate and tangible rewards that consumers enjoy using mobile banking services such as lower transaction fees, high deposit rates and opportunity to prizes among others. The unintended rewards on the other hand being those benefits that are tangible and tough to measure such as services that allow customers to perform banking transactions anywhere in the globe. Therefore if consumers perceive mobile banking to be useful, then they are more likely to adopt mobile banking. Empirical studies on TAM also suggested that perceived usefulness has a positive effect on the adoption of technology (Yiu et al, 2007).

Perceived ease of use (PEOU)

Perceived ease of use is the level at which a potential consumer of a technology believes a technology or a potential system is effortless as propounded by David *et al* (1989, cited in Pikkarainen *et al*, 2004). Davis *et al* (1989) on the other hand explained “perceived usefulness” to be the level at which potential user of a technology perceived the use of technology will enhance his or her performance. Perceived ease of use refers to the degree to which a person believes that using a particular system would be free of effort (Dholakia and Dholakia, 2004). Previous researches provide evidences of the significant influence of perceived ease of use on usage, either directly or indirectly through its effect on perceived usefulness (Agarwal and Prasad, 1999; Davis et al, 1989; Venkatesh and Morris, 2000).

Thus, Davis (1989) defines PU as the extent to which an individual believes that the use of a particular system enhances personal job performance. PEOU refers to how easy the system is to use; that is, the use of the system will be free of effort. These two factors are widely acknowledged to greatly influence individuals’ intention to adopt new technology (Chitungo and Munongo, 2013). The TAM has been extended to consider other factors that influence technology adoption. Other authors such as Chung and Kwon (2009) and Riquelme and Rios (2010) suggest that there are other factors that affect mobile banking adoption such as perceived risk, social norms, demographic factors and financial cost.

Though later research has indeed shown that other factors come into play when considering what influences the adoption of mobile banking technology (Matieson, (1991) it is widely accepted that PU and PEOU have the influence in the adoption of new technologies mainly mobile banking (Chitungo and Munongo, 2013). By construct therefore, these two variables are likely to have the greatest impact on the implementation of mobile banking projects.

Benefits of mobile banking technology

Mobile banking provides numerous benefits to both the customer and the service provider (Pikkarainen et al, 2004). Time, convenience and cost savings have been found to be other factors underlying mobile banking acceptance (Polatoglu and Ekin, 2001; Black et al.2002). Several studies have analysed consumer adoption and growth of mobile banking but few have detailed the major variables like PU and PEOU as major influence on mobile banking acceptance and implementation of these projects. Although mobile banking offers a variety of benefits to banks as well as to customers, majority of consumers are still to use mobile banking services. This situation might have been brought about by many reasons such as security issue among others (Mols et al., 1999). Hence, there is need to ensure adequate security in order to raise the confidence of consumers to use mobile banking.

Mobile Banking Implementation Models

In Zimbabwe, a communication service provider plays the major role in the provision of mobile banking services. Whilst banks are offering both internet banking and mobile banking or a service which combines both, there is much activity by communication service providers like Econet, Telecel and Netone, the later being a governmental entity while the other two, Econet and Telecel, are private organisations.

The largest organisation to introduce mobile banking through telecommunications infrastructure in Zimbabwe was Econet. The concept started with a few customers and a few shops involved but with wide acceptance Econet introduced Ecocash, which became a widely accepted technology with use almost everywhere including people paying for their daily transport in taxis and in shops (<http://www.econet.co.zw/about-us/history>). One only needs basic communication devices to have paperless money and to pay for virtually anything. Taxis and market owners and even farmers became agents of Ecocash. Everyone, everywhere was

being included, Ecocash becoming one of the most financially inclusive mobile banking structure ever active in Zimbabwe. Soon, there was introduction of Telecash from Telecel and then another from Netone. Today, banks are following suit.

The Zimbabwean Mobile banking model is as below:

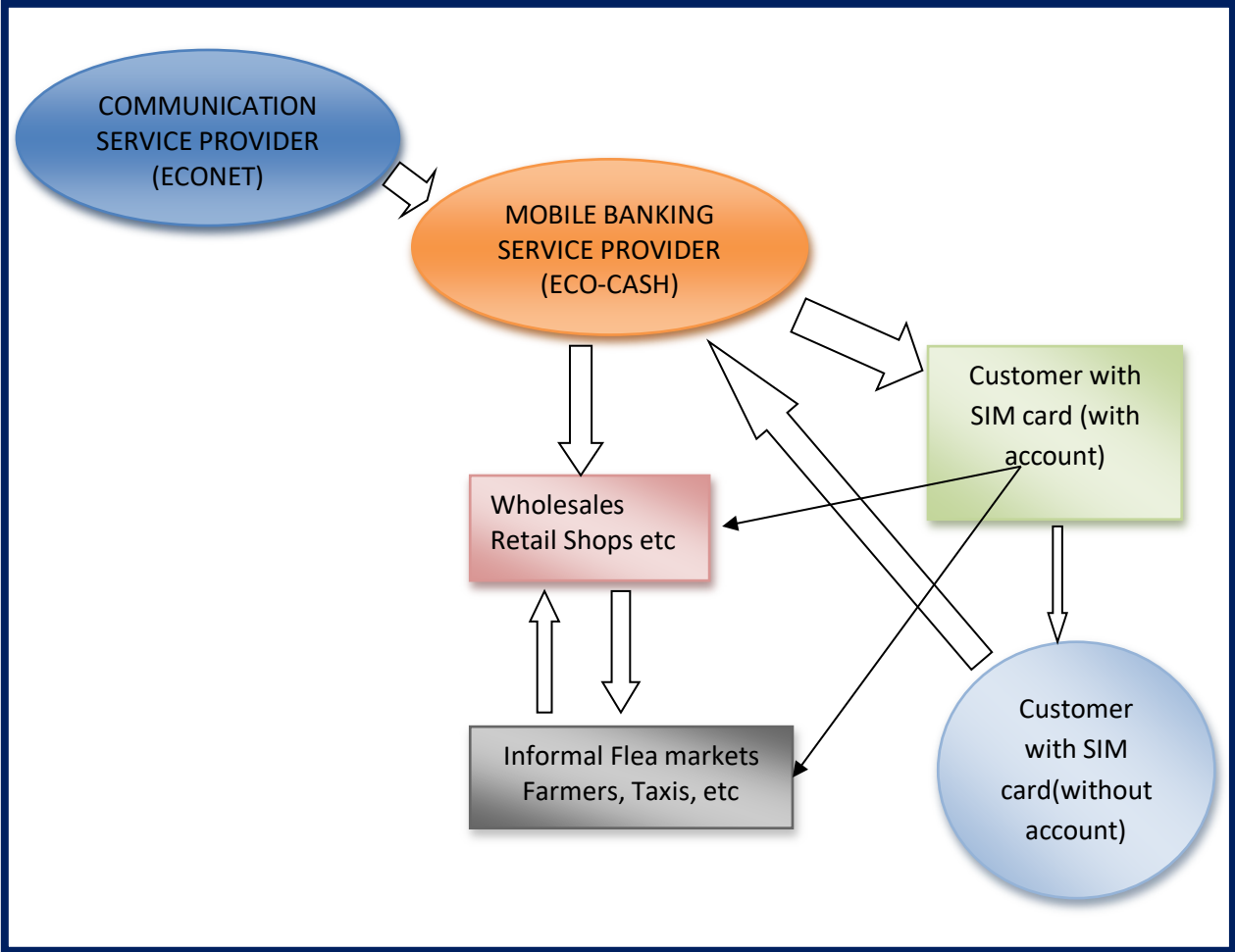


Figure 2: Zimbabwe Mobile Banking Model

Source: Author’s own

MATERIALS AND METHODS

Design

This paper used a descriptive design according to McNabb, (2004) to gather data that describes events and then organizes, tabulates, depicts, and interpret the data.

The researchers looked at the population of the mobile banking sector in Masvingo Province, thus, the mobile telecommunications providers and consumers of their services. However, the researchers conveniently decided to carry their study with specifically the largest telecommunications service provider operating in Masvingo City: Econet’s Ecocash.

Sample Design

The method which was mainly used was Purposive Non-probability sampling. The sample was taken to be a true representative of the entire population and the results derived, enabled the researchers to draw reasonable conclusions from the data with a sample size of 350.

Table 1 The Sample Constitution

<u>Respondents</u>	<u>Number</u>
Mobile banking service users (Ecocash)	200
Ecocash Agents	50
Ecocash non users	100
Total	350

Data Collection Methods and Instruments

The instruments used to collect data included questionnaires and interviews. These tools were used to collect data from both people with influence on implementation of mobile banking projects, thus, the workers at Econet, Ecocash agents and users who are account holders, of mobile banking services as well as non-users who are not account holders but receive mobile banking services from account holders.

RESULTS AND DISCUSSION

Response Rate

A sample size of 350 people was chosen: The table below presents the respective response rate for each target group and the overall response rate as well.

Table 2: Response rate from the chosen sample

Target group	Questionnaires/Interviews	Actual Response(s)	Response rate (%)

Mobile banking service users (Ecocash)	200	147	73.5
Ecocash Agents (Account Holders)	50	40	80
Ecocash non users (Without Account)	100	63	63
Total	350	250	71.4

Source: Raw data

Distribution by Age

Table 3: Showing Respondents by Age

Age	Number of Respondents	Percentage %
Below 20	10	4
21-30	115	46
31-40	75	30
41-50	35	14
51-60	10	4
61 +	5	2
Total	250	100%

Source: Raw Data

The above table demonstrates different age groups of mobile banking users and non users. In this regard, more responses were received by researchers from younger age groups. The researchers believe that the reason of this is the growing interest of young people in the internet and technology and generally in products that offer convenience. According to the survey findings, 46% of the respondents were from the 21-30 age group, 30% respondents were from 31-40 age groups, 14% of respondents were from 41-50 age group, 4% of respondents were from 51-60 age group and 2% of respondents were from 61 + age group.

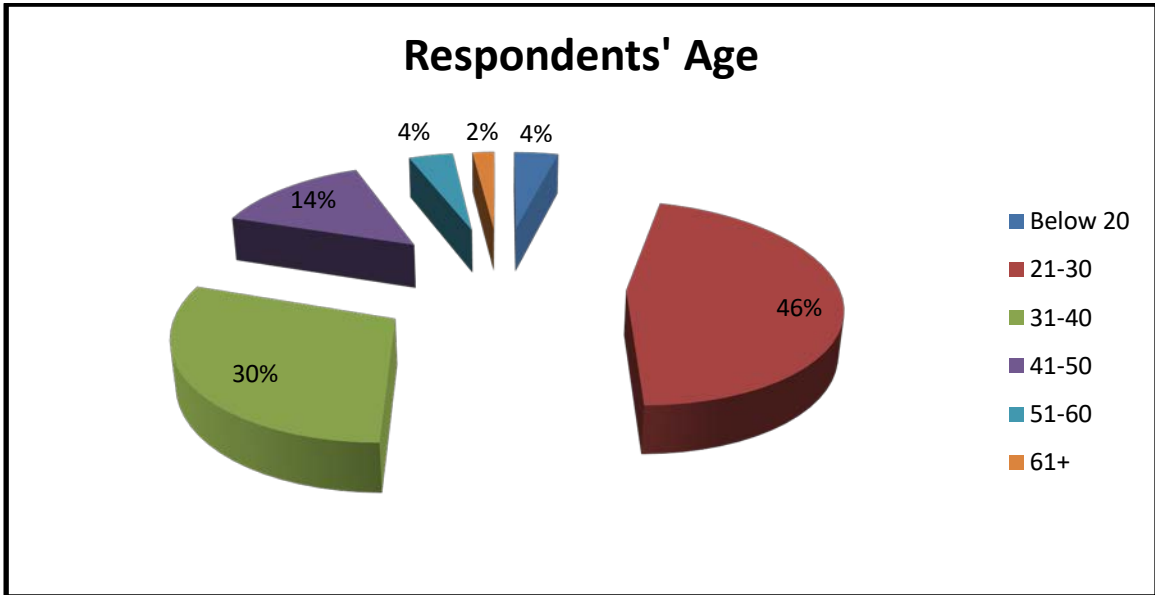


Figure 3: Pie chart showing distribution of respondents by age

Source: Raw Data

Perceived Ease of Use

According to the data collected from the survey as shown in the graph above, 83% (53% strongly agreed; 30% agreed) of the respondents believed that perceived ease of use of mobile banking services is important in the implementation of mobile banking projects. However, only 17% of the respondents thought differently. This is illustrated below:

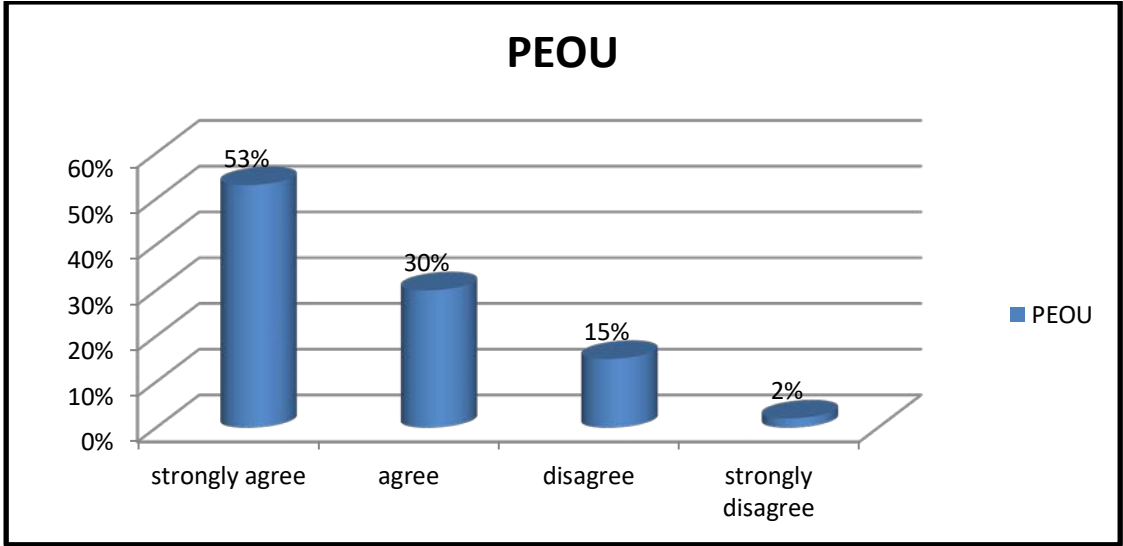


Figure 4: Perceived Ease of Use’s impact on implementation of mobile banking projects

Source: Raw Data

The survey results show that perceived ease of use is a very important and central aspect in the adoption of mobile banking projects. This shows that for mobile banking services to be adopted by majority of the population it should be effortless.

Perceived Usefulness

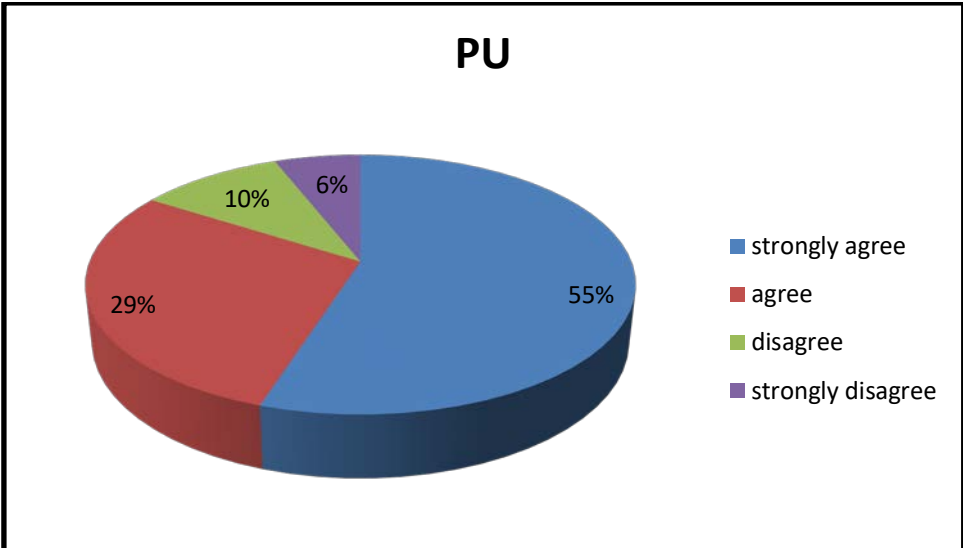


Figure 5: Perceived Usefulness’ impact on implementation of mobile banking projects

Source: Raw Data

The graph above shows that 137 of the 250 respondents, thus 55% of the respondents, strongly agree that perceived usefulness can inspire them to adopt mobile banking hence positively affecting the implementation of mobile banking projects. In addition, 29% of the respondents agreed to this, showing that if mobile banking services are perceived to enhance someone’s performance they can attract client to use these services. The researchers have reached to this conclusion since 84% of the responses gathered from the field show that clients are enticed by the usefulness of the services rendered resulting in the adoption of the service. Only a small number(16%) of respondents had a different view.

Having taken into consideration that majority of the respondents viewed perceived usefulness being a necessary factor to consider in relation to the implementation of mobile banking projects, the researchers can safely conclude that perceived usefulness can positively influence implementation of mobile banking projects.

Other Factors (Social Norms, Perceived Risks, Relative Advantages, Personal Innovativeness, Costs)

Respondents were asked to rank the various factors that may have a bearing on their adoption of mobile banking services. Chitungo and Munongo (2013) found that these other factors do have a significant impact on respondents' aptitude to adopt mobile banking technology. The focus of this paper is to ascertain whether or not, in spite of these other factors, perceived usefulness and perceived ease of use have the greatest impact on the implementation of mobile banking projects.

Table 4: Impact of the Various Factors Affecting Implementation of Mobile Banking Projects

Variable	RANK	Strongly Agree(%)	Agree(%)	Disagree (%)	Strongly Disagree (%)
<i>Perceived Usefulness (PU)</i>	1	55	29	10	6
<i>Perceived Ease Of Use (PEOU)</i>	2	53	30	15	2
<i>Perceived Risks (PR)</i>	3	41	28	20	11
<i>Relative Advantages (RA)</i>	4	38	32	15	15
<i>Costs (C)</i>	5	35	25	10	25
<i>Social Norms (SN)</i>	6	22	13	30	35
<i>Personal Innovativeness (PI)</i>	7	15	20	40	25

Source: Raw Data

The table above shows that PU and PEOU are the two variable that have the greatest impact on the implementation of mobile banking projects. The other factors are considered after them. Perceived risk ranks third, relative advantages(4), costs (5), social norms (6) and lastly personal innovativeness. This is in line with the results obtained by Chitungo and Munongo (2013).

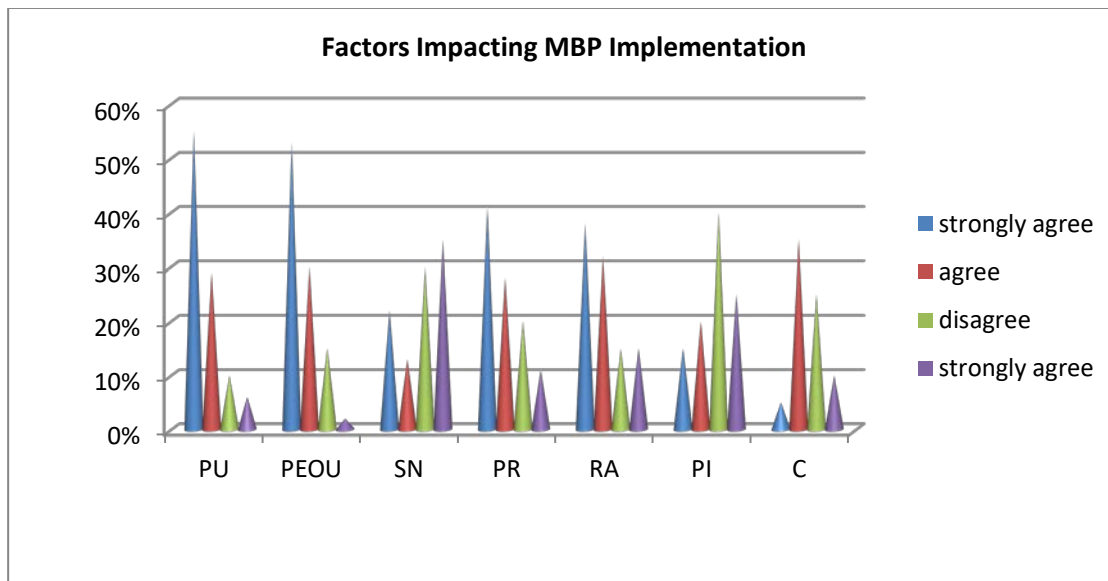


Figure 6: Ranking of Various Factors affecting Mobile Bank Projects Implementation

Source: Raw data

CONCLUSIONS

The research was carried out to know about the most important factors that influence the adoption of mobile banking projects in Zimbabwe. After reviewing various articles concerning mobile banking projects adoption, the information gathered shows that different articles and authors considered a number of factors that are critical in the implementation of mobile banking projects. However, among these different articles, some of the factors were cited repeatedly by different authors considering them as the most important factors regarding mobile banking projects implementation. From research findings it can be concluded that intention to adopt mobile banking project implementation is positively influenced by perceived usefulness and perceived ease of use respectively.

On the basis of these factors, questionnaire was designed and interviews were conducted in Masvingo to collect the data. In this regard 100 responses were collected from people in this city. The research results were mainly investigated on the basis of two concepts of Technological Acceptance Model thus, perceived ease of use and perceived usefulness since both are important in the adoption of information system. The results from the research shows that mobile banking website should be easy to use and appealing as it helps in the adoption of

mobile banking, which is supported by Loonam and O'Loughlin (2008) and Poon (2008), whereas poor navigation and poor design of the website creates difficulty in the usage of the service, which is against perceived ease of use and is mostly avoided by customers.

The other most important factor is perceived usefulness which comes in several dimensions. In this case, we consider quality of information on the mobile banking software on mobile phones, according to the research results simple and understandable information helps customers to perform mobile banking easily. However, with the help of clear, simple and understandable information, customers can perform transactions easily, so it reflects ease of use. Moreover, customers can also make right financial decisions on the basis of such information, which is the usefulness of the site. The findings regarding information quality are also supported by Poon (2008) that such information reflects ease of use and also helps in the adoption of mobile banking projects.

RECOMMENDATIONS

To the Mobile Banking Sector/Service Providers

Mobile Banking Services is becoming the most acceptable mobile technology today in the whole world. It is imperative that the banking sector should adopt mobile banking projects to keep abreast with modern times. Besides convenience, perceived usefulness and perceived ease of use have been found to be major variables of technological acceptance that they should consider on implementation of mobile banking projects which they should take also into consideration.

Banks/Service Providers must also emphasize the convenience that mobile banking can provide to people, such as avoiding long queue, in order to motivate them to use it, they must also emphasize the cost saving that online can provide to the people, such as reduce transaction cost by use of mobile banking. Customers always prefer advanced technology but sometimes lack the knowledge about how to access such technologies. The fact that people have positive perceptions about mobile banking should be treated with great value. This is because one bad experience can result in customer discontinuation of the banking service (Jun and Cai, 2001).

The banks/service providers should also ensure that the software to be used on mobile phones are designed well and to avoid a situation of slow downloading of pages and ensure that customers are able to find what they require, and avoid loss of possible repeated visits due to

negative experience in the beginning. Banks/service providers should also ensure that clear, simple and understandable information is available on their sites since it helps customers perform mobile banking transactions easily, which is the perceived ease of use (PEOU), since they will not face any challenges when accessing these services. Moreover, clear, simple and understandable information will be 'useful' for customers as well, which is the perceived usefulness (PU), because such information can help customers in making right financial decisions. Hence, clear, simple and understandable information is related to both key beliefs of Technology Acceptance Model (TAM) that is perceived ease of use (PEOU) as well as perceived usefulness (PU) and can help in the adoption of mobile banking projects.

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